One Montana Meat Processing Facility Feasibility Study

Awardee: One Montana

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Abstract

This report details the findings of a study determining the feasibility of constructing a new multispecies meat processing facility in Montana.

Marketing research was conducted to determine the desirability of Montana meat products at the consumer and retailer levels, and producers were surveyed to determine their level of interest in participating in a Montana-branded meat product. The marketing research found that "with the right economic conditions (see Task 2), it is possible the market for Montana meat brands could expand to the size and scale to warrant a new, medium-sized processing facility."

Facility design proposed a facility that could process up to 250 head of beef and/or bison daily. The cost of the plant was estimated at $43,982,976. An additional $20,000,000 was recommended as working capital.

Disposal of waste and wastewater were addressed through the use of an anaerobic digester and a Land Application System for wastewater.

Finally, economic factors were considered and in the fifth year of operation the plant was projected to "generate total local revenues of $329 million".

The overall outcome is that it is feasible to build a processing facility in Montana provided certain steps are taken and critical factors are in place. These factors are delineated in further detail in the report.
Executive Summary

The purpose of the project was to determine if it was feasible to build a multispecies meat processing facility in Montana that could process up to 250 head per day. Impetus for the project was significant interest from producers (both traditional and niche) across the state in having a processing facility that would be large enough to permit a paradigm shift in how meat processing was done in the state and would provide better economic opportunity and markets for ranchers and livestock producers in the state.

One Montana decided that because of the potential positive economic impact to rural and urban communities, this issue was important enough to warrant conducting a feasibility analysis. One Montana proposed the project to the Economic Development Administration and to the Big Sky Trust Fund (with funds administered through the Prospera Business Network) who, along with private individuals, funded $129,000 for the project.

One Montana divided the work on the project into the following categories:

a) Market Research
b) Labor Research
c) Conceptual Design Research
d) Economic Analysis
e) Wastewater and resulting impacts

MercuryCSC of Bozeman was retained to conduct the Marketing Research. The principal on the project at MercuryCSC was Maclaren Latta, Vice President of Consumer Insights. Subcontracted to work on Marketing Research was Kathryn Quanbeck, a meat processing consultant. Rod Bowling, PhD of Agrifoods Solutions Intl., was retained to work on facilities design and labor, with Mr. Chuck Pharr, Principal, of VCP&A subcontracted and contributed to facilities design. Dr. Belasco, Faculty, of the Montana State University Department of Agricultural Economics and Economics agreed to provide economic analysis and Mr. Thomas Bass, Livestock Environment Associate Specialist, Montana State University Extension Service, agreed to work on issues surrounding wastewater.

Work commenced in late 2013 and concluded in September of 2014.

- Producers, consumers, and meat buyers were interviewed by the Marketing team, who used that information to build a picture of the demand for Montana-branded meat products. The team determined that “with the right economic conditions, it is possible the market for Montana meat brands could expand to the size and scale to warrant a new, medium-sized processing facility.”

- Labor research determined that the proposed processing plant would need a staff of 147 to 155 people at an average wage of $34,919 annually.

- The Conceptual Design team produced work and designs that modeled how a plant that could process 250 head of beef and/or bison per day could operate profitably. The plant was projected to cost $43,982,976 and an additional $20 million in working capital was recommended.
- Mr. Bass recommended using a Land Application System as the best method to deal with wastewater coming from the facility.

- Dr. Belasco contributed his expertise by providing an overview of the economic conditions that the proposed plant would operate under and the possible effects a processing plant might have on job growth in associated sectors. His research estimated that in year 5, the processing plant would generate total local revenues of $329 million.

The final result is that it is feasible to build a processing plant in Montana, such as the one described herein. Doing so will require:

a) Significant capital investment ($43,982,976).
b) Significant working capital ($20,000,000).
c) Creating and building demand for Montana branded meat products and/or growing and promoting existing Montana branded meat products.
d) Finding experts in the meat business willing to work for the entity that owns the plant (Montana does not have a pool of these experts).
e) Recruiting and training a large workforce (Montana lacks a large skilled meat processing workforce).
f) Building a business model that captures value from every part of the animal carcass (Sales of red meat cuts make up only a portion of the value of a carcass. It will be necessary to form relationships with existing brands that are willing to purchase many of the products and byproducts from a carcass that are not destined for the consumer).

The meat process business is complex and profit margins are slim. Anecdotally, amongst the big packers, margins of 1-2% are the norm. For those packers, that slim margin is not made on the cuts of red meat that show up in grocery store aisles. Instead the profit is made on the byproducts and on the edible and inedible offal. In an effort to capture as much value from the beef carcass as possible, the meat industry has developed channels to market all such products. This is a high-volume, low margin business.

But most small meat processors do not have sufficient volumes of byproducts to gain access to the market channels that the big packers use to capture value from their byproducts. In Montana, many small processors in fact pay to have offal removed. Because they are not able to capture the same value from the byproducts that a big processor can, the cost of processing that meat is likely passed to the consumer. While this is something of an oversimplification, essentially this is one of the main reasons why niche meat products cost more than bulk meat products.

The facility design that has been proposed here attempts to deal with this issue head on. The plant has been designed to capture as much value from meat byproducts as possible. While it could never do so as efficiently as a large packer, it would represent a significant step forward compared to processing facilities that currently operate in Montana. This
The proposed plant would offer an opportunity to existing processors in Montana. The proposed plant would process at sufficient volume to operate an anaerobic digester, which would convert much of the inedible offal produced by the plant into energy. Therefore, it is possible this proposed plant could serve existing small processors as a means to dispose of offal. It would also offer them a market for their beef hides. Finally, it would also offer them a place to buy meat products that they need to make their own value-added products—products which in some instances they must import from surrounding states.

If constructed, this plant would offer a significant opportunity to Montana’s beef and bison producers to grow the market for their products. The existence of such a plant would allow existing Montana brands to expand the reach of their products and might also encourage others to start such brands. It is also very likely that the entity that owned the processing facility would develop its own brand(s) of meat products that were marketed under its own label(s).

This proposed processing facility would make it possible for beef and bison to be raised, finished, processed and shipped directly from Montana anywhere in the world (provided it meets local food safety laws). It would also be possible for a shopper in a grocery store in Tokyo, Taipei, or New York City to trace the steak they purchase all the way back to rancher who raised the animal, thus overcoming the anonymity that currently stands between many consumers and the animal protein they purchase for consumption.

When faced with an exciting new idea for a business venture, it can be tempting to think that “If you build it, they will come.” In the instance of this project, nothing could be further from the truth. While it is demonstrated here that it is possible to build a profitable processing plant in Montana, the most important factor in deciding to do so is finding markets for the products and byproducts that would come out of such a plant. While red meat products are more straightforward, the report also provides examples of ways that the byproducts of meat processing can be marketed efficiently. Without strong markets for Montana meat products in place prior to construction, the risk involved in building a new plant in Montana would be significantly increased. While the study has found sufficient potential markets for Montana meat products, it will be imperative to find partners willing to purchase those products—not just meat, but byproducts as well—before a plant is constructed. By ensuring that there are willing buyers for the products that come from the proposed plant, those who invest in the plant will significantly reduce their exposure to financial risk.
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Reference As

Task 1: Administration/Reporting (Montana State University in-kind staff), (One Montana Program Manager will assist in completing all of the items listed below, additional in-kind and consultant support is noted)

1. **Competitively solicit an RFP for consulting services to complete the scope of work.**

   Beginning in July of 2013, One Montana began work on three RFPs for the project. One RFP was for Marketing, one RFP was for Conceptual Design, and one RFP was for Labor. The development of the RFPs was an extensive process that took over 4 months. From September the 19th through the 23rd of 2013, an advertisement was published in the Bozeman Daily Chronicle requesting submissions to the RFPs for One Montana. The RFP notice was also posted on the One Montana website. Also, due to press the project had received, prior to the RFP opening, interested parties had asked to see copies of the RFP when the submission window opened. When the submission window for RFPs opened, these interested parties were sent copies of the RFPs.

   Once the period for submissions had closed, it was clear that there had been a low response rate to the RFPs. Feedback from interested contractors suggested that the work requested in the RFPs was out of alignment with payment offered, when compared to industry standards. This was a concern to One Montana staff, and a decision was made to reopen the RFP process. After revisions to the RFPs, the RFP process was opened again on November 5th 2013 and a revised advertisement was run in the Bozeman Daily Chronicle the 7th through 10th of November 2013, requesting submissions. A news article was also posted on Montana Technology Roundtables (MATR), a Montana-based news website announcing the RFP. The revised RFPs were also posted on the One Montana Website. The RFP process closed at 5pm Mountain Time on November the 11th, 2013.

   The three RFPs that were offered in November 2013 are attached below as Appendices A, B, and C. Appendix A is the Conceptual Design RFP. Appendix B is the Labor RFP. Appendix C is the Marketing RFP.

   Copies of the newspaper advertisements offering notice of the RFP are attached below as Appendix D.

2. **Convene a selection committee to review and rank proposals.**

   At the end of the November 2013 submission period, there were four respondents to the Conceptual Design RFP, two Respondents to the Labor RFP, and 6 respondents to the Marketing RFP.

   A selection committee was convened to review and rank responses to the RFP. The selection committee consisted of: Matthew Bitz, Program Manager, One Montana, Bill Bryan, President, One Montana, Lisa Grace, Executive Director, One Montana, Molly Thompson, Financial Operations Manager, One Montana, and Debra Becker, One Montana. Also on the selection committee were Stuart Leidner, Executive Director, Prospera Business Network, and Becky Weed, a member of the project Oversight Committee.

   These participants each evaluated the proposals against the requirements of the RFPs and chose who they believed to be the best candidates. Following discussion, the top two
candidates in each category were selected (See Scope of Work Item 1.3 immediately below) and submitted to EDA.

3. **Submit a copy of the top two proposals to EDA prior to selection.**
On November 19th, 2013, One Montana sent to EDA a copy of the top two proposals for both the Labor and Conceptual Design RFPs. These represented proposals from Agrifoods Solutions International and from Food and Livestock Planning. See Appendix E for email from EDA confirming submission of the top two proposals.

On November 19th, 2013, One Montana sent to EDA a copy of the top two proposals for the Marketing RFP. These represented proposals from MercuryCSC and from Kathryn Quanbeck. See Appendix E for an email from EDA confirming submission of the top two proposals.

Contracts for the RFPs were awarded to Agrifoods Solutions International for Conceptual Design and Labor. The contract for the Marketing RFP was awarded to MercuryCSC. However, because One Montana was equally impressed with the proposal submitted by Kathryn Quanbeck, Kathryn was retained by MercuryCSC as a subcontractor. It was the opinion of One Montana staff that this arrangement would maximize the funds being invested in the Marketing study.

Once Professional Service Contracts were signed, copies of each of the PSCs were sent to EDA.

On January 02, 2014 EDA confirmed receipt of a signed PSC for Agrifoods Solutions. See Appendix F for EDA’s receipt of the PSC. See Appendix G for the signed PSC itself. On January 30, 2014, EDA confirmed receipt of a signed PSC for MercuryCSC. See Appendix H for EDA’s receipt of the signed PSC. See Appendix I for the signed PSC itself.

4. **Coordinate with the consultants and the University to ensure that the work completed is documented appropriately and the work narratives address the scope of work.**
Program Manager Matt Bitz is in close contact with both the consultants and with the University In-Kind staff to ensure work completed is documented properly and that the project stays focused. Mr. Bitz uses email, phone, conference calls, and in person meetings to ensure that those working on the project are correctly addressing the scope of work.

On the 13th of January 2014, One Montana staff met with MercuryCSC to plan for a full team meeting the following day.

On the 14th of January 2014 a meeting was held in Bozeman that included all consultants, One Montana staff, and members of the oversight committee to discuss and coordinate the commencement of the project.

On January 23rd of 2014, Mr. Bitz coordinated a call between MercuryCSC and one of the oversight committee members to provide MercuryCSC information about value added beef products in Montana.
On January 28th of 2014, Mr. Bitz met with and updated members of the Oversight Committee regarding project progress.

On January 30th of 2014, Mr. Bitz conducted a meeting of the Oversight Committee to update them on the project.

On February 4th of 2014, Mr. Bitz and Mr. Bryan met with a member of the Oversight Committee to update him on the projects progress and to discuss the logistical requirements of shipping meat from Montana to foreign markets.

On February 26th, 2014, Mr. Bitz met with MercuryCSC to discuss project progress and facilitate contact with members of the ranching community.

On February 28th of 2014, Mr. Bitz held a meeting of the Oversight committee to update and advise them of the project progress.

On March 6th, 2014, Mr. Bitz facilitated meeting between member of the oversight committee and MercuryCSC to discuss the meat industry.

On April 7th 2014, Mr. Bitz facilitated meeting between Agrifood Solutions International and MercuryCSC to coordinate on value-added products and project progress.

On April 9th, Mr. Bitz held a meeting with MercuryCSC for project updates and progress.

On April 15th, 2014, Mr. Bitz met with Dr. Belasco to discuss project timeline, supply of beef, lamb and bison, and growth in supply.

On April 23, 2014, Mr. Bitz met with MercuryCSC to discuss project updates. He also met with Dr. Bowling of Agrifoods Solutions International (AFSI) to discuss project updates.

On April 30, 2014, Mr. Bitz held a meeting of the oversight committee to discuss project progress.

On May 14th 2014, Mr. Bitz met with AFSI to discuss the preliminary report from AFSI to One Montana.

On August 7th 2014, Mr. Bitz met with Mr. Bass to discuss edits and changes for the final report.

On August 8th 2014, Mr. Bitz met with MercuryCSC to discuss edits and changes for the final report.

On September 8th 2014 Mr. Bitz met with Dr. Bowling to discuss edits and changes for the final report.

On September 9th 2014, Mr. Bitz met with Dr. Belasco to discuss edits and changes for the final report.

5. Provide coordination between the consultant(s) and the One Montana Program Manager and the oversight committee.
Program Manager Matt Bitz has coordinated calls and meetings between members of the oversight committee and the consultants. Members of the oversight committee have had the opportunity to visit with Dr. Bowling, the Principle of Agrifoods Solutions International, regarding conceptual design and labor. Members of the oversight committee have also discussed at length the importance of foreign markets with MercuryCSC consultants Maclaren Latta (VP of Consumer Insights) and Kathryn Quanbeck (Subcontractor to MercuryCSC), as well as other aspects relating to the marketing research.

On the 13th of January 2014, One Montana staff met with MercuryCSC to plan for a full team meeting the following day.

On the 14th of January 2014 a meeting was held in Bozeman that included all consultants, On Montana staff, and members of the oversight committee to discuss and coordinate the commencement of the project.

On January 23rd of 2014, Mr. Bitz coordinated a call between MercuryCSC and one of the oversight committee members to provide MercuryCSC information about value added beef products in Montana.

On March 6th, 2014, facilitated meeting between member of the oversight committee and MercuryCSC to discuss the meat industry.

On June 19th, 2014, a meeting was held in Bozeman where the consultants and in-kind personnel presented their findings to the oversight committee. One Montana was responsible for the coordination and facilitation of this meeting.

6. Establish an oversight committee for the project.

An oversight committee was established for the project. In the summer of 2013, One Montana began the process of seeking out individuals who would serve in an advisory capacity for this project, assuming that funding was secured and that the project would move forward. One Montana staff sought out those who they thought would be best equipped to bring expertise to the project. One Montana sought to represent small scale, niche producers, as well as conventional producers on the oversight committee. This was necessary because this project covers a wide range of topics, and to ensure the success of the project, it was necessary to have individuals participating who had a broad diversity of experience that matched that wide range of topics. The members of the oversight committee have and continue to make valuable contributions to the project. They bring with them a wealth of experience in not only the livestock industry, but also in collegiate level education in Agriculture, engineering, environmental policy, finance, and local foods.

The members of the oversight committee are:

Francis Blake—Rancher, Keewaydin Ranch; Co-Owner, Blake Nursery, Big Timber, MT
Glenn Duff—Interim Dean, College of Agriculture, Montana State University, Bozeman, MT
Rich Harjes—Rancher, Willow Springs Ranch, Belgrade, MT
Niles Hushka—CEO, KLJ Engineering, Bismarck, ND
Cole Mannix—Director of Operations, Salt of the Earth Ranchers Cooperative, Helena, MT
Jim Peterson—Former Montana State Senator; Rancher, Buffalo, MT
Errol Rice—Executive Vice President, Montana Stockgrowers Association, Helena, MT
Bryan Ulring—Ranch Manager, J Bar L Ranch, Lima, MT; Founding Partner, Yellowstone Grassfed Beef, Bozeman, MT
Becky Weed—Rancher, Thirteen Mile Lamb and Wool Company, Belgrade, MT
Bill Yellowtail—Rancher (Retired); Former Montana State Senator; Former MSU Director of Tribal Partnerships; Wyola, MT

7. **Conduct bimonthly meetings or conference calls with the oversight committee.**

It soon became apparent that it would be impractical to convene bimonthly meetings of the oversight committee. Due to the fact that all those on the committee are currently involved in multiple other projects, it was not possible to have them meet twice a month. Therefore it was decided that they would meet once per month.

On November 19th, 2013 members of the oversight committee met in Bozeman to discuss the impending start of the project. In attendance were Program Manager Matt Bitz, One Montana President Bill Bryan, Errol Rice, Executive Vice President, Montana Stockgrowers Association, Rich Harjes, Rancher, Francis Blake, Rancher, Cole Mannix, Director of Operations, Salt of the Earth Ranchers Cooperative, and Glenn Duff, Interim Dean, College of Agriculture, Montana State University, Bozeman. Also present were University In-Kind Contributors Dr. Eric Belasco and Mr. Thomas Bass.

There was no meeting of the oversight committee in December due to the general unavailability of committee members over the holiday season.

On January 30th, 2014 the Oversight Committee met via conference call to discuss project progress and to debrief regarding Bill Bryan’ and Matt Bitz’ visit to Rocky Mountain Natural Meats in Colorado. In attendance were Program Manager Matt Bitz, One Montana President Bill Bryan, and committee members Cole Mannix, Bryan Ulring, Becky Weed, and Jim Peterson.

On February 28th 2014 the Oversight Committee met via conference call to discuss project progress. In attendance were Program Manager Matt Bitz, One Montana President Bill Bryan, and committee members Bill Yellowtail, Cole Mannix, Bryan Ulring, Rich Harjes, and Becky Weed.

On March 31, 2014 the Oversight Committee met via conference call to discuss the projects progress and to discuss Program Manager Matt Bitz’ upcoming visit to Lorentz Meats in Minnesota. In attendance were Program Manager Matt Bitz, and committee members Bill Yellowtail, Cole Mannix, Bryan Ulring, Becky Weed, and Jim Peterson.
It is worth noting that while some oversight committee members do not appear in attendance for meetings, they are kept apprised by One Montana staff of the projects progress and continue to contribute to the project in ways beyond simply attending meetings. They contribute valuable input and insight on the course of the project. When possible, One Montana staff meets individually with Committee members to update them on the project and discuss project goals and strategies.

On April 30, 2014 the Oversight Committee met via conference call to discuss project updates and discuss Program Manager Matt Bitz’s visit to Lorentz Meats in Minnesota and One Montana President Bill Bryan’s visit to Rocky Mountain Natural Meats kill plant in Brush Colorado. In attendance were Program Manager Matt Bitz, and committee members Bill Yellowtail, Cole Mannix, Becky Weed, and Glenn Duff.

No Oversight Committee meeting was held in May due to member unavailability. May is a busy time of year for Montana’s agricultural producers.

On June 19th, 2014, a meeting was held in Bozeman where the consultants and in-kind personnel presented their findings to the oversight committee. One Montana was responsible for the coordination and facilitation of this meeting. Each consultant presented the highlights from their work. This was followed by a question and answer session between the oversight committee and the consultants that was facilitated by One Montana Program Manager Matthew Bitz. All members of the oversight committee were present except for Mr. Bryan Ulring, Ranch Manager, J Bar L Ranch, Lima, MT; Founding Partner, Yellowstone Grassfed Beef, Bozeman, MT.

The meeting on June 19th 2014 represented the final meeting of the oversight committee. However, this group would potentially be a valuable resource to anyone interested in investing in the project.

On September 30th 2014, all members of the oversight committee received a copy of the Final Report.

8. Coordinate and facilitate a presentation by the consultant(s) and the Montana State University in-kind personnel to be provided to the oversight committee. (Consultant, Montana State University in-kind staff Eric Belasco and Tommy Bass)

At the beginning of work in January, a meeting was held in Bozeman that involved, the contractors MercuryCSC (along with Kathryn Quanbeck, via teleconference), Agrifoods Intl. (with Rod Bowling attending via teleconference), both In-Kind Contributors Eric Belasco and Thomas Bass, One Montana Program Manager Matt Bitz, One Montana President Bill Bryan, and Oversight Committee Members Jim Peterson and Cole Mannix (also via teleconference). The purpose of the meeting was to establish contact and coordination between team members.

On June 19th, 2014, a meeting was held in Bozeman where the consultants and in-kind personnel presented their findings to the oversight committee. One Montana was responsible for the coordination and facilitation of this meeting. Each consultant presented the highlights from their work. This was followed by a question and answer session
between the oversight committee and the consultants that was facilitated by One Montana Program Manager Matthew Bitz. All members of the oversight committee were present except for Mr. Bryan Ulring, Ranch Manager, J Bar L Ranch, Lima, MT; Founding Partner, Yellowstone Grassfed Beef, Bozeman, MT.

9. **Track all financials aspects of the project (revenue, expenses, in-kind matches, etc.) and submit reports per the grant award agreement, including Financial Status Reports (SF-425) and Requests for Advance or Reimbursements (SF-270).** (Consultant, Montana State University in-kind staff Eric Belasco and Tommy Bass)

Molly Thompson, One Montana Finance and Operations Manager, tracked all financial expenses of the project (revenue, expenses, in-kind matches, etc.) for this time period, using QuickBooks and Excel. She ensured that staff, in-kind, and contractor timesheets were completed accurately and completely. She ensured that out-of-pocket expenses and invoices were documented correctly with receipts and/or other verifying information. She prepared spreadsheets and other reports to communicate expenses to One Montana staff. She prepared and submitted SF-270s and the SF-425 in a timely and accurate manner per the grant award agreement.

Consultant Dr. Rod Bowling of Agrifoods Solutions International also documented and submitted the proper and necessary documentation for the project. He submitted properly formatted invoices and supporting documentation.

Consultant Maclaren Latta of MercuryCSC also documented and submitted the proper and necessary documentation for the project. She submitted properly formatted invoices and supporting documentation.

In Kind Staff Thomas Bass and Eric Belasco also documented and submitted the proper and necessary documentation for the project. They submitted properly formatted invoices and supporting documentation.

While there is no set schedule for submission of invoices and documentation, generally speaking, consultants submit on a monthly basis.

10. **Provide a Mid-Point Progress Report to EDA addressing accomplishments on each element in the scope of work.** (Consultant, Montana State University in-kind staff Eric Belasco and Tommy Bass)

On March 31, 2014, One Montana submitted to EDA a midpoint progress report that addressed the project accomplishments completed to date. Input for the midpoint report was collected from the consultants and in-kind contributors, as well as One Montana staff. The midpoint report was reviewed by One Montana Executive Director Lisa Grace.

11. **Provide a Draft Final Report to the oversight committee and EDA which follows the Final Report guidelines.** (Consultant, Montana State University in-kind staff Eric Belasco and Tommy Bass)
On July 11, 2014 One Montana provided a Draft Final Report to the oversight committee and to EDA which conforms to the Final Report guidelines. Input for the Draft Final Report was collected from the consultants and in-kind contributors, as well as One Montana staff. The Draft Final Report was reviewed by One Montana Executive Director Lisa Grace.

12. Provide a Final Report to the oversight committee and EDA which follows the Final Report guidelines. (Consultant, Montana State University in-kind staff Eric Belasco and Tommy Bass)

One Montana provided to the oversight committee and to EDA a Final Report which follows the Final Report guidelines on September 30th.

13. Place a copy of the feasibility study Final Report and results on the One Montana website and produce hard copies for distribution.

At the completion of the project, One Montana placed a copy of the Final Report of the feasibility study on the One Montana website on September 30th and also produced hard copies of the report for distribution.
Task 2: Conduct marketing/sales research to determine the appeal of Montana-branded meat products and associated price premiums (Consultant)

OVERVIEW

The overall purpose of the project is to determine if it is possible to build a meat processing facility in Montana that will significantly increase the processing capacity in the state. Montana has long been known as a producer of quality beef, and to a lesser extent, a producer of lamb and bison.

However, most of the meat processing plants in the state are small¹ and the majority of the livestock in the state that are raised for meat are shipped elsewhere for finishing, slaughter, and fabrication².

Because Montana producers are essentially exporters of raw materials, and the animals they raise are largely processed and sold under large meatpacking labels, most Montana producers are unable to capture added value from their products.

Meanwhile, consumer demand is increasing for meat products that are raised and processed outside the Midwest-based, commodity-driven market. Demand for “local,” “organic,” “natural,” “grass-fed,” and “humanely-processed,” among other products, grows every year.³ ⁴

For the purposes of this study, these marketing terms are defined as follows:

- **Local**: meeting the buyer’s geographical criteria for local. In some cases, this may be a range (e.g. “raised within 250 miles”), a state (“Montana Grown”) or a region (“Rocky Mountain grown”)

- **Natural**: animals raised to meet specific production protocols. Most commonly, these programs incorporate grain-finished feeding and require that animals are not administered hormones, antibiotics or growth promotants.

- **Organic**: raised in accordance with the USDA National Organic Program Standards⁵ and certified by an approved third-party certifier.

- **Grass-fed**: “animals that are born, raised, and finished on open grass pastures where perennial and annual grasses, forbs, legumes, brassicas, browse and post-harvest crop residue without grain are the sole energy sources, with the exception of mother’s milk, from birth to harvest. Hay, haylage, silage, and ensilage from any of the above sources

¹ Annual sales of less than $2.5 million, per the Food Safety Inspection Service’s (FSIS) definition.
² Cutting and further processing a carcass into saleable products.
⁵ http://www.ams.usda.gov/AMSv1.0/NOPOrganicStandards
may be fed to animals while on pasture during periods of inclement weather or low forage quality.”

- **Humanely processed**: for most buyers, this means animals that are slaughtered in accordance with Dr. Temple Grandin’s recommendations for animal handling, stunning and slaughter practices. Per USDA regulations all livestock must be slaughtered in accordance with the Humane Slaughter Act (passed in 1958), but most consumers are not aware of these regulations.

- **Source Verified**: Age and Source Verified programs were first designed to meet Japanese export market requirements. To participate in a USDA Process Verified Program (PVP) or a USDA Quality System Assessment (QSA), producers must supply the necessary documentation regarding the source and age of their cattle and comply with all third party audit requirements. In most cases, producers are required to “tag all cows and calves with a unique number in your herd, keep calving records (that include dam and calf identification, calving date and sex of calf) and tag cattle with an electronic (or RFID) eartag.” In most parts of the country, participating in a PVP or QSA program will increase the value of your cattle.

- **Commodity**: At its most basic, a commodity is a marketable good that is essentially interchangeable with goods of the same type. Commodities lack differentiation: price becomes the point of differentiation since all goods in the commodity class are of uniform quality. A common example of a commodity is a barrel of oil: all barrels of oil are essentially the same, regardless of the producer. Commodities can be bought and sold commodities using futures contracts on exchanges (like the Chicago Board of Trade) that standardize the quantity and minimum quality of the commodity being traded. In the case of beef, commodity beef is seen to be an undifferentiated product: beef from cattle from one ranch or one feedlot cannot be distinguished from beef from another ranch or feedlot. The commodity beef supply chain produces a uniform, consistent product.

- **Grain-fed**: All cattle begin their lives on grass. At approximately 750 to 900 lbs., grain-fed cattle are moved to a feedlot to be fed a diet of corn, soy, grains, and other supplements to reach slaughter weight.

In many cases, these products come from smaller producers who have found a way to market their animals outside of the larger meat processing industry, often through the creation of a branded product; the use of marketing strategies associated with the above terms; and by utilizing local meat processors. All of these strategies allow them to capture added value from their animals, value that allows them to recoup the higher production costs associated with lower volume, premium production.

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7 http://www.grandin.com/humane/rec.slaughter.html
8 http://en.wikipedia.org/wiki/Humane_Slaughter_Act
While Montana has seen the introduction of some successful branded meat products, others have started and failed. The reasons most commonly identified are: low processing capacity, which creates a bottleneck on meat supply while also forcing processing costs up due to a lack of economies of scale; and insufficiently developed marketing strategies for these niche products.\textsuperscript{11}

This feasibility study was developed to examine the moving parts that comprise the puzzle of meat processing in Montana. The overall goal of the study was to determine whether or not it is possible to build a meat processing plant in Montana that can process between 250-500 head of livestock a day, and do so in a manner that makes it possible to capture added value from the animal.

The basic assumption of this study was that if a larger meat processing plant were constructed in the state, such a plant would be a net gain for producers. It would allow producers to process their animals locally, and provide them with the option of either developing their own branded products, selling to existing Montana-based brands, and/or selling their livestock to a new branded meat program operated by the owners of the processing plant. For those who have already established a branded product, it would allow them to greatly expand their business.

The key questions posed to the marketing research team were:

- What are we selling?
- Can Montana producers deliver a consistent supply of slaughter-ready animals?
- Who is going to purchase these products?
- Will Montana-branded meat products equate to a higher value?
- Does it need to be processed in Montana?
- Can the branded program use existing infrastructure or must a new facility be built?

These questions were included in the marketing scope of work for the feasibility study, designed to conduct initial research related to the marketing and branding of Montana-based meat products. This report is the result of that research.

\textsuperscript{11} 2012, One Montana meetings with producers.
BACKGROUND

As the One Montana team traveled the state in 2011 and 2012, holding meetings for other One Montana projects, the topic of meat processing kept coming up. It was raised by those in the niche meat sector, producing for local markets as well as those in traditional production agriculture: all were looking for an alternative to the status quo. Many believed very strongly that the beef they raise here in Montana is of the highest quality, and they want to be paid a premium for it.

These conversations often circled back to the same question: “Could Montana support a larger meat processing facility?” Meat processing was seen as the real barrier to expanding marketing opportunities for Montana producers.

With this interest in increasing processing capacity to expand market opportunities, One Montana developed a project proposal to examine two things:

- Building and operating a new processing facility.
- Expanding existing or developing a new Montana-based brand to serve as a key customer (or “anchor tenant”) for that new processing plant.

This section of the project, the Montana Meat Processing Feasibility Study: Marketing, focused on the following research topics:

EXECUTIVE SUMMARY

The purpose of this project was to conduct initial research to better understand how Montana producers could capture more value from their high quality livestock. One option, explored here, is the possibility of expanding existing Montana-based brands and/or creating one or more new Montana-based brand(s) that could serve as the primary processing-services client(s) for a new Montana meat processing facility. This project is a first look at what characteristics the brand(s) might require to help provide the steady throughput a new processing facility needs.

During the course of this project, after reviewing existing research, interviewing producers (those currently selling livestock and those currently selling branded meats), consumers, retail meat buyers and industry experts, it has become clear that there is not a one-size-fits-all answer to the project’s key questions:

- What are we selling?
- Can Montana producers deliver a consistent supply of slaughter-ready animals?
- Who is going to purchase these products?
- Will Montana-branded meat products equate to a higher value?
- Does it need to be processed in Montana?
- Can the branded program use existing infrastructure or must a new facility be built?
While no one clear answer stood out, we have determined that, with the right economic conditions, it is possible the market for Montana meat brands could expand to the size and scale to warrant a new, medium-sized processing facility.

Based on what we uncovered during this research project, we determined that this facility would have to significantly differentiate its business model from existing commodity meat processing facilities by focusing on branded meat programs and by-product markets, capturing a higher value at every step in the supply chain. This Montana meat “company” and processing plant could handle everything from natural beef brands to cull cow programs to bison brands. While commodity cattle could be processed at this plant, the resulting meat products are unlikely to be cost competitive with the large-scale commodity processors in the Great Plains.

This processing plant could also distinguish itself, and add another opportunity to potentially capture higher value for its products, by offering best-in-class traceability, maintaining source-verification protocols throughout the supply chain.

It would also be possible to process lamb, but because the plant design has been optimized for beef and bison, lamb processing at this facility would be a very small fraction of the work, and done on a custom basis only. The Montana meat “company” would not develop a brand for lamb.

In reality, a processing facility of this type would need to encompass several different business entities; each entity focused on its own market segment, sharing the processing infrastructure.

From a marketing perspective, each product line and sales channel would need to be evaluated to determine whether or not a specific brand would be created for that product line and sales channel.

For example, the processing facility could potentially serve one or more grass-fed beef brands; one or more natural, grain-fed beef brands; a bison brand; a pet treat brand; and a fertilizer or soil amendment brand – all utilizing the facility and sharing costs and overhead where appropriate.

Below is an illustration that speaks to the variety of potential options.
For this project, we focused on fresh meats (raw product) and explored value-added products – i.e., non-commodity meats. We did not look at further processed products such as jerky, snack sticks or summer sausage.

Evaluation of further processed products – as well as other market segments such as pet treats and soil amendments – were not incorporated into this initial research and would need to be explored further before determining the market potential.

Opportunities

In our analysis of Montana-branded, fresh meat marketing opportunities, several options came to light with the end-goal of capturing more value from Montana livestock.

Each of the marketing channels noted below could be targeted by either expanding existing brands or creating one or more new brands. Where appropriate, we provided examples of existing Montana brands that currently sell into these market channels. These are only examples: we have not included every Montana-based meat brand here; and there are many successful programs not listed in this report.

Montana institutions: It seems only natural that Montana institutions (schools, hospitals, etc.) would serve Montana beef and bison. Public institutions are taxpayer supported and thus it makes sense that they would use their food purchasing dollars to support Montana farmers and ranchers whenever possible.

This is not a new idea: the Western Sustainability Exchange (WSE) in Livingston, MT has a pilot program processing cull cows for hamburger and a few cuts, selling to food service accounts. Interested producers could work with WSE to expand this program.

Montana-based branded programs like Big Sky Natural Beef and Rancher’s Original successfully sell to Montana institutional markets12 (among other market channels). These

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12 Institutional markets include any food service accounts i.e. schools, hospitals, universities, corporate cafeterias, nursing homes, etc.
brands are currently able to use existing processing facilities, but as the institutional market expands, it is possible that some processing could take place at a new facility.

This would be an opportunity for One Montana to work with interested producers and WSE, along with other organizations like WSE that may be doing something similar, to expand this “Montana Meat in Montana Institutions” program. The National Center for Appropriate Technology (NCAT) based in Butte, MT recently received a grant to increase the availability of Montana beef in Montana institutions.13

**Natural, grain-fed beef:** Montana is home to several branded natural, grain-fed beef programs and even more producers who raise and sell calves to out-of-state natural programs. Expanding the finishing capacity in-state for natural, grain-fed beef cattle could increase the demand for processing services in Montana. Such a program is likely to require that animals are raised to meet specific production protocols. Most commonly, these programs incorporate grain-finished feeding and require that animals are not administered hormones, antibiotics or growth promotants. Natural branded programs like Montana Natural Beef and Great Northern Cattle Co. have all had success in the natural beef market.

**Grass-fed:** We heard from several producers that there is a strong market for grass-fed beef and bison in Montana and beyond. Montana-based, branded programs like Yellowstone Grassfed Beef and White Park Beef currently sell Montana-raised grass-fed beef direct to customers and to local restaurants, retailers and institutions. As these brands expand, or new grass-fed brands come online, it is possible that they could drive demand for a new processing facility.

**International Markets:** Based on what we learned during this initial research, and the proposed specifications from the plant design team involved in this study, the Asian market is a good potential market for Montana-branded beef. If a processing plant was created that offered best-in-class traceability – from ear tag to shelf – it could become a premier, medium-sized plant focused on serving the growing demand for animal proteins abroad. Alternatively, while existing Montana processing facilities do not currently meet the more stringent export requirements necessary to access Asian markets, it might be possible to upgrade these plants to meet the requirements. Several people interviewed for this project believed that Montana-branded meat products would be able to leverage the existing mystique of the West and the Montana name in the Asian markets.

**Key Components**

All four of the opportunities noted above come with their own unique sets of challenges and opportunities. As the market for Montana-branded products grows, so will the demand for high quality cattle and bison, processing services, and a strong team of Montana leaders to guide these branded programs to success.

13 [http://farmtocafeteria.ncat.org](http://farmtocafeteria.ncat.org)
Regardless of whether or not a new processing plant is built or an existing one is expanded and whether or not a new Montana brand is created or existing ones continue to thrive, the following key components will be necessary for achieving the overall goal of expanding marketing opportunities for Montana producers:

- **Leadership**: The efforts involved will require a team approach and the commitment of one or more dedicated leaders, including, but not limited to, champions, investors and others who are committed to making this project the primary focus of their efforts and energies.
- **Collaboration and New Partnerships**: Continued teamwork is essential for these opportunities to become a reality; each of the marketing channels will require collaboration among all of those involved – as well as an emphasis on exploring new partnerships – at each step of the process.
- **Investment**: Significant up-front investments are fundamental to the program’s success, allowing it time to get up and running and eventually operating at a profit.
- **Time**: Whether it’s building a new processing plant or expanding an existing one, creating a new Montana brand or supporting an existing one, these initial steps will take time to be done well.

As noted throughout this report, these four key components will be instrumental in taking this idea from concept to reality.

**PROJECT METHODOLOGY**

**Deep Dive: Evaluation of Existing Information**
At the onset of the project, Maclaren Latta of MercuryCSC and Kathryn Quanbeck, an independent meat processing consultant, worked with Matt Bitz of One Montana to review existing research and other insights that were helpful in framing the project. Information included:
- One Montana’s existing knowledge.
- Any background information currently available for all topics.
- Trends in the meat industry.
- Key stakeholders’ and collaborators’ background and contact information.

**Kick-Off Meeting: Initial Interviews**
After this initial review of the existing knowledge and background materials, Bitz, Latta and Quanbeck organized a kick-off meeting with all project participants to discuss the overall goals for the project and better understand roles and responsibilities as well as any additional resources available. Participants included:
- Tommy Bass – Livestock Specialist for Montana State University (MSU) Extension
- Eric Belasco – Agriculture Economics Professor at MSU
- Matt Bitz – Program Manager, One Montana
- Rod Bowling – Principal, AgriFood Solutions
- Bill Bryan – President, One Montana
- Maclaren Latta – VP of Consumer Insights, MercuryCSC
• Cole Mannix – Director of Operations, Rancher’s Original
• Jim Peterson – Montana State Senator; Rancher
• Kathryn Quanbeck – Meat Processing Consultant
• Jeff Welch – CEO, MercuryCSC

Research Topics: Secondary Research, Primary Research
Bitz, Latta and Quanbeck used a combination of secondary research and primary research to gain insights into each of the research topics.

Secondary research included existing research that was relevant to this project and allowed us to obtain information without duplicating previous studies.

The primary research that we conducted was qualitative; we spoke to a smaller set of people to gain a deeper understanding of why they were doing what they do. We used this type of research to uncover their underlying motivations, needs, and beliefs.

Our approaches included finding and reviewing existing research; analyzing existing branded programs, conducting one-on-one interviews by phone, email and in-person; and offering an online survey tool for ranchers. Specific methodologies used are clearly outlined at the beginning of each topic throughout this document.

SURVEY PARTICIPANTS PROFILE
Latta and Quanbeck conducted primary research with key audiences to better understand their perspectives. The majority of these interviews were conducted by phone, with Latta and Quanbeck hearing from individuals on a one-on-one basis. Participants were ensured confidentiality in their responses in order to get the most accurate information possible.

Producers
During the months of Jan., Feb. and March 2014, we heard from 20 ranchers in Montana who fit the following criteria:
- Currently raising cattle, lamb and/or bison
- Fit a variety of production styles: traditional cow-calf (7), natural, grain-fed (7), grass-fed (4) or organic (2)
- Had their own brand or were interested in selling to a new brand

Producers were contacted by phone, email and through an online survey distributed by our research team and by the Montana Stockgrowers Association. The survey was sent out to approximately 2000 ranchers in Montana. 20 ranchers agreed to participate: 7 producers completed the online survey and 13 were interviewed via phone.

(See Appendix K for a copy of the questionnaire used to interview these producers.)

Buyers
During the months of Jan., Feb. and March 2014, we contacted 19 retail meat buyers by phone who fit the following criteria:

- Identified as shopping locations by our consumer survey participants
- Located in the eastern part of the United States
- Fit a variety of retail categories: either large national chains, regional chains or local, independent butcher stores.

Participation by buyers was limited due to the hyper-competitive and proprietary nature of the retail grocer sector. We also reviewed existing research for more information.

(See Appendix I for a copy of the questionnaire used to interview these buyers.)

Consumers
During the months of Feb. and March 2014, we spoke with 15 consumers from MercuryCSC’s proprietary research panel who were screened to ensure they fit the following criteria:

- Live in the eastern part of the United States
- Well-educated
- Affluent but not necessarily rich
- Health conscious
- Environmentally conscious
- Socially minded
- Want a greater sense of connectedness

Twenty-eight (28) Consumers were contacted via phone and email to determine their suitability and availability for the project. Of those, 15 were qualified and interested in sharing their thoughts. Interviews were then conducted by phone with 15 consumers with some additional follow-up questions communicated via email among the 15 participants.

(See Appendix M for a copy of the questionnaire used to interview these consumers.)

Trade Experts
During the months of March and April 2014, we made contact and spoke with five trade experts, including representatives from the following organizations:

- U.S. Meat Export Federation
- Montana Department of Commerce
- American Institute in Taiwan

These five trade experts were contacted via phone and email.

(See Appendix N for a copy of the survey used to interview these trade experts.)

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14 The Eastern Seaboard was determined to be a strong market for Montana meat products by the One Montana team and therefore the focus of this project when conducting buyer and consumer interviews.
1. Research the previous feasibility studies completed on this subject within the State of Montana. Document the studies found and present analysis of the studies.

Key Takeaways:
- Both studies predicted that processing plants in the respective counties could be feasible.
- Both proposed projects were much smaller in scale than the One Montana project. This is not a value judgment, but rather simply an appraisal of scope.
- Both plants were primarily aimed at the Montana market.

Detailed Findings:

Introduction:
Research is being conducted into a multitude of issues surrounding marketing. Part of that scope of work pertains to providing background information on previous feasibility studies. One Montana felt it was necessary to investigate similar studies to know what had been done in the state prior to this effort.

Two studies were found as a result of One Montana’s research. These studies will be presented below.

Methods:
As stated in the introduction, the focus of this section was to research feasibility studies on meat processing in Montana. To find the most relevant information, the scope of research was limited to:
- Feasibility studies that had a primary focus on beef, lamb, or bison. One of the studies outlined below will deal with a multispecies plant that includes hogs. This was deemed acceptable due to the fact that the other two species examined were lamb and beef, with a primary focus on the latter.
- Studies conducted within the last 10 years. For the purposes of the project, “the last 10 years” was defined as 2003—forward, as this project began in 2013. Confining the research parameters to feasibility studies done in the last 10 years also seemed to be the most logical approach, given that the demand for specialty meats has risen sharply in the last decade. This, coupled with the large shifts in the commodity market and beef prices in recent years, suggested an investigation be confined to a 10-year period.

The Montana Department of Commerce and the Montana Department of Livestock were contacted to see if they were aware of any studies conducted in this time period. The Dept. of Commerce was aware of two studies, one conducted in Beaverhead County in 2006, and the other conducted in Pondera County in 2006. One Montana was already in possession of the Beaverhead County study, and the Dept. supplied the study from Pondera County.

Further research was conducted online to find any additional studies that had been conducted around this subject. None were found. Industry contacts were also asked if they
were aware of any other beef-focused feasibility studies. None were found. They were aware of none but those One Montana had already obtained. The possibility must be acknowledged that other feasibility studies may have been conducted within this timeframe in Montana, however, if this was the case, they would have been conducted solely with private monies and have “flown under the radar” of One Montana’s research, as well as the public entities in the state that would typically have knowledge of such projects, and likely lie beyond reach.

Studies Found:
Two studies were found by One Montana that fit the criteria outlined above in the methods section.


Analysis of “Feasibility of a Multiple Species Meat Processing Plant in Pondera County, Montana”

Summary of the Study:

The study was prepared by Food and Livestock Planning, Inc. of Kansas City, Missouri for the Pondera County Economic Development Corporation in May of 2006. Pondera County is located in North Central Montana, with the largest community in the county being Conrad, MT. According to the Executive Summary “Pondera County has an active Economic Development Corporation and is exploring the feasibility of a multiple species packing plant located in the county (FLPI, 2006, p.4).”

The study provided research in 7 major sections: Market Analysis, Animal Production and Supply, Processing, Distribution System Analysis, Organizational Structure, Financial Feasibility, and Testing Feasibility.

The study’s findings were as follows:

Market Analysis:
According to the study, 15 businesses located in the region were surveyed to gauge their interest in a Montana-branded product. There was high interest in a Montana-branded meat program amongst the survey participants. Of those businesses, 11 responded that in order for a Montana-branded product to attract business, it “must be competitively priced (FLPI, 2006, p.19).” Other important criteria were a Montana-branded product having “strong point of purchasing materials and a program aimed at educating the consumer (FLPI, 2006, p.19).”
It was the opinion of the study’s writers that local production and a more local focus would allow the plant/company to avoid competing in the commodity market. In regards to the commodity market, the study said “selling a commodity when costs of processing are much greater than the large commercial packing plants, would cause an early exit from the business due to financial losses (FLPI, 2006, p.8).” It also recommended the possibility of forming a partnership with a Montana-branded meat entity that had “already spent brand development money (FLPI, 2006, p.21).”

The study provided information on the expected costs associated with marketing. Year 1 Foodservice costs were estimated at $40,850 and Year 1 Retail costs were estimated at $38,000.

The study made four general recommendations in regards to the marketing features the authors felt most essential to the project. These were:

- Locally produced and processed in Montana.
- Artisan-produced, specialty-processed meats.
- Customer-service oriented freezer meats.
- Customer-service oriented custom processing.

(FLPI, 2006, p.4)

*Animal Production and Supply:*

The study used data from 2005 from USDA’s National Agricultural Statistics Service and found that in Pondera County there were 23,300 head of cattle and calves, 5,000 head of sheep and lambs, and 18,000 hogs and pigs. The number of cattle and calves that did not include cows and heifers was 6,700 head. However, when the study backed out and included data from the North Central region of the state, the number of available cattle was 102,000 head that were not heifers or mother cows. The study noted that only 1% of cattle and lambs are processed within Montana. This is consistent with preliminary research conducted by One Montana on the percentage of beef that are processed in the state.

The study authors also contacted five feedlots that were within close reach of Conrad that altogether had a capacity of over 25,000 head. According to the study, at the time, most of the cattle from these feedlots were going to a processing facility in Hyrum, Utah. The study reported that these feedlots were interested in “participating in a niche-oriented packing plant in NC Montana (FLPI, 2006, p24).”

The study also noted the difficulties associated with seasonality in Montana, suggesting that “fresh beef can be supplied by producers using differing production regimes such as utilization of fall and summer calving and differing feeding regimens to spread out harvest times (FLPI, 2006, p.19).”
Processing:
The study found there were two processing facilities that were inspected by USDA that were within an hour of Conrad, with the rest over three hours travel from Conrad. Apparently, both plants close to Conrad used a similar method, where they would slaughter on two days of the week and do the processing for the rest of the week. The study also listed capacities of all the USDA inspected plants operating in Montana at the time. The total daily kill capacities of all of these plants amounted to approximately 150 head of cattle per day. This is an approximate number, however, because two of those plants were not killing cattle every day, and there was no kill data listed for one of the included plants.

The costs for processing in the federally inspected plants ranged from $298-$525 and averaged $402 for a beef carcass that weighed around 750 pounds (FLPI, 2006, p.29).

The study also proposed a conceptual plant with a capacity of 6,000 head of beef and 7,000 head of hogs on a yearly basis. Assuming a 5 day work week and 260 days of work in a year, this would equate to a daily capacity of 23 head of beef and 27 hogs.

The plant was estimated to be 12,000 square feet and to cost $2.4 million with an additional $1 million needed for equipment.

Key recommendations for siting the plant were:
- Proximity to major transportation routes
- Plant distance from raw materials
- Utility availability and adequacy
- Community acceptance
- Labor force availability
- Land site suitability

(FLPI, 2006, p.31)

The study recommended that a small plant would do best to stockpile the hides from the animals it processes and try to ship hides on a weekly, rather than a daily basis. In regards to the edible offal, the study noted, “For a small plant, the wholesale value of these items are too low for the expense of cleaning and packaging them, so they are dumped into the rendering product bin (FLPI, 2006, p.32).” It was unclear whether or not a small plant in Conrad would be able to capture any value from lower value offal such as bones and fat. The study did suggest that the plant develop relationships with local agricultural producers as a means of disposing of blood and paunch in the form of fertilizer. It also suggested composting as a possible means of disposing of offal.

Finally, the study gave two options for dealing with wastewater. These were paying a municipal waste water system to treat the water or developing a lagoon system, where the lagoon water could be used as irrigation for local farmers.
Conclusion:
Ultimately, the study predicted that a meat processing plant could be profitable by the third year of business, provided that it was able to successfully market itself to the region. Profit margins were predicted to be highest for sales of live beef purchased from the producer, processed, and sold. Custom processing was predicted to be a steady earner, as well as hogs—both custom processing and marketed meat. The study noted that it was difficult to predict the margins of lamb due to the fact that the model being used predicted a low number of lamb processed annually.

Analysis of “Feasibility of a Beef Processing Plant in Beaverhead County, Montana”

The feasibility study was prepared by FLPI in 2006 for the Beaverhead Development Corporation. The introduction to the feasibility study notes that the impetus for the study was that Beaverhead County and other counties in the southwest portion of the state are high producers of cattle, and that producers there wished to add value to their cattle, and believed that that processing capacity in the region was an obstacle for those producers who wanted to add value and market their own cattle.

The study focused on two areas of beef production: custom processing for local producers and marketing entities and processing cull beef and marketing that product. Cull cattle were considered because “the high number of cull beef cows available in the region and the great distance to cow processors, which reduce the value of the animal because of freight expense, cannot be ignored (FLPI, 2006).”

Beaverhead County is located in Southwest Montana, with the largest city in the county being Dillon, with a population of around 4,100 according to the 2010 Census.

The feasibility study noted that in 2005, USDA data for Beaverhead County showed 138,000 cattle and calves and 79,000 beef cows and heifers in the county. That made Beaverhead County the largest producer of beef in Montana at the time. It is worth noting that in 2013, Beaverhead County was still the number one beef producing county in Montana, according to USDA data.

Market Analysis:
According to the study, 12 regional producers were interviewed regarding their interest in a custom processing facility in Beaverhead County, six of which were branded beef programs. According to the study, these programs felt that a lack of processing capacity was “limiting their growth (FLPI, 2006).”

Despite interest from local producers and branded beef programs, the study noted that in order for a processing plant to be successful in marketing custom processing, it would be necessary to accommodate the needs of multiple customers, who want different products. The upside of custom processing was that it would not require “financing inventory and receivables” and that “there is no margin risk with buying live animals and selling meat.”
The study noted that there was not a “major cow packing plant within 1,000 miles” of the region and that because cull cattle were being considered as a potential source of volume for the plant, it would be necessary to look at how best to market this meat, and that small producers would likely find it difficult to market some cuts, so a “corporate marketing strategy” should be explored, that would market both the beef from the cull cattle and difficult-to-sell meat from small producers.

The study suggested that the best way to market tough-to-sell beef items was in the form of further processed meats, and that small plants have an advantage in this market in that they have great control over this process because it is all in one location. This would allow a small plant that does further processing to “have great control over the quality and age of raw materials” and that “small processors are usually artisans...manufacturing high quality processed items (FLPI, 2006).”

For the meat from cull cattle, the study noted that “over 50 percent of the carcass is sold as lean beef and beef trimmings” and that because this “manufacturing meat” is a commodity product with a global market, it would be difficult for a small plant to sell it, and that it would need to add value to this meat to “overcome high processing costs and low meat value (FLPI, 2006).” It suggested a list of further processed items that could be made from trim such as ground beef patties, breaded products, and sausage products. Whole muscle meats could have value added in the form of marinating, making beef jerky, or pre-cooking.

The study suggested that products which were further processed could be sold directly to local customers, local retail and restaurant markets, food service companies, retail chains, and convenience stores. The study did note that in the context of “small beef plants in remote locations” there would be “extreme difficulties achieving USDA grading.” Beef grading is used to predict how well the meat is likely to eat. It is voluntary, but according to the study, “most of the younger, market beef sold in interstate commerce carries the USDA quality grade stamp.” It was suggested that a small plant might overcome this by developing its own grading system based on the USDA one, but that meat graded in this manner would be “seldom accepted in larger, national, markets (FLPI, 2006).”

Finally, the study noted that “the success of a project is dependent on enough capital to be allocated to marketing activities” and that the investments in marketing costs would be “high in the first year.” The study estimated that if a new plant built a marketing entity of its own, that in the first year, marketing expenses “are estimated at $40,000 (FPLI, 2006).”

*Production and Supply:*
As noted above, Beaverhead County is a major producer of cattle in Montana, as is the southwest region of the state. According to the study, there were 296,000 head of cattle in Southwest Montana. Only 0.9% of cattle raised in Montana were slaughtered in the state. According to those producers interviewed in the study, initial estimates of steers and heifers were 2,880 and 1,640 cull cows per year.

The study noted that the seasonality of beef supply would have to be taken into account, with there being a “lapse in supply” during the end of winter through the beginning of
summer for both cattle and buffalo born in the spring. Also, most cull cows are sold in fall and early winter so that they will not need to be fed and this reduces the price for these animals, however this might be overcome by feeding some cull cattle and then marketing them at a time when there is more demand. It was suggested that producers could calve in the fall and summer to make up for times when there would be low production.

The study suggested that cattle could be purchased from producers on the basis of live weight, a formulated price that used boxed beef as a basis, or a formulated price based on the qualities of an individual carcass.

Processing Plant:
At the time the study was written, there were eight USDA inspected plants in Montana. The study suggested building a plant that was capable of processing 40 head of beef per day. It estimated the square foot cost of construction at $230/sq. ft. and the equipment costs to be $300,000. It was estimated that the plant would be 16,000 sq. ft. in size, for a cost of $3.68 million.

The study also made several recommendations on siting a plant. While it was planned for the plant to be located somewhere near Dillon, there was no specific location discussed in the study. The important criteria for site selection were given as:
- Proximity to major transportation routes
- Plant distance from raw materials
- Utility availability and adequacy
- Community acceptance
- Labor force availability
- Land site suitability

(FLPI, 2006)

Hides and offal: The study recommended that while the plant might be too small to necessitate a mechanical hide puller, a hoist and pulley system would work well. Also, the plant would need to be capable of salting and storing hides on pallets, and be able to stockpile the hides until they had a sufficient volume to sell. Hides could also be stored in a chiller, for an additional investment.

For offal the study noted that tongue, liver, hearts, and oxtail, were generally the easiest items to sell on a local basis, and that for other trim items, it might be possible for the plant to “develop some new further processed items and may be able to develop some new further processed items available to be sold to larger-volume markets (FLPI, 2006).”

Bones and fat would likely need to be removed by a rendering company. Fresh blood might be used as fertilizer, or might be put into the sewer system. Paunch, or, what is left in the animal’s rumen, could be collected and then given to a local farmer, who could mix it with feed and feed it to their animals. The study noted that the only rendering company that collected in Montana was Baker Commodities from Spokane Washington. It is not known if
this is still the only company to collect in Montana. The study also listed composting as a means to dispose of rendering material.

The plant would require 450-550 gallons of water for every beef slaughtered, and the study noted that the most “critical part of planning a new slaughter plant...is the effluent or wastewater system (FSIS, 2006).” There were two options for disposing of wastewater, either pay for a municipal system to deal with the water or treat it at the processing plant.

Lastly, those producers surveyed for a plant in Dillon were interested in dry aging beef, so the plant would need to have enough cooler space to allow for dry aging.

**Distribution:**
The study suggested that the plant could use two methods for distribution: either operate their own in-house delivery network or hire a company to do the distribution for them. However, the study noted that this packing plant would likely need to use a combination of both of these methods. The plant would like have paid $75-$100 per pallet to ship meat.

**Financial Feasibility:**
The study predicted that the meat processing company would operate at a loss for the first year and then make more over the next two years, netting over $1 million at the end of the third year.

**Conclusions:**
The approach in the Pondera County Study to marketing bears little resemblance to the efforts currently underway in the One Montana project. The Pondera study was aimed at filling a local market whereas the current effort at One Montana is aiming for a much broader reach. As such, both the survey of local markets and the suggested budget numbers will likely bear little resemblance to the final report from One Montana.

The study’s suggestion that the Pondera project focus its efforts in a manner that avoided direct competition with the commodity market is consistent with the anecdotal evidence that One Montana has gathered in regards to this issue. It is unlikely that a small plant the size of the Pondera plant could be competitive with plants that produce commodity products. The study has also recommended a regional approach to marketing those products it does produce.

The scale of the proposed plant in the Pondera study is much smaller than the one proposed in the One Montana study. This would have allowed it to process beef, lamb, and hogs—a more species diverse approach than what is proposed in the One Montana study. While the Pondera study does not go into great detail about the methods it would have used for slaughter and fabrication, the assumption is that as a smaller plant it would have used more hand work and less mechanization to process, and that this is what would have allowed beef, lamb, and hogs to be processed.
The Pondera project was scaled to meet local need in the county and surrounding counties. The One Montana project is scaled to meet local, state, regional, national, and international needs.

The proposed plant was too small to market the edible offal, and these items would have been sent to rendering. This is different from what is proposed in the One Montana project. The proposed lagoon system is similar to what has been proposed in the One Montana project, and once again, the difference is more a matter of scale than anything.

Regarding the study in Beaverhead County, the plant was focused on custom processing for a number of different local meat marketing entities, and would have utilized a “corporate marketing strategy” to move the meat from the cull cattle and difficult-to-market cuts from custom processed livestock. It suggested further processing as the best option to do this, and, similar to the Pondera study, suggested that a small plant focus on producing a more artisan product.

The biggest difference in the two studies detailed here is that the proposed facility for Beaverhead County was not a multispecies plant. Its focus would have been exclusively on beef. It also would have had a higher production rate, of 40 head per day vs. 23 head of beef put forth in the Pondera study.

Unlike the Pondera study, the Beaverhead study suggested that it might be possible to market some of the edible offal produced, but suggested similar methods of disposal of the inedible offal by contracting with a rendering company for removal.

Ultimately, the biggest difference in these two studies and the One Montana study is a question of scale. Both the Pondera study and the Beaverhead study were focused more on meeting local or perhaps regional needs than national or international markets. Both studies were the result of local producer interest in a processing facility and therefore the studies are focused on meeting the needs of those local producer interests. There is nothing wrong with this approach, but it is different than the One Montana project, which aims to meet the needs of producers at the state, rather than the local, level. This is perhaps the most crucial difference between previous feasibility work and the One Montana project.

*Both the studies presented here can be obtained by contacting the Montana Department of Commerce.*
2. Research any previous feasibility studies completed on this subject in other states to review their findings and results. Document the studies found and present analysis of the studies.

Methodology: Primary Research

Approach: In a similar vein to the previous topic, it was thought that it would be useful to look at some feasibility studies done in other states for comparison to the current project. In order to make this section as relevant to the current work as possible, the following criteria were used to find studies for comparison.

1. The study must have been completed within the last 10 years.
2. The plant design studied can and should-be multispecies, but it must include the capacity to process beef.
3. No projects examining processing less than 40 head per day would be examined.
4. The states examined for other studies would be states located in the Western U.S.

To find studies, web searches were performed for each of the states in question. If no study was found, the state’s Department of Agriculture was contacted, who would often suggest another state agency to contact. In some instances a school of agriculture within the university system in a state was contacted. If no state agency, university, or web search yielded a study that met the criteria, it was assumed that the given state had no studies publicly available.

Key Takeaways:
- A study from Mendocino County in California was found for comparison.
- Proposed building a facility that could process 80 head of beef and 50 head of lamb or goats per day.
- Projected cost of $18 million.
- Target market was the Bay Area and Sacramento Region.
- Influenced the One Montana Study.

Detailed Findings:

STUDIES FOUND
This search yielded one study that met the above criteria. The study was from Mendocino County in California. A description and analysis of it is given below.

• “Meat Industry Capacity and Feasibility Study of the North Coast Region of California (Mendocino County Development and Financing Corporation, 2009).”

Analysis of “Meat Industry Capacity and Feasibility Study of the North Coast Region of California”

The study was developed by the Mendocino County Economic Development and Financing Corporation to “foster factual and objective consideration of locating a meat processing operation in Mendocino County.” The study was funded by the Economic Development
Administration which is a part of the U.S. Department of Commerce. The researchers were from the University of California Cooperative Extension and a specialist from UC Davis Agricultural Economics Dept. The primary market for the study was the Bay Area and Sacramento Region.

FACILITY DESIGN
The facility was designed as a multispecies facility that could process 80 head of cattle and 50 head of lamb/goat kids on a daily basis. According to the study, the facility design was based on New Zealand plants where slower production lines and increased training have been implemented in order to produce a safer working environment and a lower presence of pathogens. The plant was designed to have two lines for killing and evisceration, one for beef and one for lamb and goats. It would have covered 44,000 square feet and cost just under $18 million.

LIVESTOCK SUPPLY
The study identified two different areas for supply of livestock. The first area was made up of five counties, including Mendocino County—Mendocino, Lake, Sonoma, Marin, and Napa. These counties were identified as the most “local” in relation to a plant to be located in Mendocino County. The second area was an outer group of counties—Yolo, Solano, Glenn, Colusa and Contra Costa.

A survey was used to determine the potential supply of livestock for the plant. Four personnel from UC Cooperative Extension conducted four meetings where 220 livestock producers completed the survey. The survey revealed that the supply available from the 10 counties included in the study was 6% higher for cattle and 13% higher for sheep and goats than the actual processing capacity of the plant. Because this was believed to be a slim supply margin, the authors stated that “utilization of the Facility needs to extend beyond the ranchers who responded to our survey (MCD&F Corp., 2009).”

Most of the producers were marketing their livestock through conventional channels, but were willing to change that. The study also showed that while producers were willing to change the manner in which they marketed their cattle, they would need to get a premium price to do so.

One of the major concerns regarding supply was the availability of finishing capacity among those producers who were interested in supplying livestock. The study projected that only 20% of the volume for the plant could be filled with finished cattle. 60% of the producers who responded to the survey said that they had “little or no finishing capacity (MCD&F Corp., 2009).” The study noted that “In addition to the small-scale feedlot planned for the Facility, similar feedlots scattered throughout the region will be needed (MCD&F Corp., 2009).”
DEMAND
The study examined demand for meat products in the San Francisco and Sacramento area for products such as organic, grass-fed, natural grain-fed, local, kosher, and Halal. The authors interviewed 42 buyers in three market sectors: restaurants and institutions, retailers, and distributors.

According to the buyer interviews, most respondents expected the demand for niche meats to expand in the future. Demand for fresh meats was higher than demand for frozen meats, and the most popular meats were beef, pork, and lamb, and the most popular types of product were natural grain-fed meat and grass-fed.

For restaurants, the most desired attributes were local attributes. For distributors, the most desired quality was organic. For retailers, the most in demand quality was kosher meats. The most common premium the buyers paid for niche meats was 10-30%, depending on the type of product. One retailer noted that “his customers were far less willing to pay a premium for less desirable cuts of the more expensive niche meats (MCD&F Corp., 2009).”

The biggest challenge for buyers when purchasing niche meat products was being able to purchase sufficient and consistent products at the volume they needed, followed by quality of the product.

Distributors were identified as potential partners for the processing plant because distributors typically have infrastructure in place that would be advantageous to a processing plant, such as a customer base and brick and mortar investments such as trucks or aging facilities. Distributors would also account for a majority of the meat produced in a small processing facility.

ECONOMIC ANALYSIS
The direct economic impacts of the project were estimated at $7 million dollars for the budgeted $18 million project. A software system called IMPLAN, used to examine economic ripple effects, was used to estimate less direct economic impacts. The result of those calculations was that the facility would produce $58.2 million worth of meat annually. It would generate 682 full time jobs (not just at the facility) and the value of the regional economy would increase in value by 47%, or $23 million.

The study also included many potential risks that the project might have faced. Internal risks were changes in vital personnel or making big changes in administrative strategies, processing risk such as employee shortages, and external risks like drop in the demand for the product, disruption in the supply of animals or something happening to the plant itself. The study did not provide a solution to each of these, but instead noted that all risks “need to be addressed in depth prior to developing financing proposals for the Facility (MCD&F Corp., 2009).”
CONCLUSION
The Mendocino study and the One Montana study share some similarities. This is deliberate. The One Montana study includes elements that reference the approach taken in New Zealand processing plants and that was a result of finding this study. The Mendocino study includes an article published in Meat Processing Magazine in 2007 that detailed the differences in the New Zealand meat industry and that influenced the approach One Montana used in their study. The article explained that plants in New Zealand run slower and employ new technologies to reduce pathogen loads, while also boasting competitive wages and maintaining an emphasis on workplace safety. These plants also run clean enough that they are able to give tours to the public. The idea of a plant that was safer, cleaner, slower and put an emphasis on workplace safety to the extent that it could be toured by the public was appealing, and it formed to a certain extent the core of the initial concept of what a new plant in Montana might look like.

The two studies share other similarities. Both have been conducted for the purpose of “support of the regional family farmer (MCD&F Corp., 2009).” Both are based on the premise of processing multiple species from within a given locale. The One Montana study does not define local as strictly as the Mendocino study, however. The most crucial differences between the two studies are scale and access to markets. The facility proposed in the One Montana study is capable of processing 250 head of beef/bison per day, a significantly larger number than the plant proposed in the Mendocino study. The costs of the plant are correspondingly larger. The second crucial difference is the location of the plants. The plant proposed in the Mendocino study would be able to take advantage of immediate access to a large affluent urban market that may be more willing to pay a premium for niche meat products than the average Montana consumer. Any meat products from Montana must incur additional costs in order to arrive in a large, affluent, urban market. In addition, because the meat is from Montana, those markets will likely not view it as a “local” product.
3. Research history of branded meat ventures in Montana and the associated marketing challenges they faced.

Methodology: Secondary Research, Expert Interviews

Approach: To gain an understanding of the opportunities and the challenges of creating Montana-branded meats, we evaluated existing information, including conducting an extensive online search of Montana associated brands, during the months of Jan., Feb., and March 2014. We also conducted in-depth interviews with three producers with extensive first-hand experience in marketing Montana-branded products.

Key Takeaways:
- Bad timing, poor product differentiation and undercapitalization were the likely downfalls of former branded meat ventures in Montana.
- There are multiple entities that use and/or have used Montana-themed names in their branding.
- There has been success in identifying meat products as being from Montana.
- Building a new brand will take time.

Key Challenges:
The key challenges faced by former branded meat ventures in Montana were mostly that they did not have a competitive product and were not able to differentiate themselves in the marketplace. Production costs were higher, but these brands were unable to command a premium in the marketplace. Most were also under-capitalized and weren’t able to cover all the costs of production, processing, marketing, distribution and inventory while they waited for payments from customers. It is also possible that some were simply too early to market: they were an idea before their time, in the markets they were in. The market for natural, grain-fed meat and grass-fed, organic, sustainable, etc. meats is much stronger now than it was 10 years ago.

Overall, these challenges are not a branding issue: it is not as if the previous market entries suffered from bad branding and therefore were unsuccessful. Bad timing, poor product differentiation in a highly competitive market and undercapitalization was the likely downfall.

Detailed Findings:
We found several articles that spoke to previous ventures, including a story that appeared in The Montana Standard in February 2004, “Montana Branded Beef – New cooperative hopes to sell Montana beef in the retail marketplace.” 15 The article spoke about the effort to create a new beef supply cooperative called the Montana Branded Beef Association.

More recently published, an article appearing in the Missoulian in January 2011 featured a small rancher in Belgrade, Mont., who had received a grant from the USDA’s Value-Added Producer program, and then sold 16,000 Montana Waygu beef burgers in less than four

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15 http://www.matr.net/article-9745.html
minutes on the QVC network. By 2011, the rancher had tripled his sales since starting the Montana Waygu beef company in 2008.  

Searching online for other Montana-based brands led us to several websites, leveraging the Montana brand, including the following:

- Big Sky Montana Beef – Malek Family, Highwood, Montana; http://www.bigskymontanabeef.com
- Montana Beef – Terry, Montana, Harding Land & Cattle (a source-verified producer) – “Our Montana Beef, USDA inspected Ranchstar™, is available for purchase by discriminating restaurants, purveyors of fine meats, institutions and individuals. Our Montana Beef is raised hormone-free, and is free-ranged grazing on our lush Montana pastures. We only supplement the herd’s diet with healthy, natural feeds that promote robust cattle and lean, rich Montana Beef: fresh, protein-rich alfalfa and corn that we grow ourselves.”
  http://montanabeef.com/
- Meat Montana – http://meatmt.com/ - Does butchering, small scale
- Montana Range Beef – Leachman Cattle Co. – no longer operational

We spoke at length with several producers for a history lesson on branded beef in Montana:

- Cole Mannix – Fifth generation Montana rancher, Director of Operations for Rancher’s Original.
- Wally Congdon – Founder of Big Sky Natural, wrote the “certified natural” and “certified grass-fed” production standards and has 20+ years of experience in the industry.
- Steve Christiansen – Founder of the Montana Branded Beef Association, current meat marketer and has 20+ years of experience in the industry.

Mannix, Congdon and Christiansen provided extensive first-hand knowledge of the branded beef industry in Montana and a combined 50-plus years of experience.

Through our interviews, we heard that “it will take at least five years to find the right producers, develop the production protocol, develop the knowledge and practices to provide a consistent supply of finished animals, establish relationships with processors, distributors, etc. and reach a certain level of success in the marketplace.” Consistency cannot be overstated here: “your customers will not tolerate an inconsistent product.” Without a successful brand, there aren’t enough animals to process to keep a new packer busy. This same sentiment was also expressed in an interview with Cole Mannix of Rancher’s Original. “To justify a new facility that would process even 25 head/day, without taking business away from the other small processors, would require we add another 6,250

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16 http://missoulian.com/business/local/belgrade-rancher-sells-special-wagyu-beef-directly-thanks-to-grant/article_f908b1b2-2123-11e0-ac2d-001cc4c002e0.html
17 Interview with Wally Congdon, February 2014.
18 Interview with Steve Christiansen, February 2014.
head of livestock to Montana niche meat programs. That is triple the size of where we currently are.” Getting to that point requires a tolerance for some pretty low returns. Steve shared a cautionary tale of how little money his venture (Montana Branded Beef Association) made and how thin the margins were: on 1 million pounds of ground beef sold, they realized their take-home profit was $450. They made less than half-a-cent per pound, “after all that work.”

4. Research history of meat processing in Montana and factors that contributed to its decline.

Methodology: Primary Research, Secondary Research

Approach: The history of the meat processing industry is one of consolidation. According to Dr. Eric Belasco of Montana State University, currently, four packers are responsible for over 80% of beef slaughtered in the U.S. These firms are Tyson, JBS, Cargill, and National Beef. Furthermore, according to Dr. Belasco, “Almost 80% of U.S. fed cattle volumes and 83% of all packing volumes reside in 4 states (CO, NE, KS, TX) (Belasco, 2014).”

Currently, in Montana, there are 9 federally inspected plants that are slaughter and processing plants. Less than 1% of the beef raised in Montana is processed here.

Was this always the case? To provide some context to this feasibility study, One Montana thought it would be helpful to provide some information about the meat processing industry in Montana. Web searches were used and historical societies in Montana were contacted for the relevant information, as many records on Montana meat processing are not available elsewhere.

Key Takeaways:
• Of the major meatpacking interests that were started in Montana, only one remains in operation today.
• Accidents in the plants were partially responsible for closure of two of the largest plants in the state.

Detailed Findings:

BILLINGS
In the book “Billings,” by James M. Reich, he states, “By the 1920s and 1930s, Billings was importing more cattle than exporting. There were two major meatpacking plants, Pierce Packing Company and Midland Empire Packing Company. Billings was believed to be the largest packing center between Fargo and Spokane (Reich, 2009).”

Pierce Packing Company:
Pierce Packing Co. was founded in Billings in 1930. Following the Second World War, the company expanded and by 1957 was “the largest independent packing plant in the

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region." In 1973, sales were over $62 million dollars annually and Pierce was slaughtering 250,000 hogs and 60,000 head of cattle per year. By March of 1974, Pierce Packing Co. was the largest meat processor in Montana: they had eliminated their beef slaughter line and doubled hog slaughter to 500,000 head/year as “much of Pierce’s cattle was bought outside the Billings area.” At that time, Pierce was marketing its products in 22 states, Canada, Japan, and Korea.

The success only lasted so long: by December of 1974 Pierce Packing was “on the verge of financial collapse” due to pricing competition between Pierce Packing and John Morrell & Co, which Pierce had filed an antitrust suit against. Pierce said in the affidavit that there was “an immediate and present danger (that Pierce Co.) will become totally insolvent and unable to continue business...with a result being a loss of 370 jobs for employees.” Pierce would go on to lose this lawsuit.

It was the beginning of the end for Pierce: in 1979, an “accidental spill of PCB-laced coolant contaminated poultry feed made at the plant” and as a result the company was hit with lawsuits and fines. Pierce filed for bankruptcy in 1983 and closed for good in 1984.

BUTTE
The Hansen Packing Company was established in Butte in 1912. According to the book Butte by Ellen Crain and Lee Whitney, by 1929 it employed 350 people, and “the Hansen Packing Plant sent beef to Britain during WWII and shipped 400 to 500 railcars of beef and pork every month.” In 1959, the plant was sold to the Sigman Meat Company based in Denver, CO, who retained the name and planned for the plant to be a “Montana project for Montana people.” But in November of 1960 plant operations were suspended following a fire in the plant. According to a researcher at the Butte-Silver Bow Public Archives, 1960 was the last year that the plant was listed in the city directory. It is presumed that the fire prompted the closure of the plant.

GREAT FALLS
According to information found on Archivegrid.com, the Great Falls Meat Company was incorporated in 1897 and closed in 1974. Little else is known about this company.

MISSOULA
According to www.dailysmeats.com, the largest meat processing business in Missoula was the John R. Daily Company, which was founded in 1893 as the Union Market. The name was changed in 1910 and the company grew to 6 local markets, supplied from a nearby slaughterhouse. In the 1920s, the company began to “focus more on wholesale markets”

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22 Billings Gazette, 1974.
and by 1967 closed all of the retail locations. In 1992 the company opened a second slaughter location in Salt Lake City, Utah. In 2005, Daily’s Premium Meats was purchased by Seaboard Foods, one of the largest pork producers and processors in the country. Seaboard Foods continues to operate in Missoula. It makes bacon, ham, and sausage products.

**Conclusion:**
It appears that the meat industry in Montana, at least in the sense of the larger packing houses, died away due to accidents as much as anything else. For both Pierce Packing and the Hansen Meat Co., it appears that closure of the businesses followed accidents at these plants. What is less clear however, is whether the accidents were sufficient in their own right to cause the closure or merely the final straw in a series of misfortunes. Out of all the meatpacking companies described here, only Daily’s Meats continues to operate, and this company is focused on pork, not beef.
5. **Research potential unique qualities and opportunities of a Montana meat product that could add value. (what is the product?)**

*Methodology: Producer Interviews and Consumer Interviews*

*Approach for Producer Interviews:* To determine the unique qualities and opportunities of a Montana meat product, we went to the ranchers. We held in-depth interviews with those who had long been involved in producing and selling branded meat products in Montana, and we also surveyed ranchers on their interests in and ability to sell to a new branded program.

Our approach here was twofold: first, we focused on those involved in the “meat business,” those currently selling branded beef, bison or lamb as they have real life experience in developing and promoting a brand. Since a processing facility sells meat, not livestock, we wanted to hear directly from those in the meat business what it might take to expand an existing brand or build a new one.

Next, we interviewed those involved in the “livestock business,” those selling cattle and calves, as they represent the greatest potential for expansion of branded meat programs in Montana. The vast majority of livestock producers in Montana export their animals for out-of-state finishing, processing, marketing and distribution. Reaching out to these producers helped us better understand their motivations and interests in finishing and processing their livestock in-state and marketing and distributing the resulting branded meat products.

To gather this information, during the months of Jan., Feb. and March 2014, we heard from 20 ranchers in Montana who fit the following criteria:
- Currently raising cattle, lamb and/or bison
- Fit a variety of production styles: traditional cow-calf (7), natural, grain-fed (7), grass-fed (4) or organic (2)
- Had their own brand or were interested in selling to a new brand

Producers were contacted by phone, email and through an online survey distributed by our research team and by the Montana Stockgrowers Association. The survey was sent out to ___ ranchers in Montana. 20 ranchers agreed to participate: 7 producers completed the online survey and 13 were interviewed via phone.

See Appendix K for a copy of the questionnaire.

Our producer interviews and surveys helped us get better sense of 1) what Montana ranchers are currently producing, 2) what they might be able to produce in the future and 3) if they would be interested in selling to a new, Montana brand.

*Key Takeaways from Producer Interviews:*
• Those with an existing branded program are unlikely to participate in a new Montana brand.
• Those already involved in marketing meats felt that the grass-fed market was strongest due to consumer confusion over what “natural” means.
• Producers believe that the Montana name alone won’t be successful.
• Many producers are able to send animals to slaughter year-round: seasonality shouldn’t be that big of a problem.
• Most producers interviewed are satisfied with the existing processing facilities.

**Approach for Consumer Interviews:** For consumers, we needed to understand their awareness of high-quality meats and potential interest in Montana-branded meat products. We talked with 15 individual consumers, up and down the East Coast, who met our target profile:
• Living in the eastern part of the United States
• Well-educated
• Affluent but not necessarily rich
• Health conscious
• Environmentally conscious
• Socially minded
• Want a greater sense of connectedness

Twenty-eight (28) consumers were contacted via phone and email to determine their suitability and availability for the project. Of those, 15 were qualified and interested in sharing their thoughts. Interviews were then conducted by phone with 15 consumers with some additional follow-up questions communicated via email among the 15 participants.

The consumer interviews were conducted to help us better understand 1) the potential unique qualities and opportunities for a Montana meat product that could add value for consumers, 2) the demand for Montana-branded meat products 3) the competitiveness of Montana-branded meat products in the value-added market.

(See Appendix M for a copy of the questionnaire used to interview these consumers.)

**Key Takeaways from Consumer Interviews:**
• Consumers have an increased awareness of how their food is being raised and have an increased desire to have a closer connection to it.
• Consumers typically are committed to their retailer or have a relationship with their butcher, and they aren’t thinking about specific meat brands.
• Purchasing meat is a very visual experience for these consumers.
• “USDA certified” and “natural” labeling doesn't always mean something significant to them.
• They aren't paying attention to “source verified.”
• However, they like the idea of knowing where their meat is from, even if the term “source verified” doesn’t resonate; and Montana holds appeal to them.
- Even though they may not be familiar with the specific industry definitions of these terms, here are the words they used to describe what they would expect from Montana meats:
  - “Grass-fed”
  - “Free-range”
  - Better flavor
  - More tender
  - Not from “factory farms”
  - Not from “huge slaughterhouses”
  - Environmental concerns are taken into consideration

**Detailed Findings from Producer Interviews:**
Our findings gave us an informative cross-section of what a new, branded meat company in Montana might look like. There were, of course, as many opinions as there were ranchers surveyed, but a few common threads came out of discussions:

- **Those with an existing branded program are unlikely to participate in a new Montana brand**
  Ranchers that have worked hard to establish their own ranch brands intend to channel as many animals as possible towards their programs: directing finished animals towards another brand would undercut these efforts. As one rancher said, “Why would I sell to another brand and circumvent what I’ve spent the last six years building?” Another stated “What are you offering me that I can’t do for myself? I already sell directly to consumers, grocery stores and restaurants.”

  There were, of course, ranchers who would be interested in selling finished animals to a new branded program, but at this point they were unable to commit to specific numbers without knowing more about the production protocols and premiums offered: “it would have to cover that opportunity cost of selling the calf when it is a weanling, plus the risk of death loss, plus the cost of feed to reach market weight. I’d need a significant incentive: at least 15% if not more” per one rancher. There was, however, stronger interest in a branded program that would buy cull animals. One producer stated “for cull cows and bulls, I could see running a few hundred head [a year] through a program like that, between all the ranches I work with.” As brand specifics and financials are developed, these ranchers could be contacted again to gauge the seriousness of their initial interest.

- **Those already involved in marketing meats felt that the grass-fed market was strongest due to consumer confusion over what “natural” means. The “Montana” name alone is not enough.**

  Prior to our surveys, we thought that most ranchers would be interested in participating in a natural, grain-fed beef-branded program (as opposed to organic and/or grass-fed), but we found out that wasn’t really the case. Many felt that the natural label was rather meaningless in the marketplace because the big packers can label their product as “natural.” Consumers don’t really understand the difference between “natural meat” (a
processing standard) and “naturally raised” (a production standard) and the big packers can beat a branded program on price any day of the week. Several producers also felt the real growth in demand was for a grass-fed product, so why create a natural brand? All said that felt simply marketing a product as “Montana” beef with no other product differentiation would not work.

- Many producers are able to send animals to slaughter year-round: seasonality shouldn’t be that big of a problem.

Going into our interviews, we had thought that seasonality would be a big issue for any new brand (and the processing facility as well) but many producers said that they already send animals to slaughter year-round and wouldn’t need to adjust calving dates to do so.

- Most are satisfied with the existing processing facilities.

A large part of the impetus for this project was a recurring sentiment that there simply aren’t enough packing plants in Montana, or the existing packing plants do not meet producers’ needs. While that still may be true (we weren’t able to survey every rancher in Montana), by and large the producers we spoke with were generally happy with the processing facilities they use. For example, one rancher said, “You know, I’m pretty happy with the three packing plants that I work with. There are no scheduling issues, all are certified organic and all are able to do value-added processing.” For those selling product in-state only, the 20 state-inspected facilities work just fine. For those selling across state lines, they haven’t maxed out capacity at the USDA inspected facilities they use. Some ranchers mentioned that they would like more value-added processing options, but that could be incorporated into an existing plant and wouldn’t necessarily justify a new plant. One rancher did point to a lack of satisfactory distribution options when trying to reach out-of-state markets: “There isn’t a trucking company worth its salt that works this state.” So that is something to consider for a new plant: in-house distribution services might be necessary.

**USDA-inspected packing plants in Montana**

- Ranchland Packing – Butte, MT
- Little Rockies Meat Packing – Malta, MT
- Stratton’s Butcher Block – Roundup, MT
- White’s Wholesale Meats – Ronan, MT
- Stillwater Packing – Columbus, MT
- Quality Meats of Montana – Miles City, MT

**State-inspected packing plants in Montana**

- Vaughn Meat Packing Inc. – Vaughn, MT
- A - S Processing – Scobey, MT

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Detailed Findings from Consumer Interviews:

Our consumer interviews provided insightful information, giving us a clear idea of what was most important to the consumers as well as a closer look at their shopping behaviors, their purchase criteria, their awareness of high-end meat brands and their thoughts about Montana-branded meats, as well as processing.

KEY CONSUMER QUOTES

“I’d like to see more about where things are from.” Nolden, Marblehead, MA

“We don’t raise our food as we should.” Tracey, Darien, CT

“I love to support the farmer’s market, but it’s hard to rationalize spending 4X as much. It has to be practical.” Dan, Somerville, MA

TARGET AUDIENCE SHOPPING BEHAVIORS

• These consumers tend to be multi-stop shoppers – not just going to one place; they enjoy going to specialty stores.
• What they purchase is inspired by healthy eating, recipes that they often find online, going to the store with a recipe or an idea in mind, except with a steak; that’s more of a specific purchase.
• Looking for packaged foods that have minimal processing.
• More focused on organic fruits and vegetables.

“Pesticides have always been known to be a danger.” Denise, Laurel Hollow, NY
• More in tune to dairy and eggs.
  o Awareness of hormones in milk
  o Awareness of free-range chickens
• More in tune to chicken and brand aware when it comes to chicken – i.e., Bell and Evans Chicken was often mentioned.

“Chicken has to be cage-free, antibiotic free.” Tracey, Darien, CT

PURCHASE CRITERIA FOR MEAT
When consumers purchase meat, here is what’s top of mind:
• The look of it, very visual experience
• Looking for less packaging, less Styrofoam
• Want to be able to see the meat
• Leanness
• Packaging dates
• The quantity – buying the right amount for the situation
• Better quality but less quantity
• Price is a consideration but not always the dominant one

“I specifically look for the quality of the cut, the graining, the marbling. I don’t take the first thing. I will pick through what’s there and pick what I visually like.” Nolden, Marblehead, MA

“I like to see it fresh and presented in a manner that is appealing.” Doug, Sandy Springs, GA

“Ground beef that comes in the tube turns me off, I want to be able to see it.” Laura, Leesburg, VA

“Yes, I want things priced competitively but I will spend extra money for a better cut of meat without hesitation. If something is 98% fat free, then I will buy that even if it’s double the price.” Jill, Astoria, NY

“I like my meat, and I don’t think I could ever give up. But I also want to respect it and acknowledge the animals that I’m eating. Let’s think more about where our food is coming from. If something is from a local farm, then I choose that over factory farm meat.” Jen, Portland, ME

Interviews with consumers also called out key learnings about what was not important:
• “USDA” doesn’t always register or isn’t always trusted.
• “Natural” doesn’t always mean something significant to them.

“I appreciate the USDA standards, but I think it’s overhyped.” Ted, Woodbine, MD

“I’m not sure how much I trust USDA necessarily.” Jen, Portland, ME

They have a clearer image of what it means for meat to be from a “factory farm” and/or a “feed lot” versus what it means for an animal to have been “grass-fed.”
It’s easier for them to understand what the media has portrayed negatively.

They typically have a relationship with the butcher.
- Desire the expertise.
- Know and trust the butcher.

“I make an assumption that if it’s being sold at my local store, then it’s good.” Katie, Atlanta, GA

“The guy has been there forever, he puts out quality stuff. There is no particular objective standard, but he’s local, trustworthy, well-handled product. Personal, local.” Ted, Woodbine, MD

“There’s something about getting it where they wrapped it themselves.” Dan, Somerville, MA

“The butcher is the butcher. The butcher is the brand. The guy has been in business for 40 years, we trust [him] to the end of the world.” Daphne, Alexandria, VA

Consumers don’t have any major challenges in finding their desired cuts:
- Relationship with butcher
- Special cuts are for special occasions
- Also willingness to try new things
- Ground beef and lean cuts are for every day
- Would like to see more bison options
- Hangar steaks aren’t always found in stores
- Not thinking about specific brands

“Bison would be really appealing. We love bison and we never see it the grocery store.” Laura, Leesburg, VA

“Hangar steak never seems to make it to market. Becomes popular in restaurants and harder to find in stores.” Nolden, Marblehead, MA

“Uncooked meat is ubiquitous.” Doug, Sandy Springs, GA

AWARENESS OF HIGH-END MEAT BRANDS
- Not very aware of specific, high-end meat brands.
- Most aware of chicken and processed meat brand names.
- Aware of New Zealand lamb, Argentinian beef, Kobe and Waygu.
- Those who know of Omaha Steaks are not impressed.

AWARENESS OF “SOURCE VERIFIED”
- They are not paying attention to the term “source verified,” as those words have no real meaning to them, but that doesn’t mean they don’t care where their meat is from.
“Yeah, I notice it (‘source verified’), but it’s not in the forefront of my decision making. I don’t seek it out.” Nolden, Marblehead, MA

THOUGHTS ABOUT MONTANA MEAT

• Even though they aren’t paying attention to source verified, they do like the idea of knowing where their meat is from and Montana holds appeal.

“Montana sounds like a nice place to be a cow until it’s time.” Shannon, Alexandria, VA

“Having no knowledge of Montana meat, my gut feeling is that it’s probably very good. It seems to be the right environment for cows. Beautiful, open, healthy state. I would equate the wide openness of Montana to raising the animals well.” Jill, Astoria, NY

• Even though they may not be familiar with the specific industry definitions of these terms, here are the words they used to describe what they would expect from Montana meats:
  o “Grass-fed”
  o “Free-range”
  o Better flavor
  o More tender
  o Not from “factory farms”
  o Not from “huge slaughterhouses”
  o Environmental concerns are taken into consideration

“I would think that it would probably be good, and I would try it – wild, natural. All other things considered. Less likely to be from a big farm, slaughterhouse.” Dan, Somerville, MA

• They would want to know specific standards, education, establish code of ethics, code of standards to create value.

• They would want an explanation of what differentiates it from every other meat.

“Yes, I’m willing to pay more if it’s grass-fed and uses a process that’s worth the extra cost.” Nolden, Marblehead, MA

• They would be willing to pay more for the first time, but to become a repeat buyer then it needs to be compelling.

“If I know where it comes from, and I would rather know where it’s coming from, I’m willing to spend an extra dollar or two.” Shannon, Alexandria, VA

“If all things being the same, just the Montana location, then I would go with the generic.” Denice, Laurel Hollow, NY

• They have some concerns about shipping costs and environmental impact of shipping meat from Montana, as well as the freshness.
“Local for somebody. Small as opposed to big. Less industrial. Transporting across the country, I would just as soon avoid that. When I think local, somebody’s local. Somebody’s homemade.” Dan, Somerville, MA

“If you stressed the fact that it’s federally inspected, fresh, rushed to market. Don’t want to think about it being a long way away. Gets there fast. Fresh, inspected. Those would be the points I’d emphasized.” Katie, New York, NY

THOUGHTS ABOUT PROCESSING
• They tend to not think about processing, but they’d want it processed in Montana, if it’s labeled as Montana.

“I would expect that if something is coming from Montana, that the cows are from Montana, butchered in Montana, coming from Montana. Expect everything to be done in Montana, and a distributor from Montana that dealt with the grocery store.” Laura, Leesburg, VA

6. Research the demand for Montana-branded meat products at the state, regional, national, and international level.

Methodology: Expert Interviews

Approach for Expert Interviews: During this stage of the research, we reached out to 19 retailers identified by consumers in our Consumer Interviews as places they shop for niche meats on the East Coast. This included large, national chains like Whole Foods and Costco, regional chains like Harris Teeter and Food Lion and independent stores like McKinnon’s Meat Market in Somerville, Mass. The purpose of these interviews was to better understand the demand for a Montana-branded product in terms of product attributes, prices, delivery and payment terms, etc. from the buyer’s perspective. Only 3 retailers were willing to participate in our research project: one was a regional chain, one was an independent butcher shop, and one was a natural foods co-op. All participants were told that their answers would be kept confidential.

To address the question about the demand for Montana-branded meat products at the international level, we explored this question as part of the work that was done for Research Topic #7: “Research market potential for Montana meat products in Japan and Taiwan and suggest marketing strategies for those products.” We heard from five trade experts via phone and email.

Key Takeaways from Expert Interviews:
• Retailers don’t participate in surveys.
• Regional chains on the East Coast are not a good target market.
• Institutional food service is a good market.

29 The Eastern Seaboard was determined to be a strong market for Montana meat products by the One Montana team and therefore the focus of this project when conducting buyer and consumer interviews.
• So are restaurants, but they don’t buy very much.
• Awareness of Montana exists in the Asian markets, but there is no current demand for Montana-specific beef.
• However, there appears to be several opportunities to create demand, once exporting criteria is met, in the Asia markets.

**Detailed Findings from Expert Interviews:**

By and large, retailers were not interested in participating in our survey: only 3 of the 19 contacted were willing to participate. Their decision-making process as to what they put on their shelves is largely a proprietary process. The grocery business is incredibly competitive and most retailers do not want their competition to know about their inner workings.

The few that were willing to participate asked to remain anonymous so we will summarize responses by “store type”: large national chains, regional chains and independent. The large national chains were not willing to participate in our survey. But, we can tell a little bit about their product attribute requirements by looking at Whole Foods Animal Welfare Standards, for example. The largest natural foods retailer in the country, Whole Foods in many ways sets the standards for that industry. Their “5-Step Animal Welfare Rating Standards” starts at a baseline Step 1 which is more or less industry standards in the natural beef industry. Feedlot-finishing is allowed, but no antibiotics or growth-hormones may be administered. From there, the standards move up the animal welfare scale to the elusive Step 5: animals must be born, live their entire life on one farm and slaughtered on that farm. Very few producers in the U.S. have a Step 5 rating. Overall, we know that large retailers like Whole Foods are interested in a natural beef product (for example, they carry a significant volume of Country Natural Beef, a natural, grain-fed beef brand) as well as a grass-fed beef product (like Rain Crow Ranch). With the right size, scale, product attributes, price point and distribution, a Montana-branded product could anticipate selling to Whole Foods.

Smaller, regional chains on the East Coast like Harris Teeter and Food Lion, might be a harder market for a new Montana brand to target. From our survey questions and research we found that these chains, in general, sell a larger portion of conventional products. They are very price-conscious, as they have to compete with “the big guys” yet lack the economies of scale that chains like Safeway and Kroger enjoy. Often, regional chains seek to carry more private label products making it difficult for a Montana-branded program to really make a name for itself in the marketplace. Anecdotally, a regional chain retailer wondered how much a Montana brand would really resonate with East Coast consumers: he felt that a branded program led by producers closer to home might be more successful.

Independent retailers and butcher shops could be a great market for a Montana-branded product but it will take a significant number of them to absorb the volume of production coming out of a processing plant of the size proposed in this study. In general, the independent retailers were interested in a Montana product as it gave them an edge,
something special to offer their customers. Depending on the retailer, they were either very price conscious or not particularly price conscious: some catered to a value shopper, while others serve a niche market (i.e. consumers shopping at a natural and organic meats specialty butcher shop).

Given the difficulty we had in getting retailers to participate in our survey we turned to secondary research to learn more about market demand for niche meats. The *Northern California Niche Meat Market Demand Study*\(^{30}\) found that most distributors surveyed carried grass-fed and naturally-raised, with only a handful carrying certified organic. Retailers were roughly the same: nearly 70% carried grass-fed and 100% carried naturally-raised. Restaurants skewed more towards carrying naturally-raised over grass-fed. The study explained that retailers “can carry even minimal amounts of naturally-raised meats, in order to satisfy a potentially small segment of their customer base, while restaurants do not put something on their menu unless they are committed to it.”

On the other side of the country, the *New England Beef to Institution Marketing Study*\(^{31}\) found that “there are opportunities for growth in the use of local beef in institutional markets in all six New England States” with “the bulk of the need (86%) is for raw, bulk ground beef, with no additional processing (pasteurizing, cooking, spicing, shaping, or scoring) required.” Focusing just on institutional food service markets, they found that there were two types of buyers: buyers who have more autonomy and decision-making control (like hospitals and universities) and buyers who are price sensitive and driven by routine (like k-12 schools and food service management companies). They found that the maximum price threshold for locally sourced ground beef was about $4-5/lb. for the buyers with more autonomy and about $2-3/lb. for price-sensitive buyers.

At the local level, rancher Wally Congdon said he sees real demand among Montana institutions (k-12 schools, hospitals, etc.) for Montana meat products. “There are 828 public schools in MT and 45 counties have a local hospital: the demand for local meat from institutions is spread out fairly evenly across the state.” Farm to School programs and Farm to Hospital programs are growing in popularity every year as food service directors look to source more local products.\(^{32}\) Currently, many institutions source their beef from large-scale distributors like Sysco and Food Services of America, not known for their vast array of local meats.\(^{33}\) Why not serve more Montana beef and bison in Montana institutions?

For the international markets, we focused on the Asian markets and included questions when talking with the five trade experts about the demand for Montana-branded meat products and its market potential in Asia. The interviews conducted with the trade experts

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provided a first glimpse into what might be explored with the Japanese and Taiwanese markets.

Without Montana-branded meat products available in Japan or Asia, awareness and demand for any kind of Montana-brand meat is expected to be non-existent. However, there is awareness of Montana including “its nature and clean environment which help deliver good quality and ‘romance.’” Current products being offered overseas – such as organic foods, grains and natural pork – are able to leverage these characteristics.

The biggest challenge is that Montana doesn’t currently have an approved processing facility for its beef. As noted by one of the trade experts, “When Montana cattle are shipped to other places with packing plants, it’s difficult to have Montana-identified beef when it’s mixed up with other cattle.”

In addition, food safety is critical, and as explained by one trade expert, “Traceability can demand a premium.” In his opinion, safety and traceability were more important than whether or not the cattle would be processed in Montana.

Based on these conversations, the opportunity to create demand for a Montana-branded meat is possible. If a processing plant offered best-in-class traceability, it could serve the growing demand for animal proteins abroad and could create demand for Montana-branded meats that were source verified.

7. **Research market potential for Montana meat products in Japan and Taiwan and suggest marketing strategies for those products.**

**Methodology:** Trade Expert Interviews

**Approach:** We worked with One Montana's existing relationships and conducted interviews with those who have extensive knowledge and understanding of the Japanese and Taiwanese markets. We made contact and spoke with five trade experts, including representatives from the following organizations:

- U.S. Meat Export Federation
- Montana Department of Commerce
- American Institute in Taiwan

We also created a discussion guide that was used for these interviews to develop a very preliminary understanding of the opportunities and challenges of tapping these markets.

(See Appendix N for a copy of the questionnaire used to interview these trade experts.)

**Key Takeaways from Trade Expert Interviews:**

- Montana’s current processing plants don’t meet export standards for Asia.
• Food safety is very important in Japan as well as China, and traceable products would be able to command a premium.
• Beef is being shipped chilled, not frozen.
• The preference in Asia is for grain-fed beef, and there are specific cuts desired in Asian markets that often differ from U.S. preferences.

**Detailed Findings from Trade Expert Interviews:**
The interviews conducted with the trade experts provided a first glimpse into what might be explored with the Japanese and Taiwanese markets.

Without Montana-branded meat products available in Japan or Asia, awareness of any kind of Montana-brand meat is expected to be non-existent. However, Montana does have awareness of “its nature and clean environment which help deliver good quality and ‘romance,’” attached to the current products being offered overseas – such as organic foods, grains and natural pork.

The biggest challenge is that Montana doesn’t currently have an approved processing facility for its beef. As noted by one of the trade experts, “When Montana cattle are shipped to other places with packing plants, it’s difficult to have Montana-identified beef when it’s mixed up with other cattle.”

Food safety is critical, and as explained by one trade expert, “Traceability can demand a premium.” In his opinion, safety and traceability were more important than whether or not the cattle would be processed in Montana. Offering best-in-class traceability would be an important part of a Montana-branded meat offering in the Asia markets.

When exporting, there are specific regulations that must be considered. For example, all beef products exported to Taiwan must be derived from cattle under 30 months of age and processed in approved establishments. One Taiwanese trade expert provided the following background information:

“In 2010, the United States surpassed Australia as Taiwan’s largest beef supplier on both volume and value basis. However, U.S. beef exports to Taiwan in 2011 and 2012 tumbled after Taiwan began rejecting some shipments of U.S. beef that tested positive for ractopamine, a feed ingredient approved for use in the United States and many other countries but not approved in Taiwan. Following Taiwan’s decision to implement a maximum residue level (MRL) for ractopamine in September 2012, U.S. beef exports to Taiwan surged during the October 2012-March 2013 period. Industry forecasts now suggest that Taiwan’s import volume of U.S. beef in 2013 is poised to surpass the 2010 record.

The recovery of public confidence in U.S. beef continues to grow steadily, and consumer demand for U.S. beef has been strong, particularly in the hotel and restaurant sector. Most retailers have already restocked U.S. beef in their stores and have reported strong sales. However, U.S. retail giant Costco has been somewhat more cautious, and Australian beef still occupies more chiller space at Costco stores. Prior to 2011, Costco accounted for more than 50 percent of Taiwan’s total imports of chilled U.S. beef.”
As noted in the above source, the Taiwanese – as well as the Japanese – have a preference for chilled beef. The trade expert from the USMEF explained that U.S. beef is being shipped chilled to Asia, as it is believed that “chilled beef is a superior eating product versus frozen beef.” To meet this demand, the packers are bringing chilled containers directly to the plants, filling the chilled containers at the plants, and then not opening them again until they have reached their final Asian destination.

Several trade experts spoke to the preference of the Japanese and Taiwanese desiring grain-fed beef. In addition, packers have been creating demand for short ribs among multiple Asian markets, and China continues to be an opportunity. As explained by the USMEF expert, “In the old days, Japan and Korea would argue over the short ribs, and China was a non-factor. Now, Korea is complaining about China taking all of the short ribs.”

The demand is often for the cuts on “the ends of the animal.” Specific cuts mentioned included: beef tongue, tripe, intestines and muscle meats. In Taiwan, rib fingers, heel muscles and chuck items were noted.

Asia, in particular, has experienced rapid economic growth in recent years and an ensuing rise in meat consumption. Despite high tariffs, restrictive quotas, and stricter limits on residue levels, U.S. beef exports to Asia continue to grow. Because Asian market preferences differ from domestic market preferences, exports to Asian markets represent an opportunity to generate higher revenues from traditionally undesirable cuts of meat, such as the market for tongue in Japan or intestines in Southeast Asia. Products that are less desirable in the U.S. are in great demand in other regions of the world and growing market access would trigger increases in the value of the entire animal and generate premium prices for offal.

Recommended Marketing Strategies for the Asian Market:
Based on our preliminary discussions, the recommended marketing strategies for the Asian markets include:

• Meet current and anticipated future export standards.
• Provide best-in-class traceability.
• Build critical trade export and buyer relationships.
• Determine meat production and shipping protocols (grass-fed vs. grain-fed cattle; specific cuts desired; chilled vs. frozen carcasses).
• Create a Montana brand that builds off the existing Montana mystique.
8. **Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)**

*Methodology:* Expert Interviews and Consumer Interviews  
*Approach:* We conducted one-on-one interviews with producers, retail buyers and consumers to gain a better understanding of the competitiveness of Montana-branded meat products in the value-added market – i.e., the market for non-commodity meats. For the industry experts, we wanted to better understand the competitive marketplace and the value that the Montana brand brings to the value-added market. For consumers, we wanted to understand their awareness of high quality meats, potential interest in Montana-branded meat products as well as their behaviors and attitudes in purchasing these products.

**Key Takeaways:**
- The target markets will need to be clearly defined.
- Adequate capital is a must.
- Enough time to be successful is essential.

**Detailed Findings:** From our interviews and surveys with producers, buyers, and consumers, we believe that a Montana-brand could be successful, but it will take a very strategic focus on a clearly defined market, capital and time.

1. **Define the target markets:** There are several opportunities for expanding the market for Montana-based meat products: natural grain-fed beef, grass-fed beef, bison, international markets, etc. Each market has its own competitive landscape. To conduct a true competitive analysis, a specific market channel will have to be selected.

2. **“Make sure you have adequate capital”**
   ```
   Many of the now-defunct branded programs didn’t fail because they had a bad idea, they failed because they were not adequately capitalized and could not make it through the lean start-up years. This was the case with several Montana programs, as well as others in the region, like Northern Beef Packers in Aberdeen, S.D. One rancher we interviewed said “a branded program starting up today would need 7 or 8 times their monthly operating costs in reserves to operate, with what cattle cost today.”
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3. **Make sure you give yourself enough time to be successful:** Those with experience in the natural grain-fed beef industry told us that building a new brand will take time: producer Wally Congdon said it will take “at least 5 years to find the right producers, develop the production protocol, develop the knowledge and practices to provide a consistent supply of finished animals, establish relationships with processors, distributors, etc. and reach a certain level of success in the marketplace.” Consistency cannot be overstated here: “Your customers will not tolerate an inconsistent product,” per producer Steve Christiansen.

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34 Interview with Steve Christiansen, February 2014.
9. **Determine price premiums for Montana-branded meat products.**

**Methodology:** Analysis of primary research and secondary research.

**Approach:** To determine possible price premiums for Montana-branded meat products, we used findings from producer and retail buyer interviews as well as secondary research to develop an economic analysis tool for producers to use in examining value-added marketing opportunities. We also compared current retail pricing of several key beef cuts in the Missoula, MT, Boston, MA and Seattle, WA markets.

**Key Takeaways:**
- Price premiums of 10 – 30% are common for niche meats
- There isn’t a huge difference in prices in the markets that were evaluated

**Detailed Findings:** It was difficult to get a sense of the price premium for Montana-branded products as a result of our research.

Producers were hesitant to commit to a set premium given that the production protocols for a new branded program have yet to be finalized. Producers who participated in our online survey said they’d need a premium at least 5%, if not more like 10 or 15%. In a strong cattle market, such as today’s, the commodity markets are an attractive alternative to the difficult process of building a brand. Same for retailers: they were unwilling to say what kind of premium they pay for various products. We do know, from our research review, that on average, price premiums of “10 – 30% were common”\(^\text{35}\) for niche meats, with certified organic meats commanding even higher premiums.

We can, however, help producers determine the pros and cons of pursuing various market channels when they are ready.

Included in Appendix O is an economic analysis tool for producers to use in examining value-added marketing opportunities, developed by the University of California Cooperative Extension (UCCE).

Included in Appendix P is a beef cutting test template (also from UCCE) to help producers better understand what they are getting out of each carcass.

How might a producer use these tools? If a cow-calf producer, for example, was interested in raising animals to slaughter weight and marketing the meat, he or she could use these two tools to help determine the profitability of that endeavor as well as estimate how many lbs. of each cut the carcass might yield.

\(^\text{35}\) Gwin and Hardesty, 2008.
Our findings from comparing retail prices for several key beef cuts are as follows:

<table>
<thead>
<tr>
<th></th>
<th>gf. ribeye</th>
<th>n. ribeye</th>
<th>gf. bnls</th>
<th>n. bnls</th>
<th>gf. ground</th>
<th>n. ground</th>
<th>source</th>
</tr>
</thead>
</table>

**gf:** grass-fed  
**n:** natural, grain-fed

The Missoula prices are from local and regional brands including B Bar Ranch and Mannix Beef and were collected in April 2014. The Boston and Seattle prices (collected in March 2014) are from well-established brands with national distribution, e.g., Panorama, Country Natural Beef and Meyer Natural. A new Montana-branded product would have to enter the marketplace at a price point that is competitive with what is described above. Given the distribution costs to and within various markets, among other factors, a local, regional, East Coast or West Coast market may or may not be attractive.

**10. Research the supply of beef, lamb, and bison in Montana.**

**Methodology:** Expert Interviews and Secondary Research

**Approach:** In researching the feasibility of this project, it was important to know the supply of each of the species in question—beef, lamb, and bison.

One Montana contacted the Montana Department of Livestock, the Montana Department of Agriculture, the National Agricultural Statistics Service, the Montana Department of Environmental Quality, and the Montana Bison Association to compile this section. They also used web searches and the National Agricultural Statistics Service Ag Census search tools to find relevant data.

**Key Takeaways:**
- Montana beef inventory in 2013 was 2.6 million head of all cattle and calves.
- Montana lamb inventory in 2013 was 235,000 head of all sheep and lambs.
- Montana bison inventory is less clear. The best data available suggests that the bison herd in Montana is around 9,000 head.

**Detailed Findings:**

**BEEF:** Beef cattle are the most prolific of the above three types of livestock in Montana. According to data from the National Agricultural Statistics Service (NASS), in 2013, there were 2.6 million head of cattle in Montana. The number of beef cows and heifers that have calved was 1,506,000. These numbers are up slightly from 2011 and 2012, during which
the number of beef cows and heifers that have calved were 1,476,000 and 1,456,000 respectively. The overall cattle herd grew from 2011 to 2013 as well, expanding by 100,000 head from 250,000 in 2011-12 to 2.6 million in 2013. However, the 2013 calf crop fell 2 percent from 2012’s crop to 1.47 million head in 2013.

According to the most recent NASS data, Montana’s cattle herd has experienced a small amount of contraction in 2014, with the overall inventory of all cattle and calves falling to 2,550,000 head, which is a 2 percent drop from January of 2013. However, the number of cattle and calves on feed in January was 45,000 head, an increase of 18 percent from 2013.

The following is the NASS summary of class estimates for Montana:
- Beef replacement heifers 500 lbs and over: down 1 percent to 430,000 head
- Milk replacement heifers 500 lbs and over: up 1,000 head to 9,000 head
- Other heifers 500 lbs and over: up 13 percent to 211,000 head
- Steers 500 lbs and over: down 4 percent to 220,000 head
- Bulls 500 pounds and over: No change at 100,000 head
- Calves under 500 lbs: Down 25 percent to 90,000 head

(USDA NASS cattle inventory January 1, 2014)

While the Montana inventory of cattle has experienced little fall-off from recent years, it is worth noting that in the larger context, the United States cattle herd continues to shrink. As of January 1, 2014, the total cattle inventory of all cattle and calves in the U.S. was 87.7 million head, the lowest since 1951. There were 38.3 million of all cattle and calves that have calved, the lowest since 1941. Finally, the 2013 calf crop was 33.9 million head, the smallest calf crop since 1949.

It is useful to place the Montana inventory within the larger context of the U.S. cattle herd to illustrate that while Montana continues to produce cattle on track with past years, as a state, it is doing so within an inventory that is shrinking nationally. This means that demand for cattle is likely to remain strong in the next few years, which will continue to produce high prices for cattle. According to an article on industry website AgWeb.com, written by Chris Hurt, Extension Economist, Purdue University, “In 2013, retail beef prices averaged $5.29 per pound but moved to a record $5.55 in the first quarter of 2014. Retail beef prices in 2014 are now expected to average $5.67 per pound, an increase of seven percent over last year.”

In this discussion of supply of beef in Montana it is important to note these high prices for beef, and tight national supply of beef. This suggests that while Montana has a large supply of cattle that could supply a processing plant in Montana that slaughters 250 head/day, a Montana processing plant would face competition for the Montana supply due to high prices and strong demand for a tight supply of cattle.

LAMB: Lamb was the second most prolific category of livestock examined. In 2013 the inventory of all sheep and lambs in Montana was 235,000. This was up slightly from 2012,
when the inventory was 225,000. In 2014, the total inventory of all sheep and lambs was 220,000 head, a six percent drop from 2013.

The inventory of sheep and lambs splits into just that, sheep and lambs. The inventory of breeding sheep in 2014 is 200,000, a five percent drop from 2013, while the number of market sheep and lambs fell 20 percent to 20,000 head. Of this 20,000 head, 19,000 of them were market lambs.

It is too early to have any data on the 2014 lamb crop, but the 2013 lamb crop was 200,000 lambs. This was a 5 percent drop from 2012.

The following is the NASS summary of class estimates for Montana:

- Lambs weighing less than 65 lbs: 2,000
- Lambs weighing 65-84 lbs: 6,000
- Lambs weighing 85-105 lbs: 4,000
- Lambs weighing over 105 lbs: 7,000

(USDA NASS sheep/lamb inventory January 1, 2014)

According to Mr. Bowling, 90% of the market for lamb in the U.S. is on the Eastern Seaboard, between Washington D.C. and Boston. Mr. Bowling believes that to transport lamb from Montana to this market would negate any profit that might be made on Montana lamb, and has therefore not designed the processing facility to accommodate the mechanized processing of lamb. He believes that it would be possible to process a small number of lambs on a daily basis. If the facility were to process 10 head per day of lamb, the current Montana supply could easily meet this need.

**BISON:** The third type of livestock examined was bison. Bison is a difficult species to find data on. Because it is primarily a specialty species, it is not given the same level of data collection as beef and lamb. There is little USDA data available on bison. What data was available is summarized below.

Perhaps it is easier to start with national data. According to NASS survey data, the total number of bison slaughtered in the U.S. in 2013 was 57,000. This is an increase from 2012, when 51,500 bison were slaughtered, but overall, the number of bison slaughtered is down from the 8-year high of 70,100 in 2008, a 19 percent drop.

The 2012 census data for Montana lists the inventory of bison in Montana at 14,671 animals on 80 ranches. There was no other data available for Montana on the national level. Unlike lamb and beef, USDA does not collect detailed data on bison. Without USDA data, it is difficult to collect solid information on bison on a national level.

In Montana bison is regulated by the Department of Livestock (DoL). Steve Merritt is the public information contact at DoL and was asked about the inventory of bison in Montana. According to Mr. Merritt, the inventory of bison in Montana is closer to 9,000. The DoL uses per capita fees to assess the number of bison in Montana, and it is the opinion of Mr.
Merritt that these numbers are more accurate than those in the survey, which are voluntary, and could lead to error. Given that bison are at times politically sensitive in Montana, it is probable that the state agency is likely to have an accurate count on the number of bison in Montana.

One Montana also contacted the Montana Bison Association’s president, Andrew Bardwell, about the total number of bison in Montana. Mr. Bardwell told One Montana that the MBA did not keep a total number of bison its members had, but that the association did have around 80 active members. The MBA website lists 38 bison ranches in Montana among its members.

The point of listing these conflicting estimates of bison data is that there is a wide range of data on the inventory of bison in Montana. It is safe to assume that at a minimum, there are 9,000 head of bison in Montana and that on the upper end there are perhaps close to 15,000 head. But, whatever the inventory of bison, not all of those animals are available for slaughter. Some of those animals, perhaps a majority of them, are breeding stock. Therefore, as a conservative estimate, it should be assumed that the number of bison available for slaughter in Montana is less than 9,000 head annually.

The proposed plant has been designed to process 250 head of beef or bison per day. Since it can slaughter bison in the same manner as beef, it could slaughter 250 head of bison per day. It is inefficient to run a plant at less than full capacity, so the assumption could be made that the proposed plant will need to slaughter 250 head of bison per day, when it does slaughter bison. Given the low number of bison in Montana, it is probable that, if the plant were to slaughter bison on a regular basis, it will need to source bison from outside Montana, as well as in state.

11. Provide projections of potential growth in supply assuming a functioning processing plant.

Key Takeaways:

- At 250 head of animals/day and 251 working days in 2014, the plant (if operating at full capacity) would process 62,500 head of beef and bison in 2014.
  - 200 of the working days would be used to process beef for a total of 50,000 head of cattle.
  - If the 50 remaining days were used to process bison for a total of 12,500 head of bison, the processing plant would have to source from surrounding states because there are currently approximately 9,000 head of bison in Montana.
  - A second and more plausible projection allocates 225 working days to beef and 25 to bison.

- Assume that 20% of the annual volume would be custom beef processing and 80%, or 45,000 head, would be sourced, processed and marketed under the plant’s own labels.
  - It is unlikely that a new processing plant would cause an increase in the supply of bison or cattle in the state and the plant would have to purchase cattle and bison from producers at a competitive price.
Approximately 10% of the plant’s own meat would be grass-fed beef, meaning that 4,500 head of grass-fed cattle would need to be sourced from the state. The plant would either need to a) compete for purchase of grass-fed beef with other brands, or b) develop its own supply by partnering with producers who would convert their operations to grass-fed.

**Detailed Findings:**

**Assumptions about annual plant output:**
In order to provide projections about the growth potential of supply, some assumptions about plant volume must be made.

First, the proposed plant is designed to process 250 head of animals per day. These could be beef or bison. There are 251 working days in 2014. This equates to approximately 50 five-day work weeks. Using this as a basis, if the plant were currently in operation and operating at full capacity, in 2014 it would process 62,500 head of beef and bison.

Second, as noted in Section 10, the supply of Montana beef is much greater than the supply of Montana bison. Therefore the assumption will be made that of the 50 five-day work weeks the plant would have in 2014, it will process beef four out of five days, leaving the fifth day for either a full day of bison processing or a half day.

So, using 200 working days at a capacity of 250 head gives an annual processing total of 50,000 head of cattle.

If the remaining 50 days of the working year were devoted solely to processing bison, at full capacity, this plant would need to source approximately 12,500 head of bison. As noted in Section 10, the most accurate estimate of bison in Montana puts the entire state herd at 9,000 head. This makes it clear that in order to process bison one day a week at full capacity the proposed plant would need to source bison from the surrounding states, and not just Montana.

However, if the remaining 50 days of the working year were split evenly between beef and bison processing, this would equate to 6,250 head of bison processed annually. It would however, increase the beef total to 56,250 annually.

This second projection seems a more likely scenario, especially in the first years of the proposed plant’s operation. Given that the USDA estimates for the entire USA put the number of processed bison at 57,000 in 2013, as a proportion of this slaughter, 6,250 head of bison would represent 11% of the entire U.S. bison market. In contrast, in 2013, 2.56 million head of cattle were slaughtered in the U.S., according to NASS. The hypothetical 56,250 head slaughtered in Montana would represent 2.2% of the U.S. cattle market.

There has been interest from beef producers in Montana in the proposed plant. In fact it was this interest from producers that led to the current feasibility study. There has also been interest from bison producers both in and out of Montana in the proposed plant.
Supply Trends:
As shown in the graph on the following page from Farmpolicy.com, after peaking in the 1970s, the U.S. beef inventory has been trending downwards.

![Cattle Inventory as of January 1](image)

As noted in Section 10, as of January 1, 2014, the total cattle inventory of all cattle and calves in the U.S. was 87.7 million head, the lowest since 1951. There were 38.3 million of all cattle and calves that have calved, the lowest since 1941. Finally, the 2013 calf crop was 33.9 million head, the smallest calf crop since 1949.

The number of cattle operations in the U.S. has also been on the downward trend for the past 10 years, as shown in this graph from the Environmental Protection Agency.

![Number of All Cattle and Beef Cow Operations, United States, 1992-2012](image)

The Montana cattle inventory has held relatively steady over the last 3 years, falling only 2 percent from January of 2013 to January of 2014. However, as noted in Section 10, it is
necessary to place Montana within the larger context of the U.S. cattle inventory. As stated in Section 10, demand for cattle is likely to remain high in the next few years, as the supply stays tight. Cattle prices are primarily influenced by market demand, and currently demand is high. However, as some cattle producers restock to meet this stronger demand, beef prices may start to fall. Weather is also another factor that influences the cattle inventory, and in the event of drought, cattle producers decrease their inventory by selling cattle for slaughter. While this increases the short-term supply of cattle on the market, it decreases the inventory in the longer term.

Supply Growth:
So, what does this mean in terms of "growth in supply" for the proposed Montana processing plant? The most probable answer is that building a processing plant in Montana will not cause a measurable increase in the supply of either cattle or bison in Montana, and that the proposed plant will have to purchase cattle and bison at a price that is competitive against prices paid by other packers.

As noted elsewhere in the study, the proposed plant will likely do some custom processing for established niche Montana brands, as well as develop its own product lines. The most probable scenario for an increase in supply is that these niche brands (some of which have cited a lack of processing capacity as a barrier to growth) would expand their herds to reach a larger market.

It is also likely that the proposed plant will produce different product lines of its own. For example, developing its’ own grass-fed beef program. Consider for a moment the projection that the plant would process 56,250 head of cattle annually. What percentage of this number would be grass-fed? In order to reach this percentage it is necessary to once again make some assumptions about supply, this time about custom processing. Assuming that 20% of the annual volume would be custom beef processing, for both Montana niche brands and regional niche brands, custom processing would amount to 11,250 head. This would leave 45,000 head for the plant to source, process, and market under its own labels. Continuing to use the example of grass-fed beef, what percentage of that 45,000 head would then be grass-fed? Assuming that 10% of the plant's volume would be Montana grass-fed beef, that would amount to 4,500 head of grass-fed beef annually that would need to be sourced from the state.

There is no known inventory of grass-fed beef for the state of Montana. This makes it difficult to accept or reject the hypothesis that 4,500 head of grass-fed beef could be sourced from Montana annually. However, it is probably reasonable to assume that grass-fed beef currently being raised in Montana is already associated with a niche meat brand, whether that be in-state or a regional brand. Therefore, were the proposed plant to market 4,500 grass-fed beef under its own label, it would need to either a) compete for purchase of grass-fed beef with other brands, or b) develop its own supply by partnering with producers who would convert their operations to grass-fed.
Provide analysis of marketing strategies used by value-added meat ventures on the state, regional, national, and international level in order to determine the best method of marketing Montana-branded products.

Methodology: Analysis of primary research and secondary research.

Approach: We looked to other successful branded programs for strategies and tactics that a Montana-branded program could replicate, including conducting primary research as well as tapping secondary research, evaluating existing case studies and researching available information.

Key Takeaways:
• Determine your best target audiences.
• Determine your best story.
• Tell that story well.
• Repeat that story in ways that are meaningful to your target audiences.

Detailed Findings:

STATE LEVEL: Yellowstone Grassfed Beef

Background
Yellowstone Grassfed Beef (YGB) actually started as two individual companies: Double T Beef (from Two Dot Land and Livestock Co. in Harlowton) and Centennial Natural Beef (from J Bar L Ranch in Twin Bridges). The two were essentially direct competitors, selling a similar product and targeting the same retailers and restaurants when they realized they’d be stronger together and paired up in 2010 to form YGB.36

YGB focuses on local and regional markets, selling primarily to Montana retailers, restaurants and institutions like the University of Montana, with a handful of restaurant accounts in the Seattle area. YGB was founded in 2010 and has grown significantly since then, selling about “125,000 lbs. of grass-fed beef [in 2013], roughly twice the amount sold in its first year.”37 They use Stillwater Packing, a USDA inspected processing facility in Columbus, MT for all their slaughter, fabrication and value-added processing. Operations Manager Terry Hollingsworth says that this partnership with their processor is important to their business model now and in the future: “We’re planning to grow and our processor is planning to grow with us.” Using in-state processing allows YGB to market their product as “born, raised and processed”38 in Montana, which is important to their marketing strategy even though it costs more than out of state processing options.

Marketing Strategy
YGB’s marketing strategy focuses on three key points in selling their product:
• environmentally sustainable

38 Ricker, 2014.
- comes from a family farm
- maintaining a good mix of market channels

Environmentally Sustainable
A core tenet of YGB’s marketing strategy is telling the story of their environmentally-friendly production model and how it differs from industrialized beef production: they are actively trying to combat the image of beef as having a negative environmental impact.

“All the beef sold by Yellowstone Grassfed Beef is raised following strict standards of both land stewardship and quality of beef. This part of southwestern Montana offers some of the most pristine grasslands in the world, and many of the folks that have been ranching here are fourth and fifth generation—which for Montana is practically ancient history. Our ranches know how to raise beef, but also know the value of healthy land, and that the two are closely tied together.”

yellowstonegrassfedbeef.com

This strategy has been successful in reaching consumers who are interested in eating beef that has a lighter ecological footprint, is higher in omega fatty acids and raised with higher animal welfare standards.

Comes from a Family Farm
This marketing strategy is a very personalized one. Many in Montana feel a strong connection to the state’s ranching heritage and aren’t as far removed from the family farm as people in other more urbanized states. Twodot Land and Livestock, one of the YGB ranches, has been in Zach Jones’ family since 1908.

“A partnership of real ranches where rural people grow really good all-natural, grass-fed beef. It’s that simple.”

yellowstonegrassfedbeef.com

By sharing their story and highlighting that Yellowstone Grassfed Beef comes from family-owned and operated ranches, YGB is able to set themselves apart from more anonymous, commodity beef.

Maintaining a Good Mix of Market Channels
Balancing the carcass is critical to the success of any branded beef program: you need a home for every part of the animal. Operations Manager Terry Hollingsworth shared how having the right mix of customers has allowed them to grow: “We sell cuts like top round and bottom round to our institutional customers and then restaurants and grocery stores take more of the steaks and higher-end cuts. Everyone wants ground beef.” Overall, Hollingsworth sees opportunities to grow across all in-state market channels and even expand their regional markets further as demand in Seattle and other metro markets grows for high-quality, grass-fed beef.
REGIONAL LEVEL: Country Natural Beef

Background
“Country Natural Beef started with 14 ranching families marketing 200 head of natural beef cattle in 1987. In recent years, the cooperative has nearly 100 member ranches in multiple states that raise more than 100,000 brood cows, manage more than 6 million acres of land and sell almost $50 million of products. This rancher cooperative is consumer-driven, producer-controlled, helps ranching families retain “every possible bit of independence,” keeps administrative costs to a bare minimum, pays operating costs from a percentage of producers’ revenue instead of borrowing operating funds and sets stable prices based on production costs, a return on investment and a reasonable profit.”

Marketing Strategy
Country Natural Beef’s (CNB) marketing strategy has focused on:
- product differentiation
- quality
- finding the right mix of market segments

CNB sets themselves apart from their competition by telling the story of their ranchers, their land stewardship and their co-op. They focus on their ranching families, human handling practices and environmentally sustainable production practices in their marketing and branding. The integrity of these principles is documented and verified by their own in-house GrazeWell program and their third-party Food Alliance certification. Customers even get a chance to meet the ranchers in person: each CNB rancher is required to participate in three customer outreach events per year. In an age where consumers have become increasingly concerned about GMOs and feedlot-finishing (yet still want marbled, flavorful, fresh beef 365 days a year!), CNB has walked that thin line by continuing to feedlot finish so they can meet market demand for fresh, consistent product but feeding only non-GMO feedstuffs (barley, wheat, cooked potatoes, alfalfa hay, and a mineral vitamin supplement). Their relationship with Beef Northwest, a Pacific Northwest feedlot, allows them to maintain consistent quality, as does their relationship with AB Foods, the processing facility utilized by CNB in Toppenish, WA. In addition, CNB cattle must be raised from birth on CNB ranches, controlling the quality of calves going into the program. Finally, CNB has been thoughtful in finding the right mix of customers that works for their business: high-end cuts to Whole Foods, ground beef and lower end cuts to other retailers, Burgerville, and food service. Balancing the carcass allows for sustainable growth.

In addition to their marketing strategies, CNB has employed some very smart business strategies. They have stayed lean: the co-op has no capital assets or financial liabilities. They do not own any processing facilities, trucks, warehouses, etc. Some producer groups, like CNB and Organic Valley, instead chose to “contract with a third party to custom process its product on a cost-plus basis... this approach can be prudent where only razor-thin

margins can be derived from processing, and where there are processors with extra capacity looking to maximize their plant operations.”

NATIONAL LEVEL: Applegate

Background
Stephen McDonnell, Applegate founder and CEO, shared what has been critical to their success, how to expand the market for antibiotic-free meat products and some common misconceptions about the niche meat market. Finally, he offered tips for others looking to enter this sector.

When Applegate Farms started over 25 years ago, there was no such thing as “no antibiotics” meat in the marketplace. Their very first product was nitrate-free bacon and from day one they sought to differentiate themselves from the conventional market. Applegate expanded their natural products line by offering antibiotic-free meats starting in the 1990s and adding organic meats shortly after that. As of right now, they only sell processed meat and dairy products (lunch meat, bacon, hot dogs, cheese, etc.) but plan to move into fresh meats in the next couple of years. Their mission is to “change the way America eats meat” and they do this by focusing on “Taste, Truth and Trust: our guiding principles.”

Applegate currently works with about 1,000 farms, utilizing 12 slaughterhouses and 14 co-packers to produce about $200 million (approximately 30 million lbs.) of processed meat products, cheese and frozen foods.

Applegate’s Success
At the core of Applegate’s success is their dedication to the ethos of their brand. Taste, Truth and Trust. Applegate has focused on building a branded product that allows them to establish a relationship with the customer. McDonnell stresses that you must have no conflict of interest and always, always be honest with your customer. Applegate starts with what the customer wants to buy, not with what the producer, processor or retailer wants to sell. This may sound obvious, but it is a nuance that is lost on many in the conventional meat world (e.g. “Pink Slime,” a product that was created to sell a processing by-product, not because customers were eager to buy “lean finely textured beef”). McDonnell stressed the importance of the brand in the niche meat market and outlined his reasoning for selling the mix of products offered by Applegate:

- **Why processed products instead of fresh?** The “processed product sector is much easier to establish a brand in” than the fresh meat sector: you can command a premium if your product tastes better or has brand attributes like organic, humanely raised, etc.

- **Why not only one type of meat?** Applegate is a multi-species company, which allows them the greatest degree of flexibility. Otherwise, “the customer is trained to

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41 Phone interview, 2012.
only expect to see your products in one section of the store.” By offering a variety of products from the beginning, Applegate has been able to more easily expand into new product categories.

- Why sell into such a tiny market? Couldn’t you make more money selling to a large market? “There is no ‘big’ market in the food sector—everything is a fractional niche.” Natural meats is one of the few niche markets with any growth. McDonnell felt that this was an exciting time to be in the niche meat market. “There is so much interest in where our food comes from, how it was raised, how the animals were treated, better health and nutrition and protecting the environment” that he felt all signs pointed towards an ever-increasing demand for niche meat products.

How to Expand the Market

“**We must utilize the whole animal**”: For the niche meat market to expand, we must increase utilization. For those buying whole carcasses, utilization is not a problem. But many processors, retailers, restaurants and institutions want specific cuts and not the whole carcass. The producer or processor must find a home for the rest of the animal (again, this is why products like “Pink Slime” exist). Without a specialty or niche market for all parts of the animal, cuts are dumped on the conventional market, at a loss. Full utilization generates more revenue per carcass for the producer and processor, lowers the price of primal cuts and makes niche and specialty meats more affordable for all.

“**We must change the way we eat**”: The niche meat market will expand as consumers change their buying habits. With the current health trends, Americans simply must change: “We are eating ourselves to death.” This transition starts with eating less meat and being more conscious about the meat we eat. The average American eats 185 lbs. of meat per year43. As they reduce the quantity of meat they eat, they have room in their budget for higher quality meats.

“**We must break down the consumer barrier**”: One of the most significant constraints to growth is the consumer barrier — consumers don’t trust meat in this country. They do, however, trust brands. The consumer (typically female) is driving this movement and she doesn’t trust the meat in the package. “She trusts the label on the package.” The meat industry as a whole has, for the most part, stubbornly refused to brand their products. “They have remained a commodity market by choice.” If consumers are going to pay more, they need to get value out of the increased cost.

Common Misconceptions

“**You have to own your processing**”: Applegate hasn’t found this to be true. While there are regional pockets that lack processing infrastructure, Applegate utilizes outside processors and co-packers and has had few problems finding companies willing to work with them. The dominant, large-scale industry is highly developed — there are lots of physical assets in terms of plants and equipment in the marketplace. In the current

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economy, few of these assets are being used at full capacity. “Focus on developing your brand and let someone else do the processing.”

“Fresh beef is the way to go”: Beef and fresh meats are the last entry point to this market. Beef is too difficult (due to utilization, noted above) and fresh meats lack the taste difference that is necessary to establish a strong brand. Start with processed chicken products, then pork, then beef. Move into fresh meats once you have established a brand in the processed meat sector and you have the consumers’ trust.

How might others enter the natural meat market?
“Work regionally.” Develop a network of farms that all connect to one slaughterhouse. The slaughterhouse manages the genetics, production protocols, scheduling, carcass utilization and product consistency. From there, the slaughterhouse connects to a couple of retailers (these must be customers of scale) to create a multi-species line of branded natural meat products. Start with poultry and move into hogs, then beef.

INTERNATIONAL LEVEL: Snake River Farms and Agri Beef Co.

Background
Snake River Farms (a source-verified brand) is one of several brands marketed by Agri Beef Co., of Boise, Idaho. Agri Beef offers processing, grinding, value-added packaging and packing, employing more than 1,200 people. In addition to its employees, Agri Beef develops extensive relationships with its producers. According to Wade Small, president of Agri Beef’s livestock division, “We work with more than 70 feeding operations and hundreds of cow-calf operations in the Northwest.”

Agri Beef looks to set standards for environmental stewardship and to create a sustainable beef supply chain. Supporting its commitment to sustainability, Agri Beef also ships animal hides to Asia. According to the company, the hides are “converted into such things as baseballs, automobile seats and shoes.”

Marketing Strategy:
Agri Beef sells products in more than 28 countries, telling its story of “real families, great people, exceptional beef.” Among more traditional distribution channels, Agri Beef also uses e-commerce and has recently begun selling direct-to-consumers through its specialty brands, including its Snake River Farms brand, producer of American Waygu beef.

International Approach:
The Snake River Farms brand has seen tremendous growth in the Asian market, endearing itself to the food service industry and highly regarded chefs. According to one trade expert from Taiwan: “Snake River Farms is a famous beef brand in Taiwan. Obviously, it’s not as

44 Agri Beef Co. Business Collateral.
45 Agri Beef Co. Business Collateral.
46 Agri Beef Co. Business Collateral.
famous as Coca Cola. (But) most of the people in the food service should have heard of this brand, especially in high-end restaurants and retail stores.”

Snake River Farms has participated in trade shows and other special events in Asia to build its brand awareness. For example, Snake River Farms was featured in “Tastes of America” dinners in 2008, partnering with Idaho potato producers at the Grand Hyatt Taipei, in cooperation with the Western United States Agricultural Trade Association (WUSATA). Also of note, Snake River Farms has become well represented in Asian markets by tapping exporters such as Natural Econometric Incorporated, based in San Mateo, Calif. and Hong Kong.

**Recommended Marketing Strategies:**

Based on our analysis of these value-added meat ventures at the state, regional, national and international levels, the recommended marketing strategies include:

- Determine your best target audiences.
- Determine your best story.
- Tell that story well.
- Repeat that story in ways that are meaningful to your target audiences.

Conduct sales research to determine best potential distribution channels of Montana-branded meat products.

Methodology: Analysis of primary research and secondary research.

Approach: To determine best potential distribution channels of Montana-based meat products, including those that are more immediate options, we used insights obtained throughout this project.

Key Takeaways:
- Within each market segment, there are three primary wholesale distribution channels:
  - Retail
  - Food service
  - Restaurants
- Initial promising domestic market segments include:
  - Montana institutions
  - Natural, grain-fed beef
  - Grass-fed beef
- While the Japanese and Taiwanese markets look promising, an international export option would come later once a processing plant had been built or an existing one had been modified to meet export standards.
- Direct-to-consumer is also an option, but it is hard to move a lot of volume in this distribution channel, especially without using an established brand.

Detailed Findings:
The three primary wholesale distribution channels include retail, food service and restaurants. We have provided a brief summary of key characteristics for each channel here:

Retail: There are all types of retailers: large national chains, discount stores, natural foods co-ops, independent butcher shops, etc. The most common type is the retail grocery chain. To service retail grocery chains you must provide a wide array of products. Retailers are looking for a “one-stop shop” where they can get steaks, roasts and ground beef. You need to be competitively priced as the retailer has to be able to add on his margin (usually double what they paid for it) and still sell the product. You also need to have adequate cash flow: retailers generally don’t pay their vendors for about 60 days. You may have to use an outside distributor: many retailers like to purchase from a primary distributor who can supply a majority of the products for a certain department.

Food Service: Institutional food service programs (at places like k-12 schools, hospitals, universities, etc.) are quite varied. Some are very price conscious and extremely limited in what they will purchase – i.e., k-12 schools buying pre-formed hamburger patties. Others have a little bit more flexibility in their budget and can take a wider variety of products, like universities or hospitals. It is important to reach out to the individual food service director, get a sense of what he or she needs and then go forward from there. In almost every region,
there is likely to be a food service program that can work with the unique needs and characteristics of a branded meat program. Food service accounts within the state of Montana could be a very strong market channel for a new Montana brand. The demand for local is growing quickly among food service directors.

**Restaurants:** Similar to retail and food service, there are all kinds of restaurants, from fine dining to fast food. Restaurants, in general, purchase smaller quantities and need more frequent deliveries as they lack storage space. They usually purchase a narrower range of cuts: fine dining restaurants wanting almost exclusively middle meats and fast, casual places sourcing mostly ground beef. Restaurants can go out of business quickly and/or change suppliers from one week to the next so these can sometimes be difficult accounts to rely on.

**Direct-to-Consumer:** In addition, a direct-to-consumer option was also explored. This distribution channel may be of interest, as there have been other branded meat companies that have created considerable awareness through this option, but it will need to be further researched to determine the viability and the expense of creating such a program as part of establishing Montana-branded meats.

**Appendix Q** offers an analysis of mail/online beef providers from December 2013.

**14: Provide analysis of best potential sales strategies.**

**Methodology:** Analysis of primary research and secondary research.

**Approach:** We used insights obtained from throughout this project, including our interviews, surveys and continual analysis during the last several months, to recommend the best potential sales strategies, as noted below.

In our analysis of Montana-branded meat marketing opportunities, several options came to light. In terms of a sales strategy, each of these marketing channels can be targeted by either expanding existing brands or creating one or more new brand(s). Where appropriate, we have provided examples of existing Montana brands that currently sell into these market channels. These are only examples: we by no means have included every Montana-based meat brand here and there are many successful programs not listed in this report.

**Montana institutions:** It seems only natural that Montana institutions (schools, hospitals, etc.) would serve Montana beef and bison. Public institutions are taxpayer supported and thus it would make sense that they would use their food purchasing dollars to support Montana farmers and ranchers whenever possible. Montana-based branded programs like Big Sky Natural Beef and Rancher’s Original successfully sell to Montana institutional markets (among other market channels). These brands are currently able to use existing processing facilities, but as the
institutional market expands it is possible that some processing could take place at a new facility.

**Natural, grain-fed beef:** Montana is home to several branded natural, grain-fed beef programs and even more producers who raise and sell calves to out-of-state natural programs. Expanding the finishing capacity in-state for natural, grain-fed beef cattle could increase the demand for processing services in Montana. Such a program is likely to require that animals are raised to meet specific production protocols. Most commonly, these programs incorporate grain-finished feeding and require that animals are not administered hormones, antibiotics or growth promotants. Natural branded programs like Montana Natural Beef and Great Northern Cattle Co. have all had success in the natural beef market.

**Grass-fed:** We heard from several producers that there is a strong market for grass-fed beef and bison in Montana and beyond. Montana-based branded programs like Yellowstone Grassfed Beef and White Park Beef currently sell Montana-raised grass-fed beef direct to customers and to local restaurants, retailers and institutions. As these brands expand, or new grass-fed brands come online, it is possible that they could drive demand for a new processing facility.

**International Markets:** There is growing demand for animal proteins abroad and the Montana name carries a special mystique, particularly in Asian markets. An existing Montana processing facility could be upgraded or a new facility could be built to meet the more stringent export requirements necessary to access these markets.

All four of these market segments come with their own unique sets of challenges and opportunities.

While building a new facility might seem like an attractive option to get started, it also takes significant capital, time and resources.

By starting with the first two steps outlined below, the focus can be on establishing a consistent supply and demand for Montana-branded meats.

As stated in the May 2006 Feasibility of Multi-Species Meat Processing Plant in Pondera County, Montana: “Building a new plant for a new marketing company is often discouraged because it is very hard to start-up two new companies at the same time.”

Below is a diagram and a very basic, step-by-step framework for targeting each market segment and beginning to increase demand and thus create supply for a potential new meat processing facility.
**Step 1: Montana Meat in Montana Institutions**

Start with selling natural, grain-fed and/or grass-fed Montana beef to local institutions. Focus on ground beef and some middle meats. Sell primarily to institutional food service accounts with middle meats going to select restaurant accounts. Use existing state and federally inspected plants for processing.

This is not a new idea: the Western Sustainability Exchange (WSE) in Livingston, MT has a pilot program processing cull cows for hamburger and a few cuts, selling to food service accounts. In addition, one could partner with The National Center for Appropriate Technology (NCAT) based in Butte, MT which recently received a grant to increase the availability of Montana beef in Montana institutions.49

Starting with Montana institutional markets is a good first step for expanding existing brand(s) or laying the foundation for new, Montana-based brand(s). While price sensitive, institutions are often long-term, steady customers able to forecast demand well in advance and stick to a set quantity ordered. These accounts are fairly well spread out across the state, creating opportunities for producers all across Montana. There is a natural marketing strategy built in, particularly for k-12 schools: what rancher wouldn’t want to see their beef on the menu at their son’s or daughter’s school?

Many institutions will have strong demand for ground beef chubs and pre-formed patties: focusing on ground beef allows the brand to smooth out inconsistencies in production. Middle meats from higher quality carcasses could be marketed to select restaurant accounts. A program like this could be expanded fairly quickly, marketing either grass-fed or natural, grain-fed ground beef and using existing state and federally inspected plants for processing.

Step 1 is an opportunity for One Montana to work with interested producers and organizations like WSE or NCAT to expand a “Montana Meat in Montana Institutions” program.

**Step 2: Montana Meat in Local/Regional Retail Stores and Restaurants**

Upon a successful entry into institutional markets, move out to local and regional retail and restaurant markets, again with either natural, grain-fed and/or grass-fed beef; again by either expanding existing brands or establishing new ones. Focus on in-state accounts first (where the Montana name will carry the most meaning) and then move outwards into regional markets.

49 http://farmtocafeteria.ncat.org
With a more established production protocol in place, along with committed leadership, Step 2 would also include establishing and developing new brand(s) for a natural, grain-fed and/or a grass-fed product, especially if existing brands weren’t interested in participating and/or there was room in the marketplace for creating one or more new brands.

Step 2 is an opportunity for the Montana Department of Livestock to participate in FSIS’s Cooperative Interstate Shipment Program (CIS) to expand opportunities for Montana producers. CIS, which was authorized by the 2008 Farm Bill and launched by USDA-FSIS in 2012, allows state-inspected meats from qualifying plants to be shipped across state lines. The goal of the program is to expand market opportunities for small meat and poultry processors. It is currently in operation in Wisconsin, Ohio and North Dakota and Indiana just joined in April 2014. The Montana Department of Livestock would have to agree to participate and go through the approval process with USDA-FSIS, before interested plants could sign up. This is a lower-cost option for selling into regional markets using existing infrastructure.

Note: Steps 1 and 2 can be accomplished with existing facilities. Starting on these steps now will help to ensure a ready-made customer for a new facility if one is to be built.

**Step 3 (or 4): National Demand for Montana Meat**

With an effective local and regional program, a strong brand identity and best-in-class traceability from the processing plant, the opportunity exists to expand to national retail and restaurant markets. One could also consider direct-to-consumer distribution with a now-established brand in place at this time. Again, the product offering at the national level could be either natural, grain-fed meats and/or grass-fed meats.

**Step 4 (or 3): Montana Meat with Best-in-Class Traceability Offered to International Markets**

Work with trade experts and Montana brand ambassadors to expand to international markets, utilizing a new production facility or an existing one that has been upgraded. With experience gained in selling to local and regional wholesale markets, as well as national markets, the organization will now be ready to move into international markets, provided that export requirements have been addressed.

Food safety and traceability will be of the utmost importance selling into these markets, and the proposed facility is designed to offer source verification and best-in-class traceability that would be ideal for this market.

There is an opportunity to capitalize on the awareness of Montana as a travel destination in Asian markets selling the “clean environment” and “romance” of Montana abroad in the form of high-quality, branded beef. Chilled (not frozen) beef is in demand, with a preference for grain-fed products. Selling to an international market provides an opportunity to move cuts not popular in the U.S. in Asian markets: “the ends of the animal,” including beef tongue, tripe and intestines.
Task 3: Research labor-related issues (Consultant)

1. **Examine Montana’s labor market in relation to the needs and employment training necessary for a meat processing facility.**

The Montana labor market does not have a large pool of skilled labor when it comes to meat processing. Given the small number of processing plants in the state and the small size of those plants, there are relatively few skilled workers that could be employed by the plant. Unlike Colorado and the Midwest, which have mature labor pools of meat processors, this plant would need to invest time and money into training new employees. Montana does however, have a sufficient pool of unskilled labor that could be drawn from to fill these trainee positions. It is also possible that a larger plant might with higher wages and better benefits, might draw skilled workers from some of the smaller existing facilities to build a small core of skilled workers.

Training Employees:

The best employment models typically begin by hiring top plant management—Slaughter and Fab Supernatants, and allow these individuals to hire experienced supervisors for critical positions. By encouraging each supervisor to hire and bring with him/her the best people he/she has worked with over the years, it becomes possible to fill in around the critical experience jobs with green employees from local area.

In some areas, it is possible for potential meat processing employees to learn the trade at a local technical or vocational school. Currently, there are no programs in Montana that offer such a curriculum. The most logical solution for employee training is that the proposed processing facility will need to train its own employees in-house. The management team would likely develop a training program based on their previous experience in other processing plants. Assuming that the processing plant could attract a small group of skilled employees from other processing facilities, it would then be somewhat easier to train employees with no experience whatsoever.

It is not uncommon for states to provide money for employment training in instances such as this. Often, this comes in the form of a grant. The processing facility could use these funds to help offset the costs of training new employees.

It is also possible that, if the plant were successful, the Montana University System would consider establishing a curriculum such as the one mentioned above. This would serve the needs of not only the facility proposed here, but of all small meat processing facilities in Montana.

According to the Bureau of U.S. Labor Statistics, productivity decreased 1.7 percent in the nonfarm business sector in the first quarter of 2014; unit labor costs increased 4.2 percent (seasonally adjusted annual rates). In manufacturing, productivity increased 3.3 percent, and unit labor costs increased 0.1 percent. “Table 1. Montana Labor Data” (included below) shows that
the Montana workforce exceeds these expectations and are below the U.S. average for unemployment and underemployment percentages.

Table 1. Montana Labor Data

<table>
<thead>
<tr>
<th>AREA/COUNTY</th>
<th>2010 EMP</th>
<th>2009 EMP</th>
<th>% CHANGE</th>
<th>2010 WAGE</th>
<th>2009 WAGE</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE TOTAL</td>
<td>419365</td>
<td>421570</td>
<td>-0.52%</td>
<td>$34,602</td>
<td>$33,762</td>
<td>2.49%</td>
</tr>
<tr>
<td>STATE PRIVATE</td>
<td>334983</td>
<td>338858</td>
<td>-1.14%</td>
<td>$33,236</td>
<td>$32,247</td>
<td>3.07%</td>
</tr>
<tr>
<td>YELLOWSTONE TOTAL</td>
<td>75354</td>
<td>76082</td>
<td>-0.96%</td>
<td>$37,936</td>
<td>$37,023</td>
<td>2.47%</td>
</tr>
<tr>
<td>YELLOWSTONE PRIVATE</td>
<td>66722</td>
<td>67468</td>
<td>-1.13%</td>
<td>$36,857</td>
<td>$35,922</td>
<td>2.60%</td>
</tr>
<tr>
<td>MISSOULA TOTAL</td>
<td>54042</td>
<td>54318</td>
<td>-0.51%</td>
<td>$33,915</td>
<td>$33,872</td>
<td>0.13%</td>
</tr>
<tr>
<td>MISSOULA PRIVATE</td>
<td>44807</td>
<td>45759</td>
<td>-2.08%</td>
<td>$32,375</td>
<td>$31,880</td>
<td>1.55%</td>
</tr>
<tr>
<td>GALLATIN TOTAL</td>
<td>42471</td>
<td>42692</td>
<td>-0.52%</td>
<td>$34,103</td>
<td>$33,253</td>
<td>2.56%</td>
</tr>
<tr>
<td>GALLATIN PRIVATE</td>
<td>34863</td>
<td>35178</td>
<td>-0.90%</td>
<td>$32,742</td>
<td>$31,798</td>
<td>2.97%</td>
</tr>
<tr>
<td>FLATHEAD TOTAL</td>
<td>37041</td>
<td>37386</td>
<td>-0.92%</td>
<td>$32,975</td>
<td>$32,205</td>
<td>2.39%</td>
</tr>
<tr>
<td>FLATHEAD PRIVATE</td>
<td>32043</td>
<td>32491</td>
<td>-1.38%</td>
<td>$31,846</td>
<td>$31,074</td>
<td>2.48%</td>
</tr>
<tr>
<td>CASCADE TOTAL</td>
<td>35323</td>
<td>35503</td>
<td>-0.51%</td>
<td>$33,992</td>
<td>$32,751</td>
<td>3.79%</td>
</tr>
<tr>
<td>CASCADE PRIVATE</td>
<td>29411</td>
<td>29742</td>
<td>-1.11%</td>
<td>$32,339</td>
<td>$31,071</td>
<td>4.08%</td>
</tr>
<tr>
<td>LEWIS &amp; CLARK TOTAL</td>
<td>34397</td>
<td>34463</td>
<td>-0.19%</td>
<td>$38,244</td>
<td>$37,799</td>
<td>1.18%</td>
</tr>
<tr>
<td>LEWIS &amp; CLARK PRIVATE</td>
<td>23611</td>
<td>23680</td>
<td>-0.29%</td>
<td>$33,208</td>
<td>$32,450</td>
<td>2.34%</td>
</tr>
<tr>
<td>SILVER BOW TOTAL</td>
<td>15279</td>
<td>14955</td>
<td>2.17%</td>
<td>$35,723</td>
<td>$35,569</td>
<td>0.43%</td>
</tr>
<tr>
<td>SILVER BOW PRIVATE</td>
<td>12817</td>
<td>12606</td>
<td>1.67%</td>
<td>$34,302</td>
<td>$34,035</td>
<td>0.78%</td>
</tr>
<tr>
<td>Balance of state total</td>
<td>125458</td>
<td>126171</td>
<td>-0.57%</td>
<td>$32,561</td>
<td>$31,349</td>
<td>3.87%</td>
</tr>
<tr>
<td>Balance of state private</td>
<td>90709</td>
<td>91917</td>
<td>-1.31%</td>
<td>$31,792</td>
<td>$30,399</td>
<td>4.58%</td>
</tr>
</tbody>
</table>

2. Make estimates regarding wages and staffing requirements for the facility.

The proposed plant will hire 147 to 155 people at an average wage of $34,919 per year, placing the average for hourly and salaried wage earners just above the 2010 state QCEW comparison. The average wage rate also compares favorably with counties potentially selected for plant construction. This comparison verifies that the wage rates in the labor analyses and in the plant operational costs are neither too high nor too low in comparison with the existing state wage structure.

Mega-plants that slaughter 5,000 to 6,000 head per day process 400 to 450 per hour and require 300 to 350 people in the kill end of the facility. Much of their efficiency is created when each job has a single or very narrow focus; consequently, great skill and efficiency are developed by task repetition.
In a plant where the operational plan is to harvest 250 head per day, job functions are shared among many fewer people. In this scenario, the slaughter line is moving at a much slower rate (30 to 35 head per hour); as a result, job functions must be combined, and one person will complete several tasks on the same carcass.

“Table 2. Slaughter Operations Manning” (above) describes the responsibilities of the 21 people required to man the operation from cattle receiving to final USDA Inspection. The brackets illustrate the job combinations among groups of people.
Table 3. By-Product and Offal Operations Manning

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Hourly Rate</th>
<th>Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Hide</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Technical Tallow</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Rendering Operations (3 shifts)</td>
<td>NONE</td>
<td>$12.00</td>
<td></td>
</tr>
<tr>
<td>Tripe</td>
<td></td>
<td>$12.00</td>
<td>$74,880</td>
</tr>
<tr>
<td>Swiss Tongue</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Tongue Trim</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Tongue Root Meat</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Liver</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Beef Bile</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Beef Heart</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Cheek Meat</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Head meat</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Uxteri</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Oxlip</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Wescand Meat</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Spleen</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Sweet Breads</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Beef Tenccon</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Beef Aorta</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Steer Pizzle</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Kidney</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Rib and Chuck Back Strap</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Scalded Tripe</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Honeycomb Tripe</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Tripe Pillars</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Beef Lobes</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Omusum</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Beef Aomasum</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Beef Feet</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Bag Loader to Vacuum Pack</td>
<td></td>
<td>$12.00</td>
<td>$49,920</td>
</tr>
<tr>
<td>Product Pickers</td>
<td></td>
<td>$12.00</td>
<td>-</td>
</tr>
<tr>
<td>Box Handlers</td>
<td></td>
<td>$12.00</td>
<td>$24,960</td>
</tr>
<tr>
<td>Label Handlers</td>
<td></td>
<td>$14.00</td>
<td>$29,120</td>
</tr>
<tr>
<td>HACCP Monitors</td>
<td></td>
<td>$18.00</td>
<td>-</td>
</tr>
<tr>
<td>Quality Assurance</td>
<td></td>
<td>$14.00</td>
<td>-</td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td>$14.00</td>
<td>$29,120</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td><strong>27</strong></td>
<td><strong>$682,240</strong></td>
</tr>
</tbody>
</table>

“Table 3. By-Product and Offal Operations Manning”, shown on the previous page, documents the manning requirement for the by-product and offal operations within the slaughter operation. Offal and by-product harvest will require 27 people. The proposed plant and associated brand will have a full line of beef and buffalo products for domestic and export markets. Minor offal products, such as spleen, tendons, aorta, and pizzle, could be harvested if the markets warrant; however, additional people would be required.

The HACCP Monitor from the slaughter floor will also monitor the offal products.
In addition to the 48 people listed in Tables 3 and 4, the slaughter operations work force will include 1 manager, 4 supervisors, and 1 information technology (IT) specialist, for a total of 54 people required to manage the operation between cattle receiving and the beef grading and sorting coolers (just prior to fabrication).

Table 4. Fabrication Operations Manning

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Hourly Rate</th>
<th>Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone Foreshank</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Bone Flod</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Strip Rib Bones and Deckel</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Marq and Pull Brisket</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Remove Blade Meat</td>
<td>1 $14.00</td>
<td>$29,120</td>
<td></td>
</tr>
<tr>
<td>Pull Rib-Eye</td>
<td>1 $14.00</td>
<td>$29,120</td>
<td></td>
</tr>
<tr>
<td>Pull Loin</td>
<td>1 $14.00</td>
<td>$29,120</td>
<td></td>
</tr>
<tr>
<td>Bone Chuck</td>
<td>2 $14.00</td>
<td>$58,240</td>
<td></td>
</tr>
<tr>
<td>Remove Intercostal Meat</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Pull Tenderloin</td>
<td>2 $14.00</td>
<td>$58,240</td>
<td></td>
</tr>
<tr>
<td>Pull Flank Steaks</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Drop Spinal Column</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Pull Outside Round and Culot</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Remove and Trim Eye of Round</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Pull Inside Round</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Pull Knuckle</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Bone Top Sirloin</td>
<td>2 $12.00</td>
<td>$49,920</td>
<td></td>
</tr>
<tr>
<td>Remove and Trim Flap</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Remove and Trim Tri-tip</td>
<td></td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Package Monitor</td>
<td></td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Primal Baggers</td>
<td>2 $12.00</td>
<td>$49,920</td>
<td></td>
</tr>
<tr>
<td>Bag Loader to Vacuum Pack</td>
<td></td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Product Pickers</td>
<td>2 $12.00</td>
<td>$49,920</td>
<td></td>
</tr>
<tr>
<td>Box Handlers</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>Label Handlers</td>
<td>1 $12.00</td>
<td>$24,960</td>
<td></td>
</tr>
<tr>
<td>HACCP Monitors</td>
<td>1 $18.00</td>
<td>$37,440</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance</td>
<td>1 $14.00</td>
<td>$29,120</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>1 $14.00</td>
<td>$29,120</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>30</strong></td>
<td><strong>$798,720</strong></td>
<td></td>
</tr>
</tbody>
</table>

“Table 4. Fabrication Operations Manning” (previous page) shows that direct fabrication requires 30 people, and an additional 11 employees are required to handle trim sampling and pack-off operations for the Primals.
Table 5. Value-Added Operations Management

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Hourly Rate</th>
<th>Annual Salary</th>
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<tbody>
<tr>
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HACCP monitors will be directly involved in collection of pathogen samples.

IT and HACCP monitors will interface as the products are weighed, labeled, and USDA- Graded and product designations are applied, *i.e.* Natural, Organic, or a grade designation—Choice. The
Technical Services Officer or Chief Science Officer will be responsible for writing Product Description Programs, such as grade and other USDA-Certified Programs, including “Humane Handling.”

Plant Sanitation is frequently out-sourced to a private company that specializes in plant clean-up operations; however, people and chemicals are the main cost associated with plant sanitation. Either in-house or out-sourced is covered in this feasibility study.

Plant sanitation will require between 16 and 20 people, depending on how much value-added is included in the final plant design.

Supervisors, managers, and officers are included in the lower half of “Table 5. Value-Added Operations Manning” (previous page). These salaries are represented in the S, G, & A column of “Table 20. Summary of Cost of Goods Sold”. This management group includes 10 sales and marketing professionals to merchandize and sell the value-added products.

As noted above, the proposed plant should employ 147 to 155 people and boast a beginning annual payroll of $5.13M dollars.

Increasing the employee pay rate $1.00 per hour (from $15.00 to $16.00) increases the Cost of Goods Sold by $3.86 per head (from $174.50 to $178.36). (See total of Cost of Goods Sold, first column in “Table 20. Summary of Cost of Goods Sold.”) The optimum average starting wage would be $12.00 to $14.00 per hour, to leave room from promotion and advancement.

3. Compile a list of personnel related issues for meat processors with potential solutions.

Careful attention to training across all employee levels clearly defines roles and actions and reduces noncompliance incidents.

In “Table 6. Summary of Critical Management Functions” (included below), plant management functions are listed down the left side, and critical management functions are listed across the top of the matrix. Thorough management requires careful attention to detail across the multiple functions of the plant.
The consumer only has input to the plant distribution customer; consequently, communication about an issue seldom reaches the person responsible for solving the problem and may never reach the person who created the situation—unless the management team learns to research, dissect, and correlate corrective actions. Team work and cross-functional communication are essential for corrective actions and sustainable quality; otherwise, the company will face the same consumer problems over and over again. Cross-functional management is a skill acquired through team training.

In this management scheme, the person with the best knowledge of the function must be accountable for all the critical functions in that area. For example, brand accountability must begin with cattle procurement. What other person in the system would see the livestock more frequently or make it his business to know how the cattle are fed and treated? What other person in the system would be more likely to determine if a specific supplier truly follows protocols in the written plant certification programs?

The critical management functions usually require matrix systems management to cover all scenarios. Any issue then quickly becomes a question of trust between several layers of the management team and the hourly associates.

The following list includes some of the critical areas in which all employees need to receive training:

Food Safety—The Food Safety Manager writes and administers the Hazard Analysis Critical Control Point (HACCP) system. The Slaughter Manager must train and monitor people on the high bench to be certain that pathogens are not transferred from their habitat in the hair or on the skin of the cattle to the carcass surface, which will eventually be consumed. Extended shelf-life is created and maintained in the same process-management scenario because pathogens and spoilage bacteria cannot be seen and must be killed using chemicals or a hot-water intervention. Once the carcass is clean, it must be kept clean as it travels...
Personal Hygiene—All plant employees will need to receive training in the necessary personal hygiene protocols that will be set it place. While these protocols have not been written for this proposed plant, since to a certain degree this is dependent on decisions to be made by the management and officers of the plant, it would almost certainly include training in handwashing, proper use of hair nets, clean garments, and sanitizing boots, as well as proper cleaning of tools and protective equipment.

Producer Relationships—Because the animals that would be sourced for this facility would come from Montana ranches, first and foremost, it would be important to hire someone familiar with Montana beef markets to be in charge of procurement/purchase of live cattle and bison for the processing facility. Hiring someone who knows the “lay of the land” in Montana will be vital to ensuring a steady supply of livestock to the processing facility. Secondly, to ensure steady supply, the processing facility will need to develop good working relationships with Montana feedlots. Finally, it will be important to ensure that the processing plant makes an effort to cultivate positive working relationships with individual ranches that are sources of cattle and bison. Again, much of the success of this will likely depend on the individual(s) hired in this role.

Disease / Food Handling Issues—USDA / FSIS will do the disease detection and inspection—that is their job. For more information, see “Food Safety” above.

Cultural / Language / Immigration Issues—The proposed processing facility would have a human resources division that would likely spend much of their time working to address issues such as these. As Montana has no processing plants of a similar scale, it is likely that those personnel in this area would need previous experience in a processing facility to be effective in this position.

Religious Issues—It is not uncommon for processing plants to employee workers with a religious background. Company chaplains help to develop trust between management and hourly employees, thus reducing tension between layers of management.

Animal Welfare / Humane Handling—Humane Handling first requires training for all employees. It would be advisable to hire a consultant from outside—someone who was a Temple Grandin student would be a good choice. Within the company operational structure, Humane Handling is best managed using a third-party, continuous (24/7) video camera monitoring system, such as that available from Arrowsight (Adam Aronson, President [adam.aronson@arrowsight.com]). When / if the trained auditor notes problems or discrepancies, the footage is e-mailed to the designated manager and the appropriate team members so that the incident can be properly managed and the history, documented. In working with USDA compliance officers, how an incident is handled and the video record of the corrected action is often more important than the incident, itself.
Employee Turnover—The proposed plant will hire 147 to 155 people at an average wage of $34,919 per year, placing the average for hourly and salaried wage earners just above the 2010 state QCEW comparison. The average wage rate also compares favorably with counties potentially selected for plant construction. This comparison verifies that the wage rates in the labor analyses and in the plant operational costs are neither too high nor too low in comparison with the existing state wage structure. It is hoped that offering competitive wages will combat employee turnover in the proposed plant.

Work Place Safety—It will be the responsibility of the plant managers and officers to develop and implement a workplace safety training program and ensure all employees receive adequate training. It is highly likely that employees will continue to receive periodic workplace safety training, either in the form of refresher classes, changing positions within the plant, or whenever new equipment is introduced to the plant.

Green Labor Training—In some areas, it is possible for potential meat processing employees to learn the trade at a local technical or vocational school. Currently, there are no programs in Montana that offer such a curriculum. The most logical solution for employee training is that the proposed processing facility will need to train its own employees in-house. The management team would likely develop a training program based on their previous experience in other processing plants. Assuming that the processing plant could attract a small group of skilled employees from other processing facilities, it would then be somewhat easier to train employees with no experience whatsoever.

It is not uncommon for states to provide money for employment training in instances such as this. Often, this comes in the form of a grant. The processing facility could use these funds to help offset the costs of training new employees.

It is also possible that, if the plant was successful, the Montana University System would consider establishing a curriculum such as the one mentioned above. This would serve the needs of not only the facility proposed here, but of all small meat processing facilities in Montana.

Promotion Mechanism—This category deals with employment advancement. It will be necessary to develop job descriptions and a qualification system for each job category. The Human resources dept. will be in charge of handling this when a plant is started.

Child Care—Like many large workplaces, the plant will need to make decisions about whether or not to offer employees some form of child care. However, this area of concern is of low priority for this report, and is noted here solely for the purpose of pointing it out.

(Many of these issues are similar to those addressed under Task 8.2 “Determine the practices a meat processing facility would set in place for processing meat. These might include traceability, humane slaughter, producer relations, etc.”)
Task 4: Research wastewater, byproduct disposal, and site requirements
(Montana State University, in-kind from Tommy Bass all items)

1. **Conduct research into wastewater management.**
   Management of storm water and waste water is imperative throughout construction and operation of the proposed plant. During construction, control of erosion and sediment loss is the primary concern. During operation potential wastewater streams include: runoff from roads, parking lots, animal confinement areas, and process wastewater. All stormwater and wastewater management activities potentially require permits from the state. Based on informal discussions with contacts at the Montana Department of Environmental Quality (DEQ), the following represents a likely scenario for permitting:

   1. **Stormwater for construction permit:** $1,200 per year of construction (follows calendar years not consecutive months).
   2. **Industrial stormwater permit:** This could likely be avoided by managing any stormwater associated with livestock truck parking along with the process waste water through land application system (LAS).
      - If this permit is required, and the area associated with trucks was 5 acres or less, then the fee is $1,500 for application including year one, $1,200/year thereafter.
      - Other stormwater from roofs and other lanes/parking would presumably be free of any contaminants associated with the industry; we would not need a permit for that.
   
   In total, stormwater permits are likely to cost $2,400 per year for the proposed processing plant.

   3. The Montana Pollutant Discharge Elimination System (MPDES) Permit is the state’s mechanism to maintain compliance with the federal Clean Water Act (1972). This could be individual (custom written, on site requirements) or general (broadly written requirements for similar businesses) and would require a Form LA1 (from Montana Department of Environmental Quality) to describe the land application system. Since this is undecided, cost range is $1,200-$4,200 the first year and $600-$3,000/year thereafter. Under one of Mr. Bowling’s scenarios, a full onsite wastewater treatment plant to surface water discharge would likely require a more detailed individual MPDES permit for point sources.

   **Stationary Source Air Quality Permits.** Some POTWs with small digesters in the state carry these permits. The fees are $800-$1,200 the first year and $800 plus $1 per ton of actual primary pollutants/year thereafter. Pollutants on the application include, but may not be limited to: PM, PM10, PM2.5, SO2, NOx, CO, VOC, and Pb. The air quality technician at DEQ was unsure if the digester would need any permit until she had more of an idea of the size and emissions characterization.
2. **Conduct research on byproduct disposal.**

As a result of building a processing plant, byproducts are produced. From the carcass, edible offal and inedible offal are produced. However, the main waste product that would be produced from the proposed facility is waste water.

Because wastewater is produced in such a large volume, it was decided that this section would focus primarily on wastewater disposal.

The primary waste stream will be processed wastewater/digester effluent (from the proposed anaerobic digestion system). A Land Application System (LAS) is an engineered and agronomic method to beneficially utilize wastewater. Wastewater will be irrigated to a calculated acreage of regionally relevant crops, which will consume water and nutrients. Organic matter in the wastewater will improve soil structure and quality. Alfalfa and a rotation of small grains should provide crop need for managing the nutrients on an affordable acreage. Under a LAS scenario, on-site storage will be required for wastewater until irrigation season can begin; storage will need to accommodate approximately 8 months of generation, plus a portion of generation that occurs during the irrigation season.

An alfalfa stand (a semi-permanent crop) could last between 5 and 8 years, at which point it would be rotated out for another crop. The ground would need 1-2 years recovery before reestablishing alfalfa, during which time a small grains crop such as wheat or barley could be planted. In eastern Montana in particular, corn silage for feed could also be a feasible crop with value and high nutrient uptake potential. By planning ahead and staggering recover years, there could always be at least 2/3’s of the acreage in alfalfa. Much of the literature says that alfalfa requires no supplemental nitrogen fertilizer; however, the crop appears to utilize up to 250 lbs./acre before there is detriment to the crop or environment. Good cuttings of alfalfa allow the export of large amounts of Nitrogen (N) and Phosphorus (P) from the system. Drawbacks to high N rates in Alfalfa may include increased weed pressure. Based on some sources, keeping N application at 200 lbs./acre would be ideal. With some type of overhead irrigation (such as an irrigation pivot system), up to half of the N portion in the waste water could be volatilized; this can be calculated into the application rate.

The system proposed above would provide beneficial wastewater reuse to create high dollar feed and grain crops, and represents a potential source of revenue to the proposed plant. By selling bales of alfalfa hay, the proposed plant could generate income that would offset other production costs.

Phosphorus (P) will become the limiting factor over time with the LAS. With the proposed anaerobic digester, the end-of-pipe P concentrations could be lower than the estimates; much of the P would be sequestered in the solids periodically harvested from the digester. Additionally, if a two-stage lagoon system was used, with irrigation out of stage 2, P in the final waste water should be fairly low. Settled solids will need to be harvested from the lagoons, especially stage 1, perhaps every 3-5 years. Those solids and the digester solids could be tanked and sprayed over a bed of carbon material for composting. Most of the
Phosphorus should be captured in these fractions. [NOTE: digester solids must be dried or mixed with a dry carbon source to be more easily exported, or marketable as profit generating/cost-offsetting product.]

By composting the solids from the wastewater system, it will eliminate the need for the plant to pay fees to the landfill. The solids harvested from the wastewater system and composted have value in the horticultural industry and could be sold.

A land application system (LAS) is still recommended for this plant, unless a municipality is willing to work with the plant on affordable connection costs and ongoing fees for linking to a publicly owned treatment works (POTW). Further feasibility investigations regarding the option to connect to a POTW would include: more accurate wastewater profiles, site specific logistical and physical connection to POTW, POTW capacity, and long term impact on POTW capacity after hook-up. This option requires consideration and cost/benefit analysis.
3. **Conduct research on environmental impacts related to meat processing.**

As previously stated, wastewater represents the fundamental environmental concern. Mr. Bass created a spreadsheet that allows for altering waste water analysis, volume, and crops to examine multiple scenarios for the Land Application System (LAS), which was outlined above. In a privately commissioned recent study, a slightly larger plant was proposed to generate as much 200,000 gal/day of wastewater. Of that, not all of it will be as nutrient rich as industry average primary waste water samples show. Therefore this will need to be considered in calculating acreage of the LAS.
At 260 days of operation/year, and 200 head of beef slaughter per operating day, at 500 gallons of process waste water per head 100,000 gallons per day of process waste water could be generated by the prosed plant in this study. This does not include blood, and wash-down water from trucks, pens, and lots (manure and mud) directed to digester or storage ponds. Considering these additional sources of wastewater and a conservative margin of error: 125,000 gal/day waste water for 260 days/year at 170 ppm (part per million) TKN (total Kjeldahl nitrogen) and 25 ppm P, approximately 115 acres of alfalfa would be required to utilize said waste water with an N-based application rate; 130 acres would be required for a P-based application.

Additional Waste Water and LAS Details and Scenario
Since the mid-term report, Mr. Bass could not find accurate profiles of waste water from post digester meat processing effluent. However, considering major nutrients will be mostly conserved, an average of waste water profiles from 6 published studies was used to estimate nitrogen and phosphorus in meat processing waste water. Considering that a full engineering design was not commissioned, additional estimates were made regarding waste water generation.

However, a LAS would only be feasible in a scenario where the plant was sited at a location in Montana with appropriate growing seasons. Elevation, local climate, and soil type could limit or restrict use of a LAS. Based on the previously quoted 125,000 gallons of wastewater per day, a storage lagoon would be required at an estimated size of 4 surface acres and 15 feet deep. If the LAS was 133 acres, approximately 7.5 inches of water would be available per acre for the irrigation season. It may be difficult irrigate this volume at a sustainable hydraulic loading rate. A longer irrigation season, or greater access to farm ground would be ideal. The relationship between waste water production, site selection, length of growing season, and storage capacity are all interrelated. Ideally, 150 to 200 acres would be advisable for purchased or long-term lease farm ground.

The size of storage estimated is not an exact engineered volume. Greater farm acreage and crop potential could reduce storage needs due to drawdown rates once irrigation season starts; longer irrigation season could also reduce required size of over-winter storage capacity for wastewater; lower precipitation could reduce “freeboard” which is the engineered extra storage capacity for direct precipitation stormwater; evaporative losses would also be engineered into storage capacity/lagoon sizing, and could possibly reduce size.

Growth Constraints
Increasing productivity (animals slaughtered/processed) in a plant by increasing hours/days of operations may not require additional physical processing infrastructure, but it would most likely require greater wastewater management systems, including digester capacity, wastewater storage, and land application area. Alternately, under a POTW scenario increased wastewater to the treatment works would need to be negotiated. Additional capacity at the POTW could be required.
Solid Waste
Though not profiled or researched, solid waste from packaged supplies, HR, and office activities would be generated. Municipal or private contracted recycling and waste management would be required.
There would be biosolids associated with the digester and storage pond for the LAS. No generation numbers were calculated since much of the design is conceptual. However, these solids are generally harvested every 1-4 years and would appear to be sludge like. A more detailed study would include designs for a small composting facility in which these solids would be mixed with a carbon source (wood ships, straw, or other crop residue) and composted for agricultural or horticultural use.
By using a Land Application System and by composting solids from the lagoon and from the digester, the proposed plant will be able lessen the environmental impact of the project by using those byproducts as agricultural inputs.

Digester as an Agricultural Industry Resource
With appropriate access and biosecurity measures, other livestock and food processing entities could bring additional digestible organic waste to the digester. Such customers could pay a tipping fee to have their waste disposed. This would change the nutrient profile of waste water, and could have positive or negative effects on digester performance.

Local Highway and Access Road Concerns
Manure and mud from trucks can become a significant impact on roads and local infrastructure. Not only is this a public nuisance due to aesthetics and transfer to other vehicles, safety can become an issue. In certain weather conditions, manure and mud can become slick causing traffic danger. Finally, with other farm and ranch related traffic, a biosecurity risk could be present transferring manure and mud via private vehicles on the public roads to other agricultural operations.

4. Coordinate and collaborate with other investigators throughout the project (particularly with Task 7).

Mr. Bass has participated in multiple meetings of the project team.

On the 6th and 8th of March, 2014, Mr. Bass spoke with the design team regarding the possible means of disposal of byproducts. The result of those conversations was that rendering as a means of disposal of byproducts is not considered feasible, based on the work of Mr. Bowling and his past experience. This negates much of the pet food potential as a means of disposal of byproducts. Raw hide chews for pets could be considered in a more detailed study. Offal would alternatively be digested, as a cost avoidance measure, but would not be a source of revenue.
Task 5: Prepare an economic analysis (Montana State University, in-kind from Eric Belasco for all items)

1. **Project the economic impacts of building a meat processing plant in Montana.**

The economic impact of building a meat processing facility largely depends on the location, existing local infrastructure, intensity and type of plant, the ability to develop markets and systems for complementary bi-products, among other important things. These issues have been discussed at length in team meetings. In order to focus the discussion of the economic impacts, Belasco developed a summary of important topics related to the economic impacts of building a meat processing plant in Montana. Recent conversations have discussed the impact of expanding existing facilities in order to save on the substantial fixed costs and leverage existing relationships for processing. Belasco has collected economic data throughout Montana in order to evaluate the impact that a meat processing facility would have on incomes, employment, education, and population. While the direct economic impact of such a move would be less than developing a processing facility from scratch, the complementary industries might be indirectly impacted in a more substantial way. Current proposals also assume a relatively high skilled labor force to work at the processing facility, resulting in perhaps more desirable and higher paying positions for local residents.

The current predictions for slaughter volumes into the proposed plant by 2019 include 56,250 beef cattle and 10,000 bison. Given the current processing volume of 20,500 beef cattle in Montana and very little bison processing, the proposed slaughter volumes implicitly assume some necessary changes in producer behavior to occur. First, there will be more retained ownership into the winter months of Montana beef cows. This will be in part to provide steady supply to the processing facility. Second, producers may need to convert to grass-fed operations in order to capture premiums available from new and expanded branded products. Third, there will need to be more cattle retained during the feeding segment in Montana. The existing feedlot segment in Montana is likely to be especially interested in a processing facility in Montana as it will help save large costs in freight when animals are sent out of state. Fourth, cattle will likely need to be imported from out-of-state and perhaps across the border from Canada, in order to provide adequate volumes. Fifth, existing branded ventures in Montana are likely to expand. Given the above assumptions made to accommodate the volumes associated with this plant, a further study to evaluate the likelihood of producers to make the changes listed above would be a valuable piece of information.

Given the above considerations, it is also important to consider the substantial indirect impact a meat processing plant would have in the local economy within Montana. The assumption here is that for every dollar spent and every individual hired to work at the meat processing facility, there will be indirect impacts to the local economy in two ways: (1) additional demand for products produced by firms that provide inputs (e.g., supplies, maintenance, banking, utilities, etc.); and (2) additional demand for consumer products as those employed by or provide inputs to the meat processing facility become consumers in the local economy. These indirect impacts are typically estimated using multipliers that
associate direct expenditures into indirect impacts. As is typical in regional economic impact analysis, there are two basic metrics used: (1) The output multiplier and (2) the labor multiplier. The output multiplier measures the additional output from indirect industries in the local economy per $1 spent on the meat processing facility. This means that as more products are sold as output by the meat processing facility, additional inputs will be purchased from the local economy and employees will spend portions of their income on consumption. The labor multiplier measures the additional workers anticipated in the local economy to support the meat processing facility.

Past studies have estimated the hypothetical output and labor multipliers in the local economy using an Input-Output model, such as the one developed by Implan (https://implan.com/) software. While multipliers are difficult to accurately estimate, there have been efforts made in past meat processing feasibility studies. For example, Hardesty, et al. (2009) estimated a labor multiplier of 2.9, meaning that for every individual hired by the proposed processing plant in Mendocino County, California, there would be 1.9 additional jobs created in the area. Further, for every $1 million of value added in processing and slaughter, $1.5 million of additional value would be added to other industries in the local economy (i.e., value added multiplier equal to 2.5). The value of these multipliers in Mendocino County, CA might not be as relevant to Montana given the relatively close proximity in Mendocino County to large city centers, such as Sacramento, San Francisco, and Oakland. Another meat processing feasibility study was conducted in Iowa (Swenson, 2011) which provided the following estimates for the industrial output multiplier (1.48), value added multiplier (1.56), and employment multiplier (1.32). These estimates are substantially lower than in California, which is likely due to the rural environment of the proposed and nearby regions. There are no studies known by the authors of this report to date that take place in Montana or nearby regions that would provide a more localized approximation of these multipliers.

The infrastructure for meat processing is likely to be more closely related to Iowa than Northern California. For this reason, we use the numbers provided in the study by (Swenson, 2011). However, it should be noted that these figures may be conservative given the substantially larger multipliers estimated in other regions. It should also be noted that there a lack of studies that evaluate the accuracy of multiplier estimates. That being said, the intention of multipliers is often to provide “ballpark” figures that relate new ventures to overall impacts to the local economy. To this end, figures estimated previously by Bowling and Pharr (2014) are used to estimate the indirect impacts on the local economy from building a meat processing facility in Montana.

Assuming an employment multiplier of 1.32 implies an additional 48 jobs added to the local economy (in addition to the approximately 150 jobs assumed to be added directly to the meat processing plant). This implies a total employment impact of 200 jobs added to the local economy from the meat processing plant. An output multiplier of 1.48 implies that for each $1 in direct meat processing activity, there is anticipated to be an additional $0.48 in activity supported in the remainder of the local economy. In year 5, the hypothetical processing plant is projected to process meat worth a value of $222 million in direct revenues, implying an indirect impact in local outlays of $107 million in revenues. This
means that in year 5, the processing plant would generate total local revenues of $329 million.

There is also likely to be a short-term multiplier effect from the construction of a meat processing facility in Montana. Duncan et al. (1997) use a construction multiplier of 3.0 to provide the indirect impacts from construction on the local economy. They also assume that 80% of the products and services purchased for building and consumption would be from local businesses. This proportion is likely to be high for a meat processing facility where many of the inputs would need to come from out of state. However, if the local area is expanded to include a larger area within Montana, then 80% might be a reasonable upper limit for the proportion spent on local vendors. Given the total cost of construction to be around $44 million, this implies the indirect impact on the state-wide economy to be around $88 million. This means a total short-term impact to the state of $132 million.

See Appendix U on page 504.

2. Evaluate the relationship between processing scale and costs per unit in order to determine optimal volume.

- The optimal volume identified for a meat processing facility in Montana is within the range of 200-250 head slaughtered per day.

- This volume is large enough to capture some economies of scale, while small enough to provide flexibility with regard to expanding existing branded programs as well as providing opportunities for new products.

Belasco conducted a review of past economic research and feasibility studies that have provided support for a steep decline in per unit costs with increases in processing scale. An important study in this area was the GIPSA Livestock Meat and Marketing Study (2007), where proprietary data from packing plants were shared in order to estimate the relationship between cost and scale. The estimated relationship between the cost and scale are shown below.
An important component of this study is finding the balance between processing a high volume to save costs in a state where volumes will be more challenging than in facilities in the Midwest. While the objective is not necessarily to minimize costs, but rather to maximize profits, this is a topic of much interest and has been discussed extensively in team meetings. The ability to deliver a particular scale is also importantly related to objective 3 below. Additionally, the team has discussed different options regarding a multiple animal processing facility, which has a substantial impact on cost per head. While sheep volumes are likely to be too low to have a significant impact on production, the incorporation of bison and cull cows are likely needed to help provide essential volume which will be important particularly in the early phases of potential operation. There are also important factors that are facility-specific factors which are currently being discussed which will be important partial determinants of the cost per head associated with different volumes.

While scale is an essential element in terms of cost, many large scale operations lack the flexibility needed in order to produce value-added products. The optimal volume given considerations for local livestock supplies (discussed in more detail in Task 3) and the relationship between cost and economies of scale is within the range of 200-250 head per day. The inclusion of bison is likely to reduce this volume toward to lower end of the proposed range. The additional cost, due to a scale of 200-250 head per day, relative to a mega plant, is estimated to be around $150-$200 per head. Given the low profit margins associated with mega plants, the additional costs must be recovered from value-added branded products. To better understand the strategies associated with existing branded programs in Montana and nearby regions, an assessment was used to evaluate the strategies from programs such as Yellowstone Grassfed Beef, Country Natural Beef, Estancia Beef, and La Cense Beef. These programs were discussed in Belasco’s presentation where differences in each strategy were stressed. Strategies included online sales, restaurant/regional grocers, fresh beef, and frozen beef. Each branded program has carved out its own niche by developing the existing infrastructure and consumer markets.
3. **Assess livestock supply opportunities in Montana to accommodate the optimal meat processing volume.**

Under Task 3, the optimal working capacity of a regional meat processing facility in Montana would be within the range of 200-250 head per day.

As described below, the requirements for achieving this range consistently throughout the year present challenges. Even under conservative supplies, a new meat processing facility in Montana of the scale described above would substantially increase the annual slaughter in the state. In order for this volume to be achieved, some of the changes outlined under task 1 would need to occur.

In order to better understand local supplies in Montana, there have been two directions of research taken by Belasco. First, data were collected regarding livestock supplies across Montana and adjacent states in order to better understand the current capacity. This data has been compiled, summarized, and analyzed in order to make use of historical information. Second, data regarding existing meat processing facilities were collected in order to identify the distance between current producers and existing meat processing facilities.

The supply of beef cattle in the U.S. has shown reductions since the mid-1970s. At the same time, Montana has been relatively flat over the same time horizon. These movements are shown in the figure below.

![Graphs showing U.S. and Montana beef inventory data](image)

Key factors to reductions to inventory nationally include: (1) relatively labor-intensive nature of cattle production; (2) availability of subsidized crop insurance; (3) increases in input costs; (4) alternative uses of time and land with high land values and aging ranching population, and (5) substantial start-up costs regarding estate transition. These aspects have impacted the inventory in Montana, though these influences have been counter-acted with the growing profitability in the cow-calf sector. As illustrated in the Montana plot.
above, Montana has focused more of its attention to selling calves, which has been the most profitable segment of the beef supply chain over the last few years.

Given the relatively flat inventory in Montana since the 1970s, processing has gone through many changes in the state. As shown in the figure below, processing volumes fell substantially around 1970 as scale in the Midwest became an important competitor to processing within Montana. Slaughter volumes have been relatively flat since 1988, albeit with a range in volatility which is likely related to drought conditions in the state.

One major issue as part of this study, as with many small/medium sized plants located in the northern part of the U.S., is whether the region surrounding the plant can provide slaughter volumes on a year-round basis. In order to analyze this question in more detail, the data used above was used to evaluate historical slaughter volumes by season and month. As shown below, fall and early winter are the most heavily utilized slaughter periods.
While spring and summer were *a priori* expected correlate with lower slaughter volumes, they are much closer to the peak slaughter months than previously anticipated. However, it is also worth mentioning that the percent slaughtered in each month varies substantially from year to year. For example, during drought years, additional slaughter volumes are taken in fall and early winter to account for high cull rates in order to account for the loss of winter feed. For example, the figure below evaluates the percent slaughter in each month for 2000-2003, which includes a 3-yr drought.

![Seasonality of Montana Beef Cow Slaughtered, 1988-2012](image)

Given the existing processing capacity in Montana, the map below shows the cattle inventory “hot spots” mapped along with existing federally-inspected slaughter facilities.

![Seasonality of Montana Beef Cow Slaughtered, 2000-2004](image)
In summary, about 1% of the beef cattle inventory is processed within state while the remaining are fed and processed in nearby states, mainly including Colorado, Idaho, and Nebraska. Since 1988, beef cow slaughter in Montana has averaged 20,500 head per year.

4. **Help make a final determination of the feasibility of a meat processing plant.**

This objective is clearly the final objective that will be accomplished as it relies on the results from the other objectives delivered from me and the rest of the team. Work done with regard to the other objectives is directed at the overall determination on the feasibility of a meat processing plant. For this reason, discussions regarding optimal livestock supplies, optimal locations, producer acceptance, and consumer preferences are all leading us toward a better understanding of this final determination. As part of the team meetings, Belasco prepared a summary of important economic considerations related to scale, inventory, labor, and contracting between producer and facility in order to focus the team and advisory council towards important issues. Additionally, Belasco reviewed all of the documents prepared by other team members in order to provide secondary validity to the information in the documents. Belasco also participated in all conversations between the research team and the advisory committee.

The addition of a new meat processing facility in Montana is determined by Belasco to be a venture that has potential with some risk factors. The major risk factor includes capturing adequate supplies on a year round basis. Given the reluctance by many MT ranchers to change their current marketing strategy and production system given the relatively high cattle and beef prices is a major source of concern. Emphasis, particularly in the short run, should be placed on identifying ranchers and feeders who are setup to utilize a meat processing facility in Montana without much adjustment in their production. A secondary source of concern is the necessity to secure upfront capital in order to construct the plant and working capital to offset the timing issue associated with slaughter and payment when
working directly with retail markets. If these two issues can be overcome, then Belasco places a good probability of success with building a new plant.

The above objectives are provided to inform the public regarding the feasibility of a meat processing facility in Montana. That being said, there are still remaining issues that need to be resolved. These issues are listed below: (1) The type of processing, whether it be custom or branded, needs to be determined in order to identify the appropriate marketing and pricing strategy; (2) the consumer base needs to be identified, whether it be international markets, domestic regional markets, or in-state organizations (e.g., schools and hospitals); (3) further research regarding a more detailed inventory estimate needs to be conducted; and (4) producer responses to the proposed plant needs to be better-understood.

5. Use the information collected to collaborate in an analysis of potential locations within the State of Montana and site requirements. (with Tommy Bass)

This objective is clearly related to objective 1. The current issues and discussions are documented under objective 1 (above). The map listed under objective 3 shows the potential for slaughter sites in different regions. The main issue related to the selection of a potential site relies on site requirements, available resources and infrastructure, and distance to producers and consumer markets. These issues were explored along with Tommy Bass.

The current nature of cattle inventories in Montana a centrally-located meat processing facility a challenge, given the dense cattle regions in south-west, south-east, and north-central Montana. The three sites of main interest include Butte, Great Falls, and Billings. Each of the three locations has good access to water, a large enough population base, and would not likely encounter any community acceptance issues. The Billings location provides a large population base and close proximity to feedlots. However, this site would likely make transport difficult from Canada or states to the west of Montana (e.g., Idaho, Washington). Great Falls provides is an area centrally-located within Montana and is located relatively close to intense grain production, potentially making it more suitable for feedlot production. Butte is located centrally within two major cattle regions in Montana and is located at the intersection of I-15 and I-90, providing it with a transportation advantage over other regions. In summary, each of the identified areas could potentially work as a future site. However, each site has its own limitations. More research needs to be conducted in order to identify which of the proposed sites is optimal.
Task 6: Analyze regulatory processes (Consultant, In-Kind staff)

1. Examine relevant state, federal, and product-related regulatory processes to determine what steps would need to be taken for a meat processing facility in Montana to be able to sell, in-state, out of state, and internationally.

This facility will require Federal inspection to sell products anywhere in the world except within the state of Montana. If a facility wishes to only sell products in the state in which it is located, then it only needs to be a state inspected facility. If a facility wishes to sell out of the state in which it is located, it requires federal inspection. The requirements for selling lamb out of state are the same as selling beef. Bison are slightly different. The USDA considers Bison a non-amenable species. What this means is that it does not require federal inspection for bison to be sold across state lines.

The proposed plant was designed to maximize Food Safety with enough multiple-hurdle, redundant interventions to stop pathogens on consumer products if properly executed. The same microbiological control mechanisms will control extended shelf life and allow export of fresh, vacuum-packaged beef products.

Careful attention to the HACCP requirements will facilitate Federal Meat Inspection, which is the absolute requirement for commerce within Montana, across the United States, and internationally. State Meat Inspection was not considered because Federal Inspection is required for export to foreign countries.

Steps for selling meat to in-state markets:

1. Obtain inspection from the Montana Department of Livestock (DoL). In Montana, this is handled by the Meat and Poultry Bureau of the MT DoL.

Steps for selling meat out-of-state to domestic markets:

1. Obtain inspection from the Montana Department of Livestock (DoL). In Montana, this is handled by the Meat and Poultry Bureau of the MT DoL.
2. Obtain inspection from the United States Department of Agriculture. This is handled by the USDA’s Food Safety and Inspection service.

Steps for selling meat to international markets:

1. Obtain inspection from the Montana Department of Livestock (DoL). In Montana, this is handled by the Meat and Poultry Bureau of the MT DoL.
2. Obtain inspection from the United States Department of Agriculture. This is handled by the USDA’s Food Safety and Inspection service.
3. Obtain an export certificate for animal products from USDA. Export certificates give the exporter the criteria that must be met to export animal products to a given country and are unique to each country. Export certificates are handled by USDA’s Animal and Plant Health
Inspection Service. It is the exporter’s responsibility to make sure they have met the requirements of a given country.
Task 7: Conduct conceptual design work to determine cost of meat processing facility (Consultant)

FOREWORD

BIRTH OF THE BEEF PARADIGM AND WHY IT HAS CHANGED

In the first half of the last century, cattle were grown on the range and slaughtered during the fall and early winter. Beef supply was limited and seasonal, at best.

After WWII, tractors replaced horses and mules, and farm production grew rapidly.

Cattle-feeding was created of economic necessity—“feeding worthless cattle worthless corn” (Warren Monfort, 1979) to extend the market window for both overly abundant commodities from a one-season supply to a year-round supply. Thus, cattle-feeding was born. In the late 1950s and the 1960s, the beef packing industry moved from the terminal markets in hub cities to take advantage of the new cattle-feeding concept, close to corn production.

Mild weather and abundant irrigation water for grain production encouraged the development of large commercial feed lots in the High Plains that were not feasible in the northern Corn Belt because of environmental limitations.

New super-plants entered the beef slaughter business near the feed lots and corn. New technology and innovations were spawned to create on-site fabrication and vacuum packaging of the carcasses in the same large plants in the central Corn Belt, several days’ transportation away from where the meat would ultimately be consumed. Small, regional plants like Gooch Packing Company in Abilene, Texas became less competitive and were eventually closed.

The super-plants gave way to mega-plants. As competition grew, so did their appetite for fed cattle. Then mega-plants were double-shifted, slashing fixed costs again. No single region could sustain the increased demand for cattle, but cheap energy promoted hauling cattle from more remote locations.

The super-plants, already in human resource trouble, then found themselves in a real crisis, attempting to compete with plants twice their size. Turnover and training became monumental problems that “more money” would not eliminate. These companies had created beef-eating machines that could never be staffed from the small agricultural communities from which they grew.
Largest mega-plant (pictured above), constructed in 1980 in Kansas, near large commercial feed lots.
Fewer plants, located further from the population centers, created the demand for much longer and more viable shelf life from vacuum-packaged beef products. Sanitary beef production eliminated spoilage bacteria, and in their absence a minutely small number of truly mean pathogens crept onto the scene—"E. coli" and "Listeria monocytogenes" became familiar names in the industry. Large, high-volume plants struggled to innovate and incorporate new technology rapidly enough to defeat the pathogen problem. Food safety was then added to the growing list of mega-packer concerns.

Ground water has been significantly depleted in Texas, Oklahoma, and Kansas (Cargill, Incorporated recently closed its Plainview, Texas, beef plant because of water shortage in the area), and corn is supplied increasingly by truck and rail. Feed lots daily consume the competitive advantage of most beef companies as local, cheap corn succumbs to the high cost of transporting the amount of corn essential to finish steers. Additionally, the push to identify and produce a sustainable bio-fuel has focused on corn and has created an increasingly competitive corn market, raising corn prices independent of rising transportation costs.

Terrorism has created a border security emphasis, and the already troublesome personnel crisis has widened, with little or no end in sight. Once the least-cost producer, the mega-plant cost structure has increased dramatically.

At best, the mega-plants are well suited for high-volume, generic / commodity beef production. In order to fight the rising cost battle, successive rounds of concentration have resulted in fewer companies’ owning / operating this same small group of plants (26 total mega-plants now slaughter 85 percent to 90 percent of the fed-beef supply); however, the interest and goodwill cost involved in these acquisitions has left the emerging companies to...
compete utilizing fifty-year-old plants financed at new construction costs. As long as no new-concept plants were built to conquer these problems, the old beef paradigm camp was safe.

Unfortunately, the water, corn, people, and process innovations that created these High Plains giants are the same factors that intense concentration has now defeated, creating a series of irreversible, game-ending business and production scenarios. Ironically, the change that made the mega-plants industry stalwarts now consumes them.

Simultaneously, the same forces that drove concentration on the fed side of the beef business were also silently at work on the cow slaughter segment of the business. Cow slaughter / fabrication facilities also increased capacity, and, again, trucks were the answer. Most recent acquisition / concentration transactions have grossly exacerbated the business flow and profitability woes of all but a few cow plants. For example, JBS Swift and Co., based in Brazil, is the largest meat packing enterprise in the world. This company has, within the last few years, become the largest feeder in the world and the third-largest fed-beef packer, the largest cow-beef packer, and the second-largest poultry producer / packer in the U.S. Even well-established, large feeding and packing commodity enterprises find it difficult to compete with the economies of scale available to this international mega-company. Energy, labor, corn, and a globalized economy will reshape the harvest-to-market concept of salvage animals (cows and sows) just as inevitably as these factors are recasting the landscape of fed-beef businesses.

Cow slaughter / fabrication plants currently face a diminished supply base because the strong U.S. dollar has made importation of beef from South America, New Zealand, and Australia cost effective for lean beef importers (into the U.S.). The import / export balance favors importation of lean beef into the U.S.; accordingly, the cow plants will face hyper-competition for raw material supply and meat customers.

**BOVINE SPONGIFORM ENCEPHALOPATHY (BSE) CREATES BEEF EXPORT CRISIS**

BSE was first diagnosed in the United Kingdom in 1985 and was identified in the U.S. on Christmas day, 2003. Beef exports at that time were 24 percent of carcass weight, primarily to Asia and Mexico.

Although the first U.S. BSE-positive was quickly traced and found to be of Canadian origin, the international community, nonetheless, immediately banned all beef imports from the U.S. The economic impact was immediate and devastating to U.S. packers and Canadian ranchers and feeders.

Beef drop credits (value for hide and offal products) fell from $156.00 per head to less than $50.00 per head (actual market low was not officially established). For example, beef tongues decreased from $8.78 per pound USD to less than $0.50 per pound, or a drop of $8.30 X 3.2 pounds per head, which calculates to a value loss of $26.56 per head on this one offal product.
When beef export markets evaporated overnight, the export products now had to be consumed within the domestic market. U.S. beef packer pricing models became transparent to U.S. domestic buyers; consequently, as commodity beef prices fell, beef retailers saw the packers’ vulnerability and took the pricing advantage. Consumer prices rose to an all-time high.

Segmented beef EBITDA shifted from 70 percent retailer / 30 percent commodity beef producer segments (rancher, feeder, slaughter / fab packer) to 97 percent / 3 percent in favor of beef retailers. The commodity price of beef fell 39 percent, and the consumer price of beef increased 28 percent. (See “Figure 1. Monthly Retail Choice Beef Prices,” above right.) Until recently, the commodity beef system has not reversed these market challenges, placing the mega-plants at further market peril.

The extent of BSE in the U.S. cattle herd was found to be negligible. Three head were diagnosed as positive—one BSE from Canada and two others with an encephalopathy that was not found to be transmissible and, thus, was not the BSE found in the U.K.; however, the damage was done. Eleven years later, BSE import bans linger in Japan and Korea as a partial barrier to trade. The bottom line is that, until the last two years, beef exports have struggled to regain their pre-BSE earning capacity in the large beef companies.

Access to foreign markets had become a significant advantage to the mega-plants; however, BSE refocused importing country partners onto development of their own domestic beef resources. An additional consequence of the inability of the mega-companies to manage pathogens and, now, disease / trade issues with our international customers is the creation of credibility questions with domestic consumers.

ENTER THE NEW BREED: THE MID-SIZED, PREMIUM BRANDED, REGIONAL SLAUGHTER / FABRICATION / VALUE-ADDED COMPANIES

These companies, regardless of product focus, will share several characteristics: (1) they will be located much closer to their supply; (2) they will be less dependent upon a single livestock type or species for volume; and (3) they will be re-engineered to eliminate waste, using technology that was nonexistent when the existing generation of packing plants was built.

In the food industry’s on-going saga of self-consumption, Shuanghui International Holdings purchased Smithfield Foods: the largest pork company in the world is now Chinese-owned. JBS of Brazil has purchased the beef division of Smithfield Foods, which was the largest U.S. cattle feeder, and Swift Packing division of beef, pork, and lamb, making JBS the world’s
largest beef feeder and the third-largest fed beef packer in the U.S. JBS has also purchased Pilgrim’s Pride Poultry, the second largest poultry company in the United States.

JBS’s Brazilian competitor, Marfrig Alimentos, acquired West Conshohocken, Pennsylvania-based Keystone Foods (McDonald's largest beef and poultry supplier), and Mexican conglomerate Sigma Alimentos picked up Phoenix, Arizona-based Bar-S Foods, a packaged meats processor. By the end of 2011, another Mexican protein giant, Industrias Bachoco, acquired Fort Smith, Arkansas-based poultry processor, OK Foods (for an undisclosed amount); Korea's Harim USA scooped up Seafood, Delaware-based poultry processor, Allen Family Foods, in a $48M bankruptcy deal; and Ukraine’s Omtron bought a $25M chunk of Georgetown, Delaware-based poultry company, Townsends Inc., also in bankruptcy proceedings.

Ultimately, all the protein company buy-outs will transform the U.S. meat slaughter / fabrication companies into global food companies that will process multiple species and sell trim and other carcass pieces to value-added processors.

Foot and Mouth Disease Virus (FMDV) in Brazil and China would make the sale of beef and pork from plants in the United States a one-way door—export from these companies but NO import from those countries back to the U.S. market.

As cost of production escalates, quality, food safety, and American standards will gradually be diluted, paving the way for smaller, local food companies like the proposed processing plant that focus on quality over quantity.

The mega-plants have never had the inclination to focus on value-added products, though ground beef is well developed in some of the more modern plants. The reality, however, is that few green-field fed-beef slaughter / fabrication start-up companies have the staying power and working capital to attain sustainability in a production scheme with no value-added production capability.

Currently, due largely to widespread drought conditions in historically agricultural sections of the country, the U.S. beef industry has the fewest head of cattle since 1951. Cattle numbers have dwindled from approximately 100 million head to 87.73 million head.

As the industry begins to rebuild cow numbers, heifer retention will take another big slice of the very tight slaughter supply, as many females are diverted to the breeding end of the supply chain.

The ugly reality is that fed-beef numbers will be critically low for the next 10 years. Some mega-plants will be forced to close before the beef industry regains sufficient numerical strength to feed their double-shift slaughter appetite.

In summary, the concept underlying the proposed plant is right from the standpoint of miles to agricultural markets and energy cost. Montana does not currently have a destination market for locally produced fed animals or for salvage animals.
From a timing standpoint, however, the proposed plant is questionable for three reasons:

1. In a state in which fed cattle are not over-abundant, cattle numbers have been further reduced as a result of widespread drought and resultant elevated corn prices; (2) the essential supply chain is limited, and the unit cost is unusually elevated; (3) potential investors (such as cattle producers) lack financial incentive to invest in the venture at this time because their cattle are demanding very high prices in the current business model.

**End Forward**

**1. Conduct charrette process with appropriate experts on facility design to identify program, infrastructure needs, and site requirements.**

AFSI (Rod Bowling) worked with VCP&A (Chuck Pharr and Miguel Purdy) to identify infrastructure and site requirements. Mr. Pharr and Mr. Purdy traveled to Texas the week of March 24, 2014 to meet with Mr. Bowling and formulate plant basics to facilitate plant design. Mr. Bowling traveled to Arkansas to meet with Mr. Pharr and Mr. Purdy to finalize the slaughter/fabrication design and equipment layout for beef and buffalo and to make a final decision on the operational impacts and economic viability of lamb slaughter.

Below are the conceptual site plans and a description of site requirements for the proposed plant. There are also descriptions of movement onto the site, and the movement of animals throughout the pens and into the plant. Finally there is also a general description of the proposed layout of the entire site.
Figure 2. Proposed Plant – Conceptual Site Plan
PROPOSED PLANT SITE PLAN

The proposed plant will require 25 acres of land, which should be located on the outskirts of a medium-sized town, preferably on an Interstate highway.

Truck traffic should enter the plant grounds from the major highway. Personnel and visitor traffic should access the plant grounds from an adjacent side street or farm-to-market road.

The multi-stage waste water treatment facility is shown in the upper left corner of “Figure 2. Proposed Plant – Conceptual Site Plan” (above). Waste water treatment includes an anaerobic digester, (next to the plant), DAF (diffused air filtration), covered initial anaerobic lagoons, aeration basins, pump house, chlorine contact clarifier, disinfection contact tank, and a finishing / holding lagoon. The solid waste digester next to the plant is included in the budget; however, the waste water treatment facility is not budgeted. Note: the liquid portions of this system operate in tandem for redundancy and correction capability.

Alternative treatment of the waste water could be possible, depending on the community and site selected. If the community waste water treatment facility were able to handle the plant waste, the waste water treatment cost could be lower; however, the system as designed is the most technologically advanced and environmentally friendly option.

The employee parking lot lies to the lower right of the plant.

The dotted lines show areas where plant hot boxes and box storage could be expanded if a future second shift were to become desirable.

The covered cattle pens are shown attached to the plant in the upper right corner. The covered cattle pens are shown in greater detail in “Figure 4. Proposed Plant – Three-Level Plant Schematic” and in “Figure 3. Proposed Plant – Schematic of Livestock Pen Details”.

Manure is flushed into the adjacent anaerobic digester utilizing treated waste water from the final storage lagoon. Additionally, inedible offal, bones, hair and dehauling chemical, dead stock, and manure (pen, truck, and paunch manure) will all be chopped and fed to the digester, which has a storage capacity of 21 to 23 days, or 2.3M pounds. The digester utilizes biogas to assist movement of the solid waste through the digestion process. Cellulose is not digested and exits the digester as solid waste. Genset engines are utilized to power generators and create electricity, or the gas can be used to create hot water for plant cleaning and sanitation.

In Figure 3 on the following page, the cattle pens are shown in the upper right side of the image. The figure depicts a cattle trailer unloading cattle which are then moved into a series of pens. The pens are designed for easy loading and driving to slaughter by a single person. Once the cattle reach the end of the pens they are moved into a circular pen which then moves them into a final concrete chute which will lead to the stunning area.
Figure 3. Proposed Plant – Schematic of Livestock Pen Details
2. **Determine most cost efficient design for best workflow and throughput.**

AFSI and VCPA have worked together on several plants in multiple countries. As a group, they have discussed the most cost-efficient design and the best workflow and throughput. Based on these discussions, Mr. Pharr and Mr. Purdy have completed a draft preliminary slaughter / fabrication plant design and equipment layout that will be re-examined and finalized with Mr. Bowling in Arkansas.

The following are the conceptual plant designs, and the workflow proposed for the plant. It provides a description of what happens as an animal enters the plant and moves through the facility.

“Figure 4. Proposed Plant – Three-Level Plant Schematic” shows the plant design with the ground floor in the center, the basement to the left, and the mezzanine in the lower right. The basement is a single bay wide and runs beneath the slaughter floor to manage the effluent and equipment corridor. The hide chill system is shown in the upper corner of the basement, which will also house the green hide-splitting and -fleshing equipment.

The mezzanine is designed as a box storage and make-up area for both fabrication product and jerky and sausage from the value-added area (See “Figure 5. Proposed Plant – Schematic of Mezzanine Level,”). The boxes are formed, glued, and ready-to-load, and they are fed through the ceiling of the appropriate production area.

Melmeq, Ltd. of Auckland, New Zealand, an international company that specializes in capital equipment design and fabrication for food processing operations around the world, provided a typical general layout of their equipment from the knock box to the carcass chill coolers. The majority of their equipment items are incorporated in the Hide-On and Hide-Off rooms shown in the conceptual drawings.

The cattle enter the plant through a handling system designed by Temple Grandin, Ph.D. (Professor of Animal Science, Colorado State University), where they are stunned and suspended prior to chemical dehairing (described in the “Food Safety and Extended Shelf Life” section of this report). The hair, dirt, manure, and chemical are removed to the anaerobic digester. The hide is rinsed with hydrogen peroxide (to oxidize the chemical) and a mild acid to return the hide pH to a 7.5 to 8.3 range (CCP-1, -2, and -3, described in the “Food Safety and Extended Shelf Life” section of this report). The carcass is then stuck and bled.

The high bench is next in the process flow, where the hind legs are skinned and transferred to trolleys. The bung is then cut, tied, bagged, and pushed into the abdominal cavity. The udder or testicles are also removed on the high bench (CCP-4).

The hide puller pulls the hide down the carcass and over the foreshanks (after feet are removed) and head.
The carcass is now ready to exit the dirty area into the evisceration room through a hot pre-evisceration wash and bromine or lactic acid rinse (CCP-5).

The head is removed and hand-washed (CCP-A). The carcass is then eviscerated on the moving-top viscera table. The edible offal enters the offal bays on the left of the evisceration room and are washed, cleaned, and/or cooked (CCP-B, -C, and -D) and chilled in the glycol chilling unit prior to frozen storage.

The carcass is split, the spinal record is removed, and the obterator foramen is cleaned and scraped to remove any USDA-designated Specified Risk Material (as a guard against BSE).

The carcass is washed with hot water and receives final trim and USDA / FSIS Inspection. Finally, the carcass is hot-water-pasteurized with surface temperatures verified at 160°F for 10 seconds (CCP-6).

The carcass then is electrically stimulated—6 amps, 250 volts, 30 pulses / 1.5 seconds in duration. The budgeted cost of the electrical stimulation equipment is $344,080.00, installed by Jeff Kayl (jkayl277@comcast.net).

The carcass sides are then rapidly chilled with high velocity chilled air prior to chilling for 36 to 40 hours in the hot boxes.

Carcasses are then graded and sorted into specific fabrication marketing schemes.

The proposed plant should consider purchase of a camera grading system and make the grade data available to livestock suppliers. The RMS Camera, as installed by Bob Richmond (rjrichmond@rmsusa.com), costs approximately $325K, including software. Another camera option currently in use is the E+V camera, marketed by Horst Eger (horst.eger@eplusv.de).

Chilled, graded, and sorted carcasses are now ready for fabrication. The carcass is now disassembled, and the primals are cut and trimmed on the three fabrication tables—chuck, middle meats, and round. The trim from each primal is segregated for ground beef production and labeled as ground chuck, sirloin, or round.

Primals selected for jerky production are stripped of outside fat and silver skin (connective tissue) and placed in plastic tubs for transport to the jerky slicing / seasoning / tumbling room. Note that the raw jerky enters the oven on the dirty side of the oven and exits on the clean side, where the product is hand-packaged and vacuum-packed, weighed, and boxed for shipment. Sausage products would be made in the same room on alternate days of production.
Ground product (chubs and patties) are formulated and packaged in the grinding room; finally, the product is frozen in the glycol chub chiller and stored in the freezer prior to shipment. Interleafed patties are stacked, bagged, and frozen in the chub chiller also.

The boxed product is palletized as it enters the box cooler. Pallets are stored in push back racks, five layers high, with fork lifts.
Figure 4. Proposed Plant—Three-Level Plant Schematic
Figure 5. Proposed Plant—Schematic of Mezzanine Level
3. *Research meat processing technologies that provide optimal food safety, maximize profit, maintain workplace safety, and allow for complete pasture to plate traceability.*

**Food Safety**

The Food Safety Manager writes and administers the Hazard Analysis Critical Control Point (HACCP) system. The Slaughter Manager must train and monitor people on the high bench to be certain that pathogens are not transferred from their habitat in the hair or on the skin of the cattle to the carcass surface, which will eventually be consumed. Extended shelf-life is created and maintained in the same process-management scenario because pathogens and spoilage bacteria cannot be seen and must be killed using chemicals or a hot-water intervention. Once the carcass is clean, it must be kept clean as it travels from work station to work station through the plant: everyone is involved and must be trained.

Food Safety requires an attitude of 100 percent commitment that must be expressed and lived by every company employee, from the Company president and each member of the management team to plant maintenance and sanitation crews. Failure is not an option!
Table 7. HACCP Plan

<table>
<thead>
<tr>
<th>HAZARD ANALYSIS CRITICAL CONTROL POINT</th>
<th>MANAGEMENT SCHEME</th>
<th>HAZARD CONTROL KILL / %</th>
<th>ACCUMULATIVE HAZARD REMAINING %</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDUE MONITORING PROGRAM--RAW MATERIAL</td>
<td>CCP-1</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>RESIDUE MONITORING PROGRAM--FINISHED PRODUCT</td>
<td>CCP-2</td>
<td>95%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

PATHOGEN INTERVENTION PROGRAM

- CLEAN TRUCKS: BMP, 75%, 25.00%
- CLEAN SLAUGHTER PLANT PENS: BMP, 75%, 18.75%
- SEPARATION OF CLEAN AND DIRTY JOBS AND WELFARE: BMP, 50%, 9.38%
- REMOVE HAIR FROM EXTERIOR OF CARCASS--DEHAIRING: CCP-1, 99%, 0.09%
  CHEMICALLY REMOVE HAIR AND MANURE
  BUFFER CHEMICAL WITH ACID RINSE
  OXIDIZE CHEMICAL WITH HYDROGEN PEROXIDE
- ASEPTIC SLAUGHTER PROCESS
  VALIDATE PATHOGEN REMOVAL WITH CARCASS MAPPING SYSTEM (PATHOGEN TESTING--SPC-BASED) PRIOR TO WASH
- PRE-EVISCERATION WASH / LACTIC ACID RINSE: CCP-5, 90%, 0.00001%

OFFAL PROCESSING DEPARTS FROM CARCASS PROCESS

- HEAD WASH AND LACTIC ACID RINSE: CCP-A, 90%, 0.000001%
- LACTIC ACID RINSE OF OFFAL MEATS: CCP-B, 90%, 0.000001%
- OFFAL RAPID CHILL: CCP-C, 90%, 0.0000001%
- APPLICATION OF COMPETITIVE EXCLUSION BACTERIA TO THE VARIETY MEATS: CCP-D, 99%, 0.000000001%

CARCASS PROCESS CONTINUES AFTER EVISCERATION

- FINAL CARCASS WASH: BMP, 20%, 0.00001%
- HOT WATER PASTEURIZATION: CCP-6, 99%, 0.0000001%
- COOK THE FINISHED PRODUCT TO 118° FOR 2 HR: CCP-7, 99%, 0.000000001%
- APPLICATION OF COMPETITIVE EXCLUSION BACTERIA TO THE JERKY AND SAUSAGE PRIOR TO CONSUMER PACKAGING: CCP-8, 99%, 0.0000000001%

PATHOGEN MONITORING PROGRAM / VERIFICATION

- RAW MATERIAL AND OFFAL TESTED DAILY: 50 SAMPLES / DAY, 95%

BMP = BEST MANUFACTURING PRACTICE; CCP = CRITICAL CONTROL POINT
A recognized brand name must first be protected from known hazards; pathogens and residues are serious consumer concerns and will be further highlighted as world trade competition between nations comes to the forefront. The Hazard Analysis Critical Control Point (HACCP) system is the current state-of-the-art management scenario accepted worldwide for food production. The Proposed plant’s HACCP system for the control and management of chemical residues, biological pathogens, and disease is depicted in “Table 7. HACCP Plan” (included above) and is described in the discussion that follows. Careful and consistent adherence to the proscribed multiple-hurdle Food Safety procedures will provide the proposed plant a substantial margin of differentiation and a distinct competitive advantage over the mega-packer industry. In fact, a stellar Food Safety record can be utilized to create an incisive marketing point.

The single most critical manned pathogen intervention process begins with aseptic hide removal during the high bench operation (CCP-4, or the fourth action in a sequence of related events).

The hide removal area is frequently the position at which new employees start their training; however, at the proposed plant, these positions require personnel who are highly trained and incentivized, making these jobs the most desired in the plant.

The high bench process is further enhanced as the cattle are dehaired immediately after stunning and prior to bleeding (CCP-1). “Figure 6. Schematic of Dehairing System” (below) and its associated photograph explain the process. The steer at the right has just emerged from the dehairing process, which takes less than three minutes to complete.

Figure 6. Schematic of Dehairing System
The dehairing process provides a **three log kill (99.9 percent) of pathogens.** Although the dehairing process is the most significant pathogen control intervention to date, the system has not been adopted because of the complex mechanical and chemical engineering requirements for operation in the plant and the “Who Pays Me?” commodity attitude.

The dehairing process is a valuable processing tool as a pathogen intervention in the Food Safety arena, as an environmental preservation interface through salt water elimination, and as a source of value-added raw materials.

The dehairing system, shown pictorially (below) during skinning after dehairing (Future Beef Operations, 2002), removes the hair, dirt, manure, and pathogens before the animal is stuck for bleeding.
Hide removal will be choreographed for each employee and written as a Standard Operating Procedure for each job on the high bench. From the carcass map pictured below (below), each employee’s job area is clearly delineated and defined. Prior to the pre-evisceration wash, contamination will be counted and recorded for each work station on a continuous basis by plant Food Safety monitors. The current score will be posted on the floor within view of the entire high bench team of workers. Scores for each work station will be statistically analyzed and trends, recorded (center graph). Contamination data and pathogen analysis data will then be used to generously incentivize the high bench team as a unit. They will be paid to eliminate contamination and prevent pathogens. When pathogen positives or contaminations are found, the incentives will be withheld. The aseptic dress procedure on the high bench is known as CCP-4.
The aseptic procedure will kill one log of bacteria (90 percent), but in a critical prevention mode at the beginning of the process.

The pre-evisceration wash is designed to attack the 10 percent of the bacteria that remain after the aseptic hide removal and before the fell membrane has had time to dry (two minutes). The pre-evisceration wash procedure is accomplished with a soft, pulsating hot water (120°F) wash, followed by a 5 percent lactic acid rinse (CCP-5). The wash and acid rinse remove or kill another 90 percent, or one log, of remaining bacteria. A similar process is followed with the head and offal product with similar results.

The final carcass wash and hot water pasteurization will be combined into the same cabinet to reduce air flow and allow the reuse of the initial carcass wash water in the pasteurization unit. Hot water pasteurization (CCP-6) is a two-log kill, or 99 percent of pathogens still present on the carcass.
The control chart shown above in “Figure 7. Hot Water Pasteurization Analysis”
demonstrates that the carcass surface must reach 160°F for a duration of ten seconds in
each of the carcass surface monitoring points for true pasteurization to be accomplished.
Hot water pasteurization (CCP-6) will be validated on one carcass each hour, and
corrective actions will be rigorously enforced.

Application of competitive exclusion bacteria to the carcass surface (recently approved by
USDA-FSIS) is the final intervention (CCP-7) before the carcass is chilled. These
*Lactobacillus* bacteria prevent incidental contamination after the carcass has been sanitized
during the slaughter intervention process and provide a two-log protection, or another 99
percent pathogen kill. This process will be repeated again as beef trimmings are packaged
prior to storage for ground beef manufacture.

In recent years, Agrarian Marketing Corporation (AMC) has combined technologies to
create a product that will lower the pathogens within live cattle, swine, and poultry. This
product contains species-specific antibodies geared to various types of *Salmonella, E.
coli*, and other gram-negative organisms. The *Salmonella* and *E.coli* bovine-specific
antibodies will neutralize these types of gram-negative organisms by binding them in the
animal.

AMC antibodies are incorporated with L-form bacteria to lower the pathogen loads within
the intestinal tract of a beef animal. By feeding the combination of these ingredients, the
pathogen load is reduced, lowering the possibility of pathogen contamination from the animal's digestive system during the harvesting process.

Individual animal cross-contamination and cross-contamination between carcasses related to *Salmonella* and *E.coli* will be dramatically reduced using this all-natural treatment of the cattle prior to harvest. The proposed plant will produce the highest quality beef using this type of cutting-edge technology.

Beef trimmings will be tested for *E. coli* O157:H7 prior to release for use in ground beef products. Positive product will be removed and destroyed. The presence of positive pathogens indicates that the HACCP process is not working as planned. Pathogen testing should be validation that the HACCP intervention is working.

Potential consumers are likely concerned about Food Safety management and control issues with all the media attention to recalls from China for melamine in pet food and lead paint on toys, and with numerous recalls of U.S. beef for *E. coli* contamination. To build and protect a beef brand, Food Safety cannot be done in half measure; almost is not good enough when the life of a child hangs in the balance. Potential customers should demand to know that the proposed plant’s design includes a truly state-of-the-art Food Safety system. This section has been covered in great detail because diligent attention to Food Safety is one of the traits that will separate the proposed plant from the mega-plant culture. Only when Food Safety is achieved at the 100 percent level of commitment does it contribute to marketing or return customer patronage; with a commitment and execution short of 100 percent, the proposed plant would become just another source of the problem! With planned education and training, each employee of the proposed plant will understand and share this trust / accountability continuum!

The proposed plant was designed to maximize Food Safety with enough multiple-hurdle, redundant interventions to stop pathogens on consumer products if properly executed. The same microbiological control mechanisms will control extended shelf life and allow export of fresh, vacuum-packaged beef products.

Careful attention to the HACCP requirements will facilitate Federal Meat Inspection, which is the absolute requirement for commerce within Montana, across the United States, and internationally. State Meat Inspection was not considered because Federal Inspection is required for export to foreign countries.

The critical management functions usually require matrix systems management to cover all scenarios. Any issue then quickly becomes a question of trust between several layers of the management team and the hourly associates.

In “Table 8. Summary of Critical Management Functions” (included below), plant management functions are listed down the left side, and critical management functions are listed across the top of the matrix. Thorough management requires careful attention to detail across the multiple functions of the plant.
The consumer only has input to the plant distribution customer; consequently, communication about an issue seldom reaches the person responsible for solving the problem and may never reach the person who created the situation—unless the management team learns to research, dissect, and correlate corrective actions. Team work and cross-functional communication are essential for corrective actions and sustainable quality; otherwise, the company will face the same consumer problems over and over again. Cross-functional management is a skill acquired through team training.

In this management scheme, the person with the best knowledge of the function must be accountable for all the critical functions in that area. For example, brand accountability must begin with cattle procurement. What other person in the system would see the livestock more frequently or make it his business to know how the cattle are fed and treated? What other person in the system would be more likely to determine if a specific supplier truly follows protocols in the written plant certification programs?

**FOOD SAFETY AND EXTENDED SHELF LIFE**

“Table 9. Food Safety and Shelf-Life Treatments and Interventions” (included below) presents an extensive review of chemical and bacterial / pathogen interventions for live animals, carcasses, primals, and ground product.
Table 9. Food Safety and Shelf-Life Treatments and Interventions

<table>
<thead>
<tr>
<th>Product / Process</th>
<th>Application</th>
<th>Efficacy</th>
<th>Cost</th>
<th>Value</th>
<th>Concerns</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIVE INTERVENTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. coli Vaccine</td>
<td>Calf vaccine / early prevention</td>
<td>0.5 LOG</td>
<td>$ 7.50</td>
<td>HIGH</td>
<td>MULTI-DOSE</td>
<td>WHO PAYS</td>
</tr>
<tr>
<td>Finalyse-ELAIND PHAGE</td>
<td>2 hits before slaughter at plant</td>
<td>0.85 LOG</td>
<td>$ 1.50</td>
<td></td>
<td></td>
<td>PACKER PAYS</td>
</tr>
<tr>
<td>NEDDARIN SULFATE</td>
<td>Competitive exclusion</td>
<td>1.0 LOG</td>
<td>$55.50</td>
<td>HIGH</td>
<td>NOT APPROVED</td>
<td>WHO PAYS</td>
</tr>
<tr>
<td>Bovabane</td>
<td>Competitive exclusion</td>
<td>0.80 LOG</td>
<td>$ 1.50</td>
<td>HIGH</td>
<td>NONE</td>
<td>IMPROVED</td>
</tr>
<tr>
<td>Environmental</td>
<td>Good hygiene</td>
<td>0.28 LOG</td>
<td>$ 3.00</td>
<td>MARGINALY EFFECTIVE</td>
<td>CROSS-</td>
<td></td>
</tr>
<tr>
<td>Sanitation / Feedlot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CONTAMINATION</td>
<td>ESSENTIAL E</td>
</tr>
<tr>
<td>Clean Trucks And Plant Pens</td>
<td>Good hygiene</td>
<td>0.28 LOG</td>
<td>$ 3.00</td>
<td>MARGINALY EFFECTIVE</td>
<td>CATTLE IN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3RD SD</td>
<td>ESSENTIAL E</td>
</tr>
<tr>
<td><strong>CARCASS APPLICATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dehairsing</td>
<td>Sodium sulfite pH 12.8</td>
<td>3.0 LOG</td>
<td>$ 9.00</td>
<td>VERY HIGH</td>
<td>COMPLEXITY</td>
<td>WASTE PROD</td>
</tr>
<tr>
<td>Buffer-AMMONIUM SULFATE</td>
<td>DROP pH 12.6 TO 8.9</td>
<td>3.0 LOG</td>
<td>$ 0.95</td>
<td>MEDIUM</td>
<td>RECYCLING</td>
<td></td>
</tr>
<tr>
<td>Protease U.V. Lights / Oxidize Chemical</td>
<td>Remove chemical for worker safety</td>
<td>4.0 LOG</td>
<td>$ 0.20</td>
<td>VERY HIGH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carcass Irradiation</td>
<td>Low 93 surface</td>
<td>3.0 LOG</td>
<td>$ 1.50</td>
<td>VERY HIGH</td>
<td>EQUIP COST</td>
<td>LABELING</td>
</tr>
<tr>
<td>Aseptic Hide Removal</td>
<td>Prevention</td>
<td>1.0 LOG</td>
<td>$ 1.50</td>
<td>MEDIUM</td>
<td>DISCIPLINE</td>
<td>INCENTIVE</td>
</tr>
<tr>
<td>Steam Vacuum</td>
<td>Remove contamination</td>
<td>1.0 LOG</td>
<td>$ 1.50</td>
<td>MEDIUM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previsculation Wash with</td>
<td>1 minute after hide removal</td>
<td>1.0 LOG</td>
<td>$ 0.25</td>
<td>MEDIUM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>Chemical Oxidation</td>
<td>1.0 LOG</td>
<td>$ 0.25</td>
<td>MEDIUM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactic Acid</td>
<td>Chemical Oxidation</td>
<td>1.0 LOG</td>
<td>$ 0.20</td>
<td>MEDIUM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bovine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot Water Pasteurization</td>
<td>153°F Surface for 10 sec</td>
<td>2.0 LOG</td>
<td>$ 0.95</td>
<td>MEDIUM</td>
<td>DISCIPLINE</td>
<td>REPEATABLY MAINTAINED</td>
</tr>
<tr>
<td>Steam Pasteurization</td>
<td>Surface 180°F instantly</td>
<td>1.0 LOG</td>
<td>$ 0.85</td>
<td>MEDIUM</td>
<td>BURNED SURFACE</td>
<td>DISTANCES</td>
</tr>
<tr>
<td>Lactic Acid Rinse</td>
<td>Surface pH 4.5</td>
<td>1.0 LOG</td>
<td>$ 0.20</td>
<td>MEDIUM</td>
<td>OVER-UTILIZED</td>
<td></td>
</tr>
<tr>
<td>Acidified Sodium Chlorite Rinse</td>
<td>Chemical Oxidation</td>
<td>0.70 LOG</td>
<td>$ 0.40</td>
<td>MEDIUM</td>
<td>OXIDATIVE RANCIDITY</td>
<td></td>
</tr>
<tr>
<td>Bovine Rinse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ozone / Peroxide Rinse</td>
<td>Chemical Oxidation</td>
<td>0.80 LOG</td>
<td>$ 0.35</td>
<td>MARGINALY EFFECTIVE</td>
<td>OXIDATIVE RANCIDITY</td>
<td></td>
</tr>
<tr>
<td>NPC Lactobacillus Meat Culture</td>
<td>Competitive Exclusion</td>
<td>2.0 LOG</td>
<td>$ 0.50</td>
<td>VERY HIGH</td>
<td>LABELING</td>
<td>SHELF LIFE</td>
</tr>
<tr>
<td>Extremely Rapid Carcass Chill</td>
<td>Liquid CO2 Chill-165°F Surface</td>
<td>2.0 LOG</td>
<td>$ 1.50</td>
<td>VERY HIGH</td>
<td>COLD SHORTENING / TENDERNESS</td>
<td></td>
</tr>
<tr>
<td>Chlorinated Chill Water</td>
<td>Chemical Oxidation</td>
<td>1.0 LOG</td>
<td>$ 0.12</td>
<td>MARGINALY EFFECTIVE</td>
<td>CONCRETE DESTRUCTION</td>
<td>NOT APPROB</td>
</tr>
<tr>
<td>Peroxycetic Acid</td>
<td>Chemical Oxidation</td>
<td>0.70 LOG</td>
<td>$ 0.75</td>
<td>MARGINALY EFFECTIVE</td>
<td>OXIDATIVE RANCIDITY</td>
<td></td>
</tr>
<tr>
<td><strong>PRIMAL APPLICATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peroxycetic Acid Rinse</td>
<td>Chemical Oxidation</td>
<td>0.70 LOG</td>
<td>$ 0.75</td>
<td>MARGINALY EFFECTIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ozone / Peroxide Rinse</td>
<td>Chemical Oxidation</td>
<td>0.70 LOG</td>
<td>$ 0.35</td>
<td>MARGINALY EFFECTIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPC Lactobacillus Meat Culture</td>
<td>Competitive Exclusion</td>
<td>2.0 LOG</td>
<td>$ 1.00</td>
<td>VERY HIGH</td>
<td>CEP FOR NEEDLE TENDERIZATION</td>
<td></td>
</tr>
<tr>
<td>Acid Sodium Chlorite Rinse</td>
<td>Chemical Oxidation</td>
<td>0.70 LOG</td>
<td>$ 1.50</td>
<td>MARGINALY EFFECTIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactic Acid Rinse</td>
<td>Chemical Oxidation</td>
<td>0.80 LOG</td>
<td>$ 0.88</td>
<td>MARGINALY EFFECTIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GROUND BEEF APPLICATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low U. Irradiation of consumer Packets</td>
<td>Irradiation of individual consumer packages</td>
<td>3.0 LOG</td>
<td>$ 0.10</td>
<td>VERY HIGH</td>
<td>LABELING</td>
<td>DEVELOPMNT</td>
</tr>
<tr>
<td>High U. Irradiation of Carrot</td>
<td>Irradiation of frozen boxed patties</td>
<td>2.0 LOG</td>
<td>$ 0.50</td>
<td>VERY HIGH</td>
<td>FLAVOR</td>
<td>DEVELOPMNT</td>
</tr>
<tr>
<td>NPC Lactobacillus Meat Culture</td>
<td>Competitive Exclusion</td>
<td>2.0 LOG</td>
<td>$ 0.38</td>
<td>VERY HIGH</td>
<td>SHELF LIFE</td>
<td></td>
</tr>
<tr>
<td>Cooking to 160°F Ground Product</td>
<td>Universal</td>
<td>4.0 LOG</td>
<td>$ 2.00</td>
<td>VERY HIGH</td>
<td>CONSUMER EDUCATION</td>
<td>MANY GOURS REFUSE TO AS THE BEST</td>
</tr>
</tbody>
</table>
From this collection of pathogen interventions, the multiple-hurdle HACCP Food Safety Intervention System was developed.

Of all the hazards, chemical residues are most easily controlled because they are easily found with scientific sampling and analysis. Credible validation of production systems for natural and organic marketing identities requires a residue monitoring system. Residue failures have been among the first shots fired back at American pork after the Chinese melamine / media melt-down. Failure in the food safety arena is not an option for The proposed plant, as the commodity packers push for market share with other exporting countries and the importing countries’ indigenous cattle supplies.

Known allergens—peanuts, tree nuts, milk, wheat, soy, and eggs—will not be used in the proposed slaughter / fabrication / value-added plant to avert potential labeling and recall issues.

*E. coli* 0157:H7, *Salmonella*, and *Listeria monocytogenes* are the most deadly food-borne pathogens that all food plants must control.

Each of these pathogens survives, at times even thrives, in an animal / agricultural habitat. Scientists assume that pathogens are present 100 percent of the time on live cattle and in their environment. Pathogens are natural gastro-intestinal inhabitants of all creatures—man to fly!

In a very real sense, a wall or fence must be constructed between the world where cattle live and eat and the world where humans eat to live. With the exception of *Salmonella*, these pathogens are not of major health concern to the livestock and poultry in which they reside: they are ubiquitous in nature!

*E. coli* O157:H7, *Listeria monocytogenes*, and certain serotypes of *Salmonella* can be lethal to a young child or older adult with the consumption of a single cell.

*E. coli* and *Salmonella* survive up to sixty days in fresh manure on the feed lot floor; consequently, the hair and hide of cattle become the most prevalent pathogen reservoir.

Best Manufacturing Practices must be followed to maintain feed lot bedding, truck floors, and packing plant pens to prevent cross-contamination from dirty to clean cattle.
Maximizing Profit

VALUE-ADDED PRODUCTION

“Table 10. Value-Added Product Summary”, (below) is divided into three segments—plant, beef, and buffalo.

The grand total at the bottom of the Value-Added Table, $2,632.41, will not be easy to achieve; however, the plant as designed will have the capability and the meat supply. Without extensive value-added capability and the ability to successfully merchandise the product mix, the company does not have a chance of success.

Table 10. Value-Added Product Summary

<table>
<thead>
<tr>
<th>VALUE-ADDED PRODUCT</th>
<th>BEEF</th>
<th>BUFFALO</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAVERSEALIBILITY OF EACH ANIMAL</td>
<td>$ 4.00</td>
<td>$ 4.00</td>
<td>$ 4.00</td>
</tr>
<tr>
<td>ANAEROBIC DIGESTER</td>
<td>$ 24.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEHAIR HIDE ON CARCASS</td>
<td>$ 83.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAPID CHILL / FREEZE OFFAL</td>
<td>$ 2.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRILL-READY STEAKS AND ROASTS</td>
<td></td>
<td>$ 262.65</td>
<td></td>
</tr>
<tr>
<td>WHOLE-MUSCLE JERKY</td>
<td>$ 336.11</td>
<td>$ 333.21</td>
<td>$ 669.32</td>
</tr>
<tr>
<td>CHUNKED &amp; FORMED JERKY</td>
<td>$ 321.82</td>
<td>$ 295.54</td>
<td>$ 617.36</td>
</tr>
<tr>
<td>DRY-FERMENTED SAUSAGES</td>
<td>$ 12.50</td>
<td>$ 15.00</td>
<td>$ 27.50</td>
</tr>
<tr>
<td>FRIED BEEF CHICHARRONES</td>
<td>$ 383.85</td>
<td>$ 383.85</td>
<td>$ 767.70</td>
</tr>
<tr>
<td>GROUND CHUBS OR PATTIES</td>
<td>$ 101.58</td>
<td>$ 718.82</td>
<td>$ 820.40</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>$1,155.85</strong></td>
<td></td>
<td><strong>$2,632.41</strong></td>
</tr>
</tbody>
</table>


Grill-ready steaks and roasts have not been included in the total value-added numbers. These products create an opportunity that could be harvested with a plant addition; however, this detailed work requires great attention to detail and a dedicated restaurant customer or chain. It is mentioned here as a possibility for the future.

Beef and buffalo jerky have enjoyed rapid sales growth in the last 15 years. The yielded meat cost of the beef primals listed above is $3.31 for the 118 pounds per head, or $390.41 per head. The same yielded meat costs are substantially higher for buffalo raw material at $6.80 per pound, yielding $801.70 per head. Jerky yield during the drying process is 37 percent; accordingly, trimming yields and drying procedures must be managed with critical attention to detail. The beef product will have a wholesale price of $11.00 per pound, and the buffalo product will have a wholesale price around $26.00 per pound.

Whole-muscle jerky will utilize primals that are tough and difficult to merchandise at retail; additionally, other primals will be added to the list seasonally. Primary muscles targeted for beef and buffalo jerky include the chuck tender, knuckle, eye of round, outside round, inside round, blade / lifter meat, and the cutaneous trunci. Jerky primals will be stripped of fat and outside connective tissue, sliced, seasoned, and vacuum-tumbled prior to drying in a batch oven smokehouse.

Chunked and formed jerky products undergo the same process as whole-muscle products; however, the formed jerky products are coarse-ground and seasoned prior to vacuum-tumbling. Chunked jerky products are then extruded onto a fine-meshed tray to allow more rapid drying.

When the jerky products have cooled, the product is vacuumed-packed in consumer-sized packages with the appropriate labels, including nutritional information.

Beef and buffalo jerky are low in fat, low in calories, high in protein, and an excellent source of heme iron. Notice the ingredient statement in the lower third of the label and the declaration that the product contains “Soy, Fish (Anchovies).” Careful and clear labeling is essential to avoid product recalls caused by improper labeling of known allergens.

Montana beef and buffalo must have a distinctive brand and trademark that the consumer can identify and trust.

Dry-fermented sausages cover a wide range of products in quality and value, starting with “Slim Jims” at the low quality / low cost end.

Fermented sausages are cured sausages. Sausage-making technologies must be strictly observed to produce salami of a consistent quality. Historically, this field of knowledge requires the talent of an Old World-style sausage maker. Today, with meat science technologies and commercially available starter cultures that offer the ability to measure meat pH (acidity) and Aw (water activity) and the equipment to control temperature and
humidity levels in the drying chamber, production of several sausage products falls within the scope of this plant.

Figure 8. pH Decline of Fermented Sausages

There is a difference in fermented sausage technology between the United States and European countries. American methods rely on rapid acid production (lowering pH) through a fast fermentation in order to stabilize the sausage against spoilage bacteria. Fast-acting starter cultures, such as *Lactobacillus plantarum* and *Pediococcus acidilactici*, are used at high temperatures (up to 104º F). As a result, pH drops to 4.6, rendering the sausage stable, but the flavor suffers and the product is sour and tangy.

In European countries, temperatures of 72ºF to 78ºF are employed, and the drying, instead of the acidity (pH), is the main hurdle against spoilage bacteria. This process favors better flavor development. The final acidity of a traditionally made salami is low (high pH), and the sour taste is mitigated. (See “Figure 3. pH Decline in Fermented Sausages,” included above right.)

Some well-known European sausages include French saucisson, Spanish chorizo, and Italian salami. These are slow-fermented sausages with nitrate addition and moderate drying temperatures. Northern European sausages, such as German or Hungarian salamis, are made faster, with nitrite addition, and are usually smoked.

Making fermented sausages is a combination of the art of the sausage maker and the magic performed by bacteria. The friendly bacteria are working together with a sausage maker, but the dangerous pathogenic and spoilage bacteria struggle for dominance. The sausage maker monitors temperature and humidity to control reactions that take place inside the sausage. By controlling the meat source, seasoning, and bacteria cultures, high-quality products and substantial value are created.
Many fermented sausages can be remarkably improved in quality when made with pre-rigor meat (meat harvested while the carcass is still hot and before the muscle pH falls from 7.0 to 5.6).

Muscle tissue intended for sausage and jerky can be removed from the carcass immediately after slaughter and processed before rigor develops (generally about 18 hours post stick), thus increasing the amount of salt-soluble protein available to bind and emulsify fat. Diversity in the flavor and texture of sausage products is also enhanced with the ability to use more than one species in the meat block formulations, *i.e.* beef, buffalo, and pork.

Ground beef equipment should be selected with the capability to measure fat content in each component of the meat block to be utilized in the formulation. Each component of the meat block should be weighed; its fat should be measured; and the product should be coarse-ground prior to blending with other portions of the meat block. Two or three meat sources can then be successfully formulated to hit precise fat percentages and raw material costing formulas.

Retail customers will require product from trimmings where the combo bins have each been tested for *E. coli* O157:H7 and found negative. Most retail customers will want chubs in each of the fat blends: 73 percent; 80 percent; 85 percent; and 93 percent lean, or primal designations such as ground, chuck, sirloin, or round in 1-, 3-, and 5-pound weights. Most will sell more 1-pound chubs than 3- and 5-pound chubs combined. Standard give away on 1-pound chubs is difficult and costly to manage; however, the retailer does not want to spend the money to weigh and label them in the store with his expensive personnel. Chuck, round, and sirloin trimmings must be captured and labeled as such on the fabrication floor; when these trimmings are augmented with primals from cow beef carcasses, the combination becomes a great value-added, profitable product.

Ground beef patties and chubs must be chilled to 28°F to 27°F and maintained at that temperature for fresh product, or they must be quickly frozen if they are to be merchandized as frozen product.

Patties should be made by a Formax patty machine that is equipped with a Tender-Form extrusion head. Tender-Form patties have a more natural texture, are less tough than conventional patties, and do not appear as frozen "hockey pucks" to consumers.
Merchandizing ground beef to a retail or restaurant customer is a combination of having the right meat mix (primal designation or fat percentage), the right equipment to shape or form the product, and, finally, the desired packaging. The recommended equipment will encourage customers to sample the system’s products.

LIVESTOCK TRANSACTION SUMMARIES

As shown above, this report includes plans to incorporate the production of jerky products, meat sticks, and dry, fermented sausages. All of these products will add significant value to lower-value cuts of both beef and bison. The following summaries and tables illustrate the value of the byproducts from beef and bison.

The next three tables depict livestock transaction summaries, which encompass live cattle costs, revenues, weights, and yields for cull cows, fed beef, and forage-finished buffalo.

When purchased live, cattle and buffalo are weighed in the early morning on day of shipment with a 4 percent shrink to the certified scale weight to allow for rumen contents.

Live cattle prices are values reported from USDA / AMS / Market News.

Carcass dressing percentage ranges from 40 percent to 65 percent and is the ratio of live weight to conventional carcass weight. Animals that are fatter and more muscular (items that remain with the carcass and add weight) have higher dressing percentages, i.e. 61 percent to 63.5 percent. Animals that have had limited nutrition and have poorly developed muscles and little or no carcass fat or are pregnant tend to have lower dressing percentages, i.e. 42 percent to 45 percent.

“Table 11. Jerky Cow Transaction Summary” (below) shows that for jerky cow product, cull cows weighing 1,235 pounds with reasonable muscle development are purchased with an expected dressing percentage of 48 percent, resulting in a carcass weight of 593 pounds. The published USDA / AMS drop credit was $14.91 per hundred-weight, for a total drop credit of ($184.07). The edible offal has a value of $109.20; the hide, $88.00; inedible offal, $39.36; blood, $1.00; for a total by-product value per head of $237.56, or a premium to the USDA drop credit of $53.49.
## Table 11. Jerky Cow Transaction Summary

<table>
<thead>
<tr>
<th>JERKY COW</th>
<th>ASSUMPTION</th>
<th>WEIGHT</th>
<th>$ / HEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSACTION SUMMARY</td>
<td>LB / HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COV WITH SHRINK</td>
<td>4.0%</td>
<td>1286</td>
<td></td>
</tr>
<tr>
<td>SLAUGHTER COV / CVT.</td>
<td>$ 90.00</td>
<td>1235</td>
<td></td>
</tr>
<tr>
<td>SLAUGHTER COV</td>
<td>$90.00</td>
<td></td>
<td>$ 1,111.10</td>
</tr>
<tr>
<td>CARCASS DRESSING PERCENTAGE</td>
<td>48.0%</td>
<td>593</td>
<td></td>
</tr>
<tr>
<td>LIVE DROP CREDIT / CVT.</td>
<td>$ 14.91</td>
<td>1235</td>
<td>(184.07)</td>
</tr>
<tr>
<td>EDIBLE OFFAL / CVT.</td>
<td>$ 1.68</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>HIDE</td>
<td>10%</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>INEDIBLE FAT, BONE, &amp; VISCERA / CVT.</td>
<td>$ 0.120</td>
<td>328</td>
<td>$ 39.36</td>
</tr>
<tr>
<td>BLOOD / CVT.</td>
<td>$ 2.00</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>PAUNCH &amp; MANURE TO SOLID WASTE</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BY-PRODUCT VALUE / HEAD</td>
<td>$ 0.42</td>
<td>566</td>
<td>$ 237.56</td>
</tr>
<tr>
<td>PREMIUM TO DROP CREDIT</td>
<td>$ 0.09</td>
<td>566</td>
<td>$ 53.49</td>
</tr>
<tr>
<td>HOT FAT TRIM REMOVAL</td>
<td>5%</td>
<td>$ 0.37</td>
<td>$ 29.6</td>
</tr>
<tr>
<td>BONE</td>
<td>3.6</td>
<td>19.5%</td>
<td>$ 0.10</td>
</tr>
<tr>
<td>RED MEAT YIELD PERCENTAGE</td>
<td>70%</td>
<td></td>
<td>414.81</td>
</tr>
<tr>
<td>WHOLE MUSCLE YIELD</td>
<td>52%</td>
<td></td>
<td>214.81</td>
</tr>
<tr>
<td>COV TRIMMINGS TO GROUND BEEF PRODUCTION 12%</td>
<td>$ 2.70</td>
<td>69.71</td>
<td>$ 188.22</td>
</tr>
<tr>
<td>COV TRIMMINGS TO OUTSIDE SALES</td>
<td>$ 0.77</td>
<td>30.00</td>
<td>$ 23.20</td>
</tr>
<tr>
<td>JERKY YIELD-WHOLE MUSCLE</td>
<td>70%</td>
<td>11.00</td>
<td>37%</td>
</tr>
<tr>
<td>MEAT STICK YIELD-FORMED</td>
<td>70%</td>
<td>10.00</td>
<td>40%</td>
</tr>
<tr>
<td>DEEP FRIED BEEF CHICHARRONES</td>
<td>80%</td>
<td>5.00</td>
<td>85%</td>
</tr>
<tr>
<td>VALUE-ADDED PRODUCTS (MANUFACTURING COST)</td>
<td>$ / LB</td>
<td>482</td>
<td>$ 169.85</td>
</tr>
<tr>
<td>TOTAL SALES REVENUE</td>
<td>$ / LB</td>
<td>3.71</td>
<td>460</td>
</tr>
<tr>
<td>COST OF GOODS SOLD</td>
<td>$ / LB</td>
<td>1.24</td>
<td>460</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td>$ / LB</td>
<td>3.66</td>
<td>460</td>
</tr>
<tr>
<td>BEEF-EBIOTA $ / HEAD</td>
<td>$ / LB</td>
<td>0.05</td>
<td>460</td>
</tr>
</tbody>
</table>
In the most efficient jerky manufacturing process, carcass fat would be trimmed hot with pneumatic knives to eliminate the fat and connective tissue on the exterior of the carcass. The carcass fat and connective tissue typically weigh approximately 30 pounds, or 5 percent of total carcass weight.

Carcass bone will range between 15 percent and 22 percent, with a normal muscle-to-bone ratio of 3.8:1.

Best-value utilization of a jerky cow carcass has all of the available muscle utilized in a whole-muscle jerky product. The 214.81 pounds of muscle would yield 37 percent when properly dried, or 79.5 pounds of finished jerky. When the finished jerky is sold to a retail customer for $11.00 per pound, the retail margin is 30 percent.

The cow trimmings are utilized in three ways to optimize value: (1) beef chunked and formed jerky—100 pounds raw yields 40 pounds dried and sells for $10.00 per pound, or $280.00 per head; (2) ground beef—69.71 pounds per head and sells at $2.70 per pound, or $188.22 per head; (3) trim too fat to utilize in either ground beef or jerky and sold outside (30 pounds per head) sells for $0.77 per pound, or $23.20 per head.

Beef chicharrones are derived from the flesh split (interior portion of the hide next to the fat), after splitting the hide transversely. The raw hide is then cut into bite-sized portions, seasoned, and deep-fat fried. Of the 123-pound hide, the grain side or outside is sold for leather production, and the flesh side is sold as collagen (sausage casings) or chicharrones (67.9 pounds, or $288.58 per head).

Value-added product accounts for 482 pounds of the 460 pounds of conventional product, or 105 percent. The value-added manufacturing cost is an additional cost to those enumerated in “Table 20. Summary of Cost of Goods Sold,” which has been discussed previously. Additional people and packaging are estimated at $0.35 per pound, or $168.85 for the 482 value-added pounds.

Total Cost (livestock plus manufacturing cost) is $1,683.70, or 98.7 percent of total Revenues of $1,705.55, leaving Earnings before Interest, Depreciation, Tax and Amortization (EBIDTA) of $21.

“Table 12. High-Quality Fed Beef Transaction Summary” (below) shows a cattle cost of $145.00 per hundred-weight, or $1,948.80 per head.

Although the fed-beef EBIDTA is $157.17 per head, the sales revenue for the ground beef, jerky and chicharrones value-added products is projected at $1,210.40, indicating that all of the cash flow can be attributed to value-added products. In fact, the EBIDTA for the value-added alone was $636.43 (5.86 percent margin), indicating that steak and roast beef sales were subsidized $479.26 per head by value-added earnings.
Table 12. High-Quality Fed Beef Transaction Summary

<table>
<thead>
<tr>
<th>High Quality Fed Beef Transaction Summary</th>
<th>Assumption</th>
<th>Weight</th>
<th>$ / Head</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STEER WITH SHRINK</strong></td>
<td>4.0%</td>
<td>1400</td>
<td>$145.00</td>
</tr>
<tr>
<td><strong>SLAUGHTER STEER / CWT.</strong></td>
<td></td>
<td>1344</td>
<td>$1,240.80</td>
</tr>
<tr>
<td><strong>STEER PRODUCTION COST</strong></td>
<td></td>
<td>$145.00</td>
<td>$1,240.80</td>
</tr>
<tr>
<td><strong>CARCASS DRESSING PERCENTAGE</strong></td>
<td>63.5%</td>
<td>853.44</td>
<td>$1,843.80</td>
</tr>
<tr>
<td><strong>AVG. LIVE DROP CREDIT / CWT.</strong></td>
<td>$14.91</td>
<td>1344</td>
<td>($209.39)</td>
</tr>
<tr>
<td><strong>EDIBLE OFFAL / CWT. / CASHE-READY</strong></td>
<td>$1.57</td>
<td>82</td>
<td>$136.97</td>
</tr>
<tr>
<td><strong>HIDE</strong></td>
<td>11%</td>
<td>157</td>
<td>$145.00</td>
</tr>
<tr>
<td><strong>INEDIBLE FAT, BONE, &amp; VISCEA TO DISPOSER</strong></td>
<td>$0.120</td>
<td>72.5</td>
<td>$8.70</td>
</tr>
<tr>
<td><strong>BLOOD / CWT.</strong></td>
<td>$0.60</td>
<td>56</td>
<td>$0.34</td>
</tr>
<tr>
<td><strong>PAUNCH &amp; MANURE TO SOLID WASTE</strong></td>
<td></td>
<td>120</td>
<td></td>
</tr>
<tr>
<td><strong>SV-PRODUCT VALUE / HEAD</strong></td>
<td>$0.79</td>
<td>367</td>
<td>$292.00</td>
</tr>
<tr>
<td><strong>PREMIUM TO DROP CREDIT</strong></td>
<td>$0.11</td>
<td>855</td>
<td>$91.61</td>
</tr>
<tr>
<td><strong>HOT FAT TRIM REMOVAL</strong></td>
<td>9%</td>
<td>0.37</td>
<td>$28.04</td>
</tr>
<tr>
<td><strong>BONE</strong></td>
<td>4.2%</td>
<td>0.10</td>
<td>$15.36</td>
</tr>
<tr>
<td><strong>RED MEAT YIELD PERCENTAGE</strong></td>
<td>75.3%</td>
<td>642.62</td>
<td></td>
</tr>
<tr>
<td><strong>JUSDA / AM 11 / BEEF CUT OUT VALUE</strong></td>
<td>63.7%</td>
<td>3.85</td>
<td>$961.92</td>
</tr>
<tr>
<td><strong>Retail Sales</strong></td>
<td></td>
<td>1190</td>
<td></td>
</tr>
<tr>
<td><strong>STEER TRIMMING TO GROUND BEEF PRODUCTION</strong></td>
<td>70.0%</td>
<td>2.81</td>
<td>$101.58</td>
</tr>
<tr>
<td><strong>STEER TRIMMING TO OUT SIDES SALES</strong></td>
<td>95%</td>
<td>0.77</td>
<td>$67.05</td>
</tr>
<tr>
<td><strong>JERKY YIELD - WHOLE MUSCLE</strong></td>
<td>70%</td>
<td>11.00</td>
<td>37%</td>
</tr>
<tr>
<td><strong>MEAT STICK YIELD - FORMED</strong></td>
<td>70%</td>
<td>10.00</td>
<td>35%</td>
</tr>
<tr>
<td><strong>DEEP FRIED BEEF CHILAQUIONES</strong></td>
<td>80%</td>
<td>6.00</td>
<td>85%</td>
</tr>
<tr>
<td><strong>VALUE ADDED PRODUCTS (MANUFACTURING COST)</strong></td>
<td>$0.35</td>
<td>486</td>
<td>$179.21</td>
</tr>
<tr>
<td><strong>TOTAL SALES REVENUE</strong></td>
<td>$2.25</td>
<td>1190</td>
<td>$2,679.94</td>
</tr>
<tr>
<td><strong>COST OF GOODS SOLD</strong></td>
<td>$0.48</td>
<td>1190</td>
<td>$571.97</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td>$2.12</td>
<td>1190</td>
<td>$2,527.77</td>
</tr>
<tr>
<td><strong>FED STEER - EBIDTA $ / HEAD</strong></td>
<td>$0.13</td>
<td>1190</td>
<td>$157.17</td>
</tr>
</tbody>
</table>
The sales margin of these value-added products is substantial; however, these branded products require an experienced sales force that knows the customer base. We have included 10 sales and marketing professionals in the S, G, & A cost analysis included in “Table 20. Summary of Cost of Goods Sold.”

The proposed plant’s slaughter and fabrication operations provide the company access to raw material that would not be available on the commodity market.

The fed beef and cull cow live price and carcass cutout data are available on a daily basis from USDA / AMS; however, the public data base is only available on a monthly basis for live buffalo and buffalo meat.

Forage-finished buffalo do not dress as high as grain-finished beef cattle; however, their dressing percentage is better than that expected for cull beef cows.

“Table 13. Buffalo Transaction Summary” (below) shows that only conventional steak primals ($514.37 per head [40.1 pounds per head]) were diverted from the jerky or ground beef products; nonetheless, this heavily value-added prioritization and extreme raw price produced an EBITDA of $29.21 per head because the live cost was $1,656.00 per head.

If the buffalo jerky were sold at $10.00 and $11.00 per pound (the beef wholesale price) rather than at the projected $20.00 and $26.00 per pound, the resulting EBITDA would be $1,150.96. The high cost of the buffalo finished jerky will limit sales when compared to beef.
Table 13. Buffalo Transaction Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Assumption</th>
<th>Weight</th>
<th>$ / Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow with Shrink</td>
<td>40%</td>
<td>1150</td>
<td></td>
</tr>
<tr>
<td>Slaughter Buffalo / CVT</td>
<td>$ 150.00</td>
<td>1104</td>
<td></td>
</tr>
<tr>
<td>Average Cow Cost</td>
<td>$ 1.50</td>
<td></td>
<td>$1,656.00</td>
</tr>
<tr>
<td>Carcass Dressing Percentage</td>
<td>52.5%</td>
<td>580</td>
<td></td>
</tr>
<tr>
<td>2013 Avg Live Drop Credit / CVT</td>
<td>$ 14.91</td>
<td>1104</td>
<td>$(164.81)</td>
</tr>
<tr>
<td>Edible Offal / CVT</td>
<td>$ 1.50</td>
<td>75</td>
<td>$ 112.50</td>
</tr>
<tr>
<td>Hide</td>
<td>10%</td>
<td>110</td>
<td>$ 98.00</td>
</tr>
<tr>
<td>Inedible Fat, Bone &amp; Viscera / CVT</td>
<td>$ 0.12</td>
<td>328</td>
<td>$ 39.36</td>
</tr>
<tr>
<td>Blood / CVT</td>
<td>$ 0.60</td>
<td>50</td>
<td>$ 30.00</td>
</tr>
<tr>
<td>Paunch &amp; Manure to Solid Waste</td>
<td></td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>By-Product Value / Head</td>
<td>$ 0.44</td>
<td>563</td>
<td>$ 250.16</td>
</tr>
<tr>
<td>Premium to Drop Credit</td>
<td>$ 0.15</td>
<td>563</td>
<td>$ 85.55</td>
</tr>
<tr>
<td>Hot Fat Trim Removal</td>
<td>5% $ 0.37</td>
<td>29.0</td>
<td>$ 10.72</td>
</tr>
<tr>
<td>Bone</td>
<td>3.6 20.0%  $ 0.10</td>
<td>115.9</td>
<td>$ 11.59</td>
</tr>
<tr>
<td>Red Meat Yield Percentage</td>
<td>71.5%</td>
<td>414</td>
<td></td>
</tr>
<tr>
<td>Steak Meat Yield</td>
<td>9.7% $ 12.84</td>
<td>48.1</td>
<td>$ 514.37</td>
</tr>
<tr>
<td>Buffalo Trimming</td>
<td>65%</td>
<td>374.3</td>
<td></td>
</tr>
<tr>
<td>Buffalo Ground Meat</td>
<td>33.4% $ 5.75</td>
<td>125.0</td>
<td>$ 718.82</td>
</tr>
<tr>
<td>Jerky Yield—Whole Muscle</td>
<td>70% $ 26.00 37%</td>
<td>118.0</td>
<td>$ 333.21</td>
</tr>
<tr>
<td>Jerky Yield—Formed</td>
<td>70% $ 20.00 40%</td>
<td>131.35</td>
<td>52.5</td>
</tr>
<tr>
<td>Value-Added Products (Manufacturing Cost)</td>
<td>$ 0.35 374</td>
<td></td>
<td>$131.02</td>
</tr>
<tr>
<td>Total Sales Revenue</td>
<td>$ 2.32 958</td>
<td></td>
<td>$2,219.98</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>$ 0.56 958</td>
<td></td>
<td>$ 534.77</td>
</tr>
<tr>
<td>Total Cost</td>
<td>$ 2.29 958</td>
<td></td>
<td>$2,190.77</td>
</tr>
<tr>
<td>Beef-EBITDA $ / Head</td>
<td>$ 0.03 958</td>
<td></td>
<td>$ 29.21</td>
</tr>
</tbody>
</table>
Workplace Safety

Careful attention to training across all employee levels clearly defines roles and actions and reduces noncompliance incidents.

The following list includes some of the critical areas in which all employees need to receive training:

- Food Safety
- Personal Hygiene
- Disease / Food Handling Issues
- Cultural / Language / Immigration Issues
- Religious Issues
- Animal Welfare / Humane Handling
- Employee Turnover
- Work Place Safety
- Green Labor Training
- Promotion Mechanism
- Child Care
- Producer Relationships

The critical management functions usually require matrix systems management to cover all scenarios. Any issue then quickly becomes a question of trust between several layers of the management team and the hourly associates.

Company chaplains help to develop trust between management and hourly employees, thus reducing tension between layers of management.

Traceability

Animal identification and trace-back management become the backbone of the Food Safety residue monitoring system, the herd health management system, and the meat / carcass Yield feedback system used to manage individual cattle throughout the production process. The entire management of the production process will revolve around the identification system. Notice the Non-Hormone Treated Cattle (NHTC) and Source and Age Verified (SAV) tags in the ears of the animal pictured.

The traceability system begins at the mother's side. Notice the Radio Frequency Identification (RFID) tags in the calf's ear. This system enables trace back of the meat a consumer has purchased to the packing plant, feed lot, calf ranch, calf, and, finally, the genetics of origin.
The proposed plant will utilize the cutting-edge calf-to-consumer traceability system created by IMI Global, with which consumers can use their cell phones to access meat traceability data from cow to the point of purchase. This system will verify “WHERE YOUR MEAT COMES FROM,” thus adding transparency and trust for the consumer.

Connecting the traceability software to the trolley tracking software and integrating all of the plant computer system to the financial or accounting system should be contracted to Rob Streight at ProTrace Solutions (robstreight5589@comcast.net; http://www.protracesolutions.com/protrace/).
4. **Examine the potential for multispecies processing.**

This study examined the potential for slaughter of three species: beef, bison, and lamb. It was determined that beef and bison are very compatible and can be slaughtered in the same meat processing facility. Due to the large supply of beef in Montana, the majority of the meat that would be processed in this proposed facility would be beef. It was found that little was needed to make a beef processing facility capable of also processing bison.

Lamb slaughter was considered for inclusion into this plant; however, lamb slaughter requires equipment that is very specialized to each work station. Lamb slaughter plants in Australia and New Zealand process 6,000 to 10,000 head per day and are extremely efficient and low cost. Montana does not produce enough lambs to compete in this market. The potential for slaughtering 10 to 12 lambs per day by hand in a one-man operation has been considered to satisfy the local market in Montana. A lamb slaughter operation would not be a profitable option for the proposed plant. Furthermore, coordination of meat sales would be a complication. However, the plant will have the capability to kill and chill lambs.

5. **Visit at least four meat processing plants in the US to understand workflow and plant design (Site visits will likely be spread across several individuals).**

The last plant AFSI and VCP&A designed and built was Future Beef Operations in Arkansas City, Kansas (now Creekstone Foods). AFSI has provided a CD video tour of this plant to One Montana. This plant is a cutting-edge example of design and efficiency that has remained profitable even in the current economy of high-cost raw materials and resultant low profit margins. The material provided to One Montana contains information about this plant in the form of a CD video tour.

One Montana visited Rocky Mountain Natural meats in Henderson Colorado on January 20th, 2014. Program Manager Matt Bitz and President Bill Bryan toured the plant and spent time with the owner.

In April 2014, One Montana President Bill Bryan returned to Brush Colorado to visit a second facility owned by Rocky Mountain Natural Meats (their kill facility) for a site visit. Program Manager Matt Bitz visited Lorentz Meats in Cannon Falls Minnesota on April 4th, 2014. Mr. Bitz met with the owner/operator of the plant.


*Note: In the travel budget for this project, One Montana anticipated visiting Northern Beef Packers in Aberdeen South Dakota. One Montana was unable to visit Northern Beef Packers. This plant is currently in bankruptcy and One Montana was informed that it was not possible to conduct a site visit there.*
6. **Document how the four meat processing plants that were visited were chosen and complete summary overviews for each visit regarding the facilities and information obtained.**

**Note:** In the meat processing business it is common to divide operations into slaughter and further processing/fabrication. During the slaughter phase, the animals are stunned, bled, eviscerated, skinned, and broken into halves down the centerline, or spine. These halves are then placed into coolers where they chill until they are ready for further processing/fabrication.

Further processing and fabrication refers to that part of the meat processing phase where the halves of a carcass are split into four main sections: (1) round (the rear part of the carcass), the (2) rib and (3) loin (the central part of the carcass from where many of the most desired cuts are derived from) and the (4) chuck (the front portion of the carcass). These four main sections are then further divided into primal cuts of meat which may be cut into individual portions. Trimmings from this process are sorted and then turned into ground meat or other products.

1. One Montana chose to go to Rocky Mountain Natural Meats plants in Henderson Colorado (further processing) and in Brush (kill facility) because these facilities process a comparable number of animals on a yearly basis to what might go forward in Montana. They were also chosen because the plants are multispecies in that both beef and bison are processed in them. It was also chosen because the owner of Rocky Mountain Natural Meats has a strong commitment to food safety. Finally, they were chosen because they are relatively new plants. All these qualities suggested that the plants had enough similarities to the One Montana project to make them ideal sites to visit. One Montana was also fortunate enough to be granted access to the plants by the owner.

**Overview of Rocky Mountain Natural Meats slaughter facility in Brush Colorado:**

Animals are brought in from feed lots from around the area. Often they are brought in starting at 3:00 a.m., but could arrive as late as mid-morning of the day that they're processed. They go into a holding area that is essentially designed for bison, but cattle can readily adapt. They go into one holding pen and then another. It takes a couple of holding pens to calm the bison down and then they are fine. The pens are open air but there is a roof and a solid wall six to eight feet high surrounding the pens. The animals go into a tight chute and at the very end is where a compressor bolt gun stuns them. The animal drops down into the bloodletting area. They are put almost immediately on a chain that is fastened to the animal through one of its hind legs. Therefore, the animal is suspended upside down and on that same chain through the skinning and evisceration process until it is cut in two at the very end and put in the storage locker.

There are several people involved in removing the hide. First the hooves are taken off, and while doing this starts the skinning operation around the rear of the animal. The next person works the other hind leg, starting to get the hide pulled off. The following person works on another leg and then another until all hooves are off and the hide is ready to be pulled off.
Then there is a person who gets the hide cut and ready to be peeled off over the paunch area. Then the animal’s hide is taken off and is dropped on a conveyor belt that then goes out into another building where all the inedible offal will go. The animal then goes through a hot wash and when it comes out, there is a person who takes out the gut – the stomachs, the liver, the lungs, etc. Those are all dropped onto a conveyor belt where a person then takes the heart and the liver and those slide into various plastic drums. He’ll then take the windpipe and other cartilage areas and put them into grey drums. The grey drum contents eventually all go into a pet food factory. The white drum contents go eventually into a cooler. More work is then done to take scraps off for pet food. The paunch itself goes into the inedible offal area. The inside of the paunch is then removed and is put in one area as it is later put into compost/fertilizer by another processing facility that is not a part of Rocky Mountain Natural Meats.

The animal is halved and the spinal cord taken out. Those halves then go into a cooler. They remain there until they are transported to the further processing/fabrication plant in Henderson.

All of the liquid waste water goes into the lagoon. There are two of them, each holding 500,000 gallons of water. The first one is covered with a plastic roof. It’s an anaerobic lagoon. It then goes into an open air lagoon. There’s no smell, and eventually the water heads to the sewer treatment plant of Brush, which has the capacity to handle it. The liquid waste coming into the lagoons is there for five to six days before it heads to the sewage treatment plant.

One of the reasons for locating the plant in Brush is that it is hooked up into the waste water treatment plant for Brush and to Brush’s water supply.

As for the location, the plant was located in Brush not only for access to water, but the proximity to means of disposing of all the offal. The entity that takes the inside of the intestines and puts it all into compost has a big composting facility nearby. The rendering goes to a nearby facility that is just a few miles away. The offal that goes into the pet foods goes to a pet food processing that is also not far away. The hides go to a plant that is also in the vicinity.

**Overview of the Rocky Mountain Natural Meats further processing plant in Henderson:**

The Henderson plant itself is not a combined slaughter and fabrication plant, rather it does further fabrication of meat products only. Quarters of bison and beef are brought to the plant in refrigerated trucks from Rocky Mountain Natural Meats slaughter facility, located in Brush Colorado. These are offloaded and are weighed and sprayed with a dilute acid to kill any possible bacteria. These quarters are then stored in a large cooler, hanging from rails, until they are ready for processing. From the cooler, the rail system moves the quarters in the fabrication room, where each quarter is broken into the primal cuts of meat. This process is different for front and hind quarters because each produces different cuts of meat. Cuts of meat are moved on an automated conveyor belt system to each worker on the line, who is responsible for specific tasks. The whole cuts have one workflow; trim goes
to another destination, and bones to another. Samples are taken along the way for testing to ensure no foodborne pathogens are present. Testing is done by a third party. Primals that are to be cut into steaks wind up in another area of the plant, where they are cut and placed in containers for shipment. Trim that is destined for grinding goes to a large grinder, which sends the ground product to a machine that forms it into bricks and vacuum packs these bricks. The bricks are then placed into containers for shipment.

Rocky Mountain processes around 400 head of beef and bison per week, on average. Most of the meat that is processed will be shipped and sold as fresh meat, under the brand Great Range Bison. Most of that fresh meat is produced as one pound bricks of ground bison meat. In addition to selling bison meat at the retail level, RMNM processes all of the meat for the restaurant chain Ted’s Montana Grill. RMNM also does custom processing for other niche meat brands.

Rocky Mountain Natural Meats had one important piece of advice for the One Montana project, and that was, rather than focus on building a brick and mortar facility, the focus should be on finding markets for Montana beef first. Once demand for beef had been built, and buyers for the beef found, then it might be possible to build a processing plant.

2. One Montana chose to go to Lorentz Meats because Lorentz Meats is a small, multispecies plant with an excellent industry reputation as a small, regional plant.

Lorentz Meats is located in Cannon Falls Minnesota and is smaller in scale than Rocky Mountain Natural Meats. In comparison to the 400 head a week that pass through RMNM, 30 to 40 head a week pass through Lorentz Meats.

One Montana arrived at Lorentz meats on April 4, 2014 and spoke with the owner operator of the plant. On that particular day, Lorentz Meats was slaughtering beef cattle. The plant is capable of slaughtering and processing beef and bison. Lorentz Meats also buys in other meats: chicken and pork, to make their own products.

The most noteworthy feature of Lorentz meats is the viewing room. This is a room on the second floor of the plant that allows visitors to the plant to observe the entire processing operation from one place. The room is surrounded with large windows that look out onto the slaughter floor and onto the processing floor. Customers or guests of Lorentz are brought to this room to observe the slaughter and processing operation of the plant. While this may seem unremarkable to anyone unfamiliar with the meat processing business, it is in fact a rather extraordinary feature to find in a processing facility. It is in direct contrast to the general trend throughout the industry towards concealing processing operations from the consumer.

Lorentz Meats custom processes the beef and bison, and does not market those items under their own label. They do however manufacture their own products, chicken and pork sausages.
Lorentz Meats is committed to working with small farmers and ranchers, even those who have just a few animals to process. However, most of their business is built around a number of core customers that they custom process for.

Similar to the advice of Rocky Mountain Natural Meats, Lorentz Meats had one important piece of advice for the One Montana project, and that was to build demand for Montana beef and bison and a market for those products before beginning construction of a processing facility.

3. One Montana chose to go to Washington beef because it is a larger scale plant than what is being proposed for Montana. By visiting a plant that is larger in scale, it gave the team a chance to understand the advantages and the challenges of operating on a smaller scale. It also offered the opportunity to evaluate how a larger meat processing operation handles inventory and distribution, two key factors for success in any meat processing venture. A larger plant may have more sophisticated means of managing these two components, and that knowledge may prove valuable for the One Montana Project.

One Montana visited the plant in Toppenish on June 6th, 2014. Washington Beef was by far the largest of the processing plants One Montana visited over the course of the project. It covers more than a quarter of a million square feet and employs 870 people.

The floor of the holding pens is textured concrete so that the cattle do not slip. The holding pens are also covered by an awning for shade and water is available for drinking. When the cattle arrive there are sprinklers to wash them. One Montana was told that the employees who work with the animals are trained to handle them gently so as not to stress them. There are cameras in the holding areas to monitor the handling of the animals.

When the animals enter the plant a captive bolt gun is used to stun them, and they are bled. Then, hide removal begins. Each worker is trained to do a specific task and a specific part of the hide to remove. When the hide is ready to be pulled, a mechanical hide puller catches the hide and pulls it off the carcass.

As the hide is being removed from the carcass, there are employees along the line that use steam vacuums to remove any foreign matter from the skinned animal.

After skinning the carcasses are washed and then moved on to evisceration. The organs are removed and the edible offal is moved to a separate room. Then the carcass gets split in half. It is split down the spine. The worker who does this must be very skilled, because they must split the spine evenly the whole way down, every time. In some ways, this was the most impressive thing to watch happen in the entire plant. The man who does this stands on a mechanical elevator platform that rises up and then lowers as the cut through the carcass is made. This is to reduce the need for the operator to lift the heavy saw.

After splitting carcasses are tagged and scanned into the computer tracking system which can then follow it throughout the plant. This tracking system was very impressive and
allowed for the plant to choose what lot of carcasses was to be processed at a given time and then for the workers to move those carcasses to the fabrication room.

There are USDA inspectors on the floor who examine the heads and carcasses of the animals before they leave this room. If there is a problem, they will flag the carcass for removal.

There is a washing system that’s in place as each carcass leaves the room and passes into the cooler, where they stay for 24-48 hours. As the carcass enters the cooler rooms, they are cut at the 12th rib for grading and a camera connected to a computer takes a picture which is then graded by the computer. USDA grades the carcasses as well.

When carcasses move from the cooler to the fabrication room, they are split four ways—into the Chuck, the Rib, the Loin, and the Round. In the fabrication room there are four long conveyor belt lines where each of the sections are broken down into cuts for shipment to retail. The whole cuts are vacuumed packed, weighed, sorted, and boxed and labeled. The boxes are loaded onto pallets and then the loads of pallets are moved into the cooled warehouse.

The inventory system in the warehouse is capable of finding each box of meat out of thousands and allows the plant to select what boxes and pallets it wants to ship on a given load.

As noted above, One Montana’s desire to see a plant with a large and sophisticated inventory tracking system was met by touring Washington Beef.

7. Conduct interviews with experts to provide information on meat processing industries in New Zealand and Uruguay. Conduct an analysis of how Montana can benefit from similar methodologies.

Mr. Pharr of VPA&A, the firm subcontracted to AFSI, has worked with two New Zealand meat engineering / processing firms—MiTech Technology and ProAnd—to seek their input into the conceptual plant design. This led to contacting Melmeq, Ltd. of Auckland, New Zealand, an international company that specializes in capital equipment design and fabrication for food processing operations around the world, provided a typical general layout of their equipment from the knock box to the carcass chill coolers. The majority of their equipment items are incorporated in the Hide-On and Hide-Off rooms shown in the conceptual drawings.

8. Identify methods of capturing value from byproducts—rendering, hides, offal, and pet food.

The plant proposed for Montana is not large enough to sustain a rendering plant. A rendering plant would allow value to be captured in the form of bone meal and fat. However, this plant would need to be 3-4 times larger for the economies of scale surrounding rendering to become efficient enough to justify the initial investment in the
equipment needed to render. Rendering also adds another layer of complexity to meat processing—that of social acceptance. Slaughter and fabrication plants produce very little offensive smell. The negative perceptions most people associate with meat processing have to do with the smell produced by rendering plants. By not including rendering, it is possible to lower the barrier of community acceptance to a proposed meat processing plant.

“Table 14. Economic Viability Comparison of Rendering Operation vs. Anaerobic Digestion” (below) demonstrates that rendering for a plant this size is not profitable. Equipment cost was calculated at $6M plus $2M for installation and building; accordingly, amortization and interest are almost twice the EBIDTA, creating the net loss of ($8.85) per head.

Instead, the proposed plant should utilize an anaerobic digester, which will process the pen, truck, and paunch manure, inedible offal, bones, fat, and dead stock, as well as the spent chemical and hair from the dehairing system. The digester produces electricity and fertilizer and reclaims water that is suitable for pen flushing and for irrigation. The anaerobic digester offers an EBITDA OF $22.98 per head and a net after tax of $15.10 per head. The net comparison is a disadvantage of ($23.95) per head to rendering, or $1.56M annually. The digester will solve odor and fly problems; conversely, rendering will create odor problems and community resistance to the plant.

The volume of the proposed plant is not sufficient to afford pet treat manufacturing on the same basis as the rendering comparison.
Table 14. Economic Viability Comparison of Rendering Operation vs. Anaerobic Digestion

<table>
<thead>
<tr>
<th>RENDERING OPERATION DATA</th>
<th>ANAEROBIC DIGESTER DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>$17.59 Per Head Revenue</td>
<td>$8.91 Electricity / Head</td>
</tr>
<tr>
<td>$9.82 Manufacturing Cost</td>
<td>$3.55 Fertilizer</td>
</tr>
<tr>
<td>$7.77 EBITDA</td>
<td>$3.33 Water</td>
</tr>
<tr>
<td>$(12.31) Amortization</td>
<td>$8.64 Tipping Fee for Solid Waste / Head</td>
</tr>
<tr>
<td>$(0.98) Interest</td>
<td></td>
</tr>
<tr>
<td>$(3.33) Tax</td>
<td></td>
</tr>
<tr>
<td>$8.85 Net Profit / Head</td>
<td></td>
</tr>
</tbody>
</table>

$15.10 Anaerobic Digester Net / Head

$ (23.95) NET COST OF RENDERING VS DIGESTER
65,000 Head / Year

$ (1,557,015.23) NET LOSS / YEAR RENDERING VS. DIGESTER

“Table 15. By-Product and Offal Operations Manning” (below) documents the manning requirement for the by-product and offal operations within the slaughter operation. Offal and by-product harvest will require 27 people. The proposed plant and associated brand will have a full line of beef and buffalo products for domestic and export markets. Minor offal products, such as spleen, tendons, aorta, and pizzle, could be harvested if the markets warrant; however, additional people would be required.
Dehairing is also an economically viable re-engineered production process for the manufacture of numerous value-added hide, leather, collagen, and snack food products.

Hides are dehaired in the conventional tanning process with sodium sulfide (the same chemical used in the dehairing system); however, hair removal happens much more quickly when the process is performed on the hot carcass because body heat accelerates the chemical reaction, killing pathogens and allowing the fresh hide to be split and processed before chroming.
Splitting the green hide allows the flesh split to be utilized as collagen casing for sausage products, as dog chews, or as chicharrones for human consumption—all with greater return than rawhide leather. An added result of green splitting is that grain splits are half as thick and require half the chemical and half the time to blue chrome.

The following tables, from section 7.3 above, list the value of the offal from a jerky beef carcass, a fed beef carcass, and a buffalo carcass.
Table 16. Jerky Cow Transaction Summary

<table>
<thead>
<tr>
<th>JERKY COW</th>
<th>TRANSACTION SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ASSUMPTION</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>CORV WITH SHRINK</td>
<td>4.0%</td>
</tr>
<tr>
<td>SLAUGHTER COW / CVT.</td>
<td>$ 90.00</td>
</tr>
<tr>
<td>SLAUGHTER COW</td>
<td>$ 90.00</td>
</tr>
<tr>
<td>CARCASS DRESSING PERCENTAGE</td>
<td>48.0%</td>
</tr>
<tr>
<td>LIVE DROP CREDIT / CVT.</td>
<td>$ 14.91</td>
</tr>
<tr>
<td>EDIBLE OFFAL / CVT.</td>
<td>$ 1.68</td>
</tr>
<tr>
<td>HIDE</td>
<td>10%</td>
</tr>
<tr>
<td>INEDIBLE FAT, BONE, &amp; VISCERA / CVT.</td>
<td>$ 0.120</td>
</tr>
<tr>
<td>BLOOD / CVT.</td>
<td>$ 2.00</td>
</tr>
<tr>
<td>PELVIC &amp; MANURE TO SOLID WASTE</td>
<td></td>
</tr>
<tr>
<td>BY-PRODUCT VALUE / HEAD</td>
<td>$ 0.42</td>
</tr>
<tr>
<td>PREMIUM TO DROP CREDIT</td>
<td>$ 0.09</td>
</tr>
<tr>
<td>HOT FAT TRIM REMOVAL</td>
<td>5%</td>
</tr>
<tr>
<td>BONE</td>
<td>3.6</td>
</tr>
<tr>
<td>RED MEAT YIELD PERCENTAGE</td>
<td>70%</td>
</tr>
<tr>
<td>WHOLE MUSCLE YIELD</td>
<td>52%</td>
</tr>
<tr>
<td>CORV TRIMMINGS TO GROUND BEEF PRODUCTION 12%</td>
<td>$ 2.70</td>
</tr>
<tr>
<td>CORV TRIMMINGS TO OUTSIDE SALES</td>
<td>$ 0.77</td>
</tr>
<tr>
<td>JERKY YIELD-WHOLE MUSCLE</td>
<td>70%</td>
</tr>
<tr>
<td>MEAT STICK YIELD-FORMED</td>
<td>70%</td>
</tr>
<tr>
<td>DEEP FRIED BEEF CHICKEN</td>
<td>80%</td>
</tr>
<tr>
<td>VALUE-ADDED PRODUCTS (MANUFACTURING COST)</td>
<td>$ 0.35</td>
</tr>
<tr>
<td>TOTAL SALES REVENUE</td>
<td>$ 3.71</td>
</tr>
<tr>
<td>COST OF GOODS SOLD</td>
<td>$ 1.24</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td>$ 3.66</td>
</tr>
<tr>
<td>BEEF-EBITDA / HEAD</td>
<td>$ 0.05</td>
</tr>
</tbody>
</table>
Table 17. High-Quality Fed Beef Transaction Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Assumption</th>
<th>Weight</th>
<th>$ / Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steer with Shrink</td>
<td>4.0%</td>
<td>1400</td>
<td>$ 145.00</td>
</tr>
<tr>
<td>Slaughter Steer / CWT.</td>
<td></td>
<td>1344</td>
<td>$ 145.00</td>
</tr>
<tr>
<td>Steer Production Cost</td>
<td>$ 145.00</td>
<td></td>
<td>$ 1,948.80</td>
</tr>
<tr>
<td>Carcass Dressing Percentage</td>
<td>63.5%</td>
<td>853.44</td>
<td>$ 1,848.80</td>
</tr>
<tr>
<td>Avg. Live Drop Credit / CWT.</td>
<td>$ 14.91</td>
<td>1344</td>
<td>$ 200.39</td>
</tr>
<tr>
<td>Edible Offal / CWT. / Carrc Ready</td>
<td>$ 1.67</td>
<td>82</td>
<td>$ 136.97</td>
</tr>
<tr>
<td>Hide</td>
<td>11%</td>
<td>157</td>
<td>$ 145.00</td>
</tr>
<tr>
<td>Inedible Fat, Bone, &amp; Viscera to Digester</td>
<td>$ 0.120</td>
<td>72.5</td>
<td>$ 8.70</td>
</tr>
<tr>
<td>Blood / CWT.</td>
<td>$ 0.50</td>
<td>56</td>
<td>$ 0.34</td>
</tr>
<tr>
<td>Paunch &amp; Manure to Solid Waste</td>
<td></td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>By-Product Value / Head</td>
<td>$ 0.79</td>
<td>367</td>
<td>$ 292.00</td>
</tr>
<tr>
<td>Premium to Drop Credit</td>
<td>$ 0.11</td>
<td>855</td>
<td>$ 91.61</td>
</tr>
<tr>
<td>Hot Fat Trim Removal</td>
<td>9%</td>
<td>$ 0.37</td>
<td>75</td>
</tr>
<tr>
<td>Bone</td>
<td>42%</td>
<td>$ 0.10</td>
<td>154</td>
</tr>
<tr>
<td>Red Meat Yield Percentage</td>
<td>75.30%</td>
<td>642.62</td>
<td></td>
</tr>
<tr>
<td>USDA / AM BEEF CUTOUT VALUE</td>
<td>63.7%</td>
<td>$ 3.55</td>
<td>250.37</td>
</tr>
<tr>
<td>Retail Sales</td>
<td></td>
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<tr>
<td>Steer Trimming 1 to Ground Beef Production</td>
<td>70.0%</td>
<td>$ 2.81</td>
<td>51.64</td>
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<tr>
<td>Steer Trimming 1 to Out Side Sales</td>
<td>95%</td>
<td>$ 0.77</td>
<td>91.28</td>
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<tr>
<td>Jerky Yield - Whole Muscle</td>
<td>70%</td>
<td>$ 11.00</td>
<td>37%</td>
</tr>
<tr>
<td>Meat Stick Yield - Formed</td>
<td>70%</td>
<td>$ 10.00</td>
<td>35%</td>
</tr>
<tr>
<td>Deep Fried Beef Chicharrones</td>
<td>80%</td>
<td>$ 6.00</td>
<td>85%</td>
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<tr>
<td>Value Added Products (Manufacturing Cost)</td>
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</tr>
<tr>
<td>Total Sales Revenue</td>
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<td>1190</td>
<td>$ 2,879.84</td>
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<tr>
<td>Cost of Goods Sold</td>
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<td>1190</td>
<td>$ 573.97</td>
</tr>
<tr>
<td>Total Cost</td>
<td>$ 2.12</td>
<td>1190</td>
<td>$ 2,522.77</td>
</tr>
<tr>
<td>Fed Steer - EBIDA / Head</td>
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<td>1190</td>
<td>$ 157.17</td>
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<td></td>
<td>ASSUMPTION</td>
<td>WEIGHT</td>
<td>$ / HEAD</td>
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<td>----------------------</td>
<td>------------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>BUFFALO TRANSACTION SUMMARY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COW WITH SHRINK</td>
<td>4.0%</td>
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</tr>
<tr>
<td><strong>SLAUGHTER BUFFALO</strong></td>
<td>$150.00</td>
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<tr>
<td>AVERAGE COW COST</td>
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<td>1.50</td>
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<td>CARCASS $ DRESSING PERCENTAGE</td>
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<td>2013 AVERAGE DROP CRUDER CREDIT</td>
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<td>EDIBLE OFFAL CREDIT</td>
<td>$1.50</td>
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<td>HIDE</td>
<td>10%</td>
<td>110</td>
<td>98.00</td>
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<td>INEDIBLE FAT, BONE, &amp; VISERA CREDIT</td>
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<td>BLOOD CREDIT</td>
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<td>0.30</td>
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<tr>
<td>PARCH &amp; MANURE TO SOLID WASTE</td>
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<td></td>
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<td>BY-PRODUCT VALUE / HEAD</td>
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<td>$250.16</td>
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<td>$85.55</td>
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<td>23.0</td>
<td>10.72</td>
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<tr>
<td>BONE</td>
<td>38% 0.10%</td>
<td>115.9</td>
<td>11.59</td>
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<td>REDMEAT YIELD PERCENTAGE</td>
<td>71.5%</td>
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<tr>
<td>STEAK MEAT YIELD</td>
<td>9.7% $12.84</td>
<td>40.1</td>
<td>514.37</td>
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<tr>
<td><strong>BUFFALO TRIMMING</strong></td>
<td>65%</td>
<td>374.3</td>
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</tr>
<tr>
<td><strong>BUFFALO GROUND MEAT</strong></td>
<td>33.4%</td>
<td>5.75</td>
<td>718.82</td>
</tr>
<tr>
<td>JERKY YIELD--WHOLE MUSCLE</td>
<td>70% $26.00 37%</td>
<td>118.0</td>
<td>437.3321</td>
</tr>
<tr>
<td>JERKY YIELD--FORMED</td>
<td>70% $20.00 40%</td>
<td>131.35</td>
<td>52.5 $295.54</td>
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<td>VALUE-ADDED PRODUCTS (MANUFACTURING COST)</td>
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<td>BEEF-EBIDTA $ / HEAD</td>
<td>0.03</td>
<td>958</td>
<td>29.21</td>
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</table>
9. **Conduct research into potential plant locations for a meat processing plant in MT. Identify and analyze 3 potential sites.**

One of the most difficult decisions to make in constructing a new processing plant is deciding where to build it. There are numerous criteria to consider when siting a facility, and the purpose of this study was not to suggest three specific plots of land, but rather to suggest three communities in Montana that would have a high likelihood of having sites that fit the criteria listed below.

- Proximity to transportation infrastructure
- Access to water
- Wastewater disposal
- Population base
- Community acceptance
- 25 acre site
- Proximity to feedlots

It is was also not the purpose of this study to single out one of those three sites as better than the others, and recommend a plant be built there. Again, the purpose of this study was to suggest and demonstrate that there are communities in Montana where a processing plant could be sited. Furthermore, to fully evaluate and survey three sites for a plant to be built would be highly costly and premature at this point.

The cities One Montana identified and investigated were Billings, Great Falls and Butte.

**Butte:**

One Montana visited Butte in May of 2014 and evaluated for the criteria listed below.

- Proximity to transportation infrastructure—Butte has excellent access to interstate transportation infrastructure, with both Interstate 90 and Interstate 15 intersecting. As most of the transport of both live cattle and boxed beef are via trucking, this means Butte would be able to draw live cattle in from across Montana, and particularly the Southwest part of the state.

- Access to water—According to data published in 2003 by the Butte Silver Bow water department, Butte obtains its water from four different intake sources: the Big Hole River, the South Fork of Divide Creek, Basin Creek Reservoir, and Moulton Reservoir.

- Wastewater disposal—There is a wastewater treatment plant in Butte. Because the vicinity surrounding Butte offers potentially suitable sites to construct a processing facility, but does not appear to have much agricultural land where a Land Application System could be used to dispose of wastewater from the plant, it is more likely that a processing plant in Butte would need to utilize the existing wastewater treatment infrastructure.
Population base—Butte has a population of roughly 34,000, suggesting that there is a sufficient population base to staff a processing facility.

Community acceptance—Butte has a long history of industry. It is likely that the community would be accepting of a processing facility being built there.

25 acres—The plant design notes that a site of 25 acres is necessary for the plant and its infrastructure. One Montana examined the area surrounding Butte and found sites that would be large enough to meet this requirement. The most promising of these sites were south and west of Butte, off of Interstate 15. However, none of the sites found were particularly close to the Interstate.

Proximity to feedlots—Butte is not close to any of the major feedlots in Montana.

Other considerations—None.

Advantages—Buttes location near the intersection of two Interstates is perhaps its best asset. As transportation costs continue to increase,

Disadvantages—Butte is not close to large numbers of fed cattle. It is unknown what the demands are on the water supply and if sufficient water could be had.

**Billings:**

Proximity to transportation infrastructure—Billings sits along the Interstate 90 corridor and to the east of the town, the Interstate splits, with I-94 going northeast and I-90 continuing southeast. Billings is also the location in Montana for UPS airfreight. This could be advantageous if the processing plant desired to ship directly to international markets from Montana. However, there is not a customs office in Billings. Therefore, a customs office would need to be located in Billings to facilitate international cargo flights. Furthermore, the runway there is capable of handling heavy cargo flights.

Access to water—Billings sits along the Yellowstone river corridor, and the river is the source of the cities drinking water. The Yellowstone River could potentially be a good source of water for a processing facility. This would depend on the water rights in the location of the plant.

Wastewater disposal—Billings has a wastewater treatment plant, but given the abundance of agricultural land in the Yellowstone river valley surrounding Billings, it is probable that wastewater from the proposed plant could be disposed of using a Land Application System.

Population base—Billings has a population of over 165,000 people. It is the largest city in Montana. It is likely that of all the cities in Montana, Billings could most readily supply a sufficient workforce for a processing facility.
Community acceptance—Like Butte, Billings has a history of being a city of industry. In addition, the city was the home of the largest meat packing company in Montana, Pierce Packing.

25 acres—Both to the east and west of Billings, there are numerous places that meet this criteria. There is land near Huntley, a small town just to the east of Billings that is close to the Interstate that would suit. Similarly, there is land to the west of Billings, near the small town of Park City, that is also near to the Interstate and large enough in size to site a plant and to apply wastewater for irrigation via a Land Application System.

Proximity to feedlots—Of the three cities considered here, Billings enjoys the best access to feedlots.

Other considerations—The Yellowstone river corridor is the main source of corn being grown in Montana. Having access to feed for livestock would potentially be an advantage for a processing plant.

Advantages—Good access to transportation infrastructure, water, and land.

Disadvantages—Of all the cities considered, Billings is the least centrally located in regards to Montana’s geography.

Great Falls:

Proximity to transportation infrastructure—Great Falls is located on Interstate 15, which runs south from Canada to Great Falls, where it turns southwest before it intersects I-90 in Butte. Air freight for FedEx also flies out of Great Falls.

Access to water—The water supply for Great Falls comes from the Missouri River. The Sun River also flows through Great Falls, another possible source of water for a processing facility.

Wastewater disposal—Similar to Billings, while Great Falls has a wastewater treatment plant, there is significant agricultural land around the city where wastewater could be disposed of via a Land Application System.

Population base—Great Falls has a population of just under 60,000. It would likely be able to supply a sufficient workforce.

Community acceptance—Great Falls serves as the hub to much of the agricultural industry of the north central part of Montana. Given this close tie to farming and ranching, it is probable that there would be minimal objection to siting a processing facility near the city.

25 acres—The vicinity surrounding Great Falls offered opportunities for sites of this size. Of particular note were areas to the west of Great Falls, past the outlying community of Vaughn and near to an exit/entry to Interstate 15.
Proximity to feedlots—Great Falls has access to fed cattle.

Other considerations—None.

Advantages—Great Falls has access to water and sufficient land for siting, and because of the cities relationship to agriculture, might offer the most ready acceptance of a processing plant.

Disadvantages—Winter driving conditions from Great Falls south are often less than ideal for heavy truck traffic. This may be a consideration when trying to maintain regular shipments during winter months.

10. Reconvene appropriate experts in a charette to produce conceptual designs for a meat processing facility.

This charette took place in Arkansas the week of April 14th and 21st, 2014. The ProAnd (one of the New Zealand design firms consulted for the project) suggestions were discussed, evaluated, and incorporated as deemed appropriate by Mr. Bowling, Mr. Pharr, and Mr. Purdy.

The conceptual design for the facility has already been described above in Task 7.1 in sufficient detail that it would be redundant to repeat it here.

Melmeq, Ltd. of Auckland, New Zealand, an international company that specializes in capital equipment design and fabrication for food processing operations around the world, provided a typical general layout of their equipment from the knock box to the carcass chill coolers. The majority of their equipment items are incorporated in the Hide-On and Hide-Off rooms shown in the conceptual drawings.

11. Provide preliminary cost estimates for a facility to include: the 16 divisions of construction, as defined by the Construction Specifications Institute.

The 16 Divisions of Construction as defined by the Construction Specifications Institute provide a means of presenting information about commercial/institutional building projects in a standardized manner. It was decided by One Montana that this would be an ideal format for presenting the estimated costs of building a processing facility in Montana.

The table includes costs for the following Divisions: Bidding Requirements, General Requirements, Site Work, Concrete, Masonry, Steel, Carpentry, Thermal and Moisture Protection, Doors and Windows, Finishes, Specialties, Equipment, Furnishings, Special Construction, Conveying Systems, Mechanical, and Electrical. Each division includes specific line item costs and a subtotal of all estimated costs within the division.

The last page of the table includes a category titled “Additional Construction Requirements” which includes the estimated costs of an anaerobic digester and wastewater treatment, as these costs are not covered within the 16 divisions listed above.
Finally, the table includes estimates for contracting and design and engineering fees.

These estimates were made in April of 2014. They are estimates and are subject to change. The information provided here is designed to present (in a reasonable level of detail) the line item costs associated with the major areas of construction as it relates to building a meat processing plant.
### Table 19. Preliminary Cost Estimates for Sixteen Divisions of Construction, as Defined by the Construction Specifications Institute

#### VCP&G Opinion of Probable Cost

<table>
<thead>
<tr>
<th>Division</th>
<th>Bidding Requirements</th>
<th>Unit Cost</th>
<th>Item Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insurance (builders risk)</td>
<td>$50,000</td>
<td>$50,000</td>
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<tr>
<td></td>
<td>Performance &amp; Payment Bond</td>
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<td>$0</td>
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<tr>
<td></td>
<td>General Liability Insurance</td>
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<td>$140,000</td>
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<tr>
<td></td>
<td>Owner Protective Insurance</td>
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<td>$15,000</td>
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<tr>
<td></td>
<td><strong>Subtotal</strong></td>
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<tr>
<td>Division</td>
<td>General Requirements</td>
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<tr>
<td></td>
<td>Project General Conditions</td>
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<tr>
<td></td>
<td>Temporary facilities</td>
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</tr>
<tr>
<td></td>
<td>Temporary Power / Commo.</td>
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</tr>
<tr>
<td></td>
<td>Disposal fees</td>
<td>incl.</td>
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<tr>
<td></td>
<td>Equipment Rental</td>
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</tr>
<tr>
<td></td>
<td>Testing</td>
<td>incl.</td>
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</tr>
<tr>
<td></td>
<td>Building Permit / Fees</td>
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<td>$25,000</td>
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<td><strong>Subtotal</strong></td>
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<tr>
<td>Division</td>
<td>Site Work</td>
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<td></td>
<td>Property Acquisition (acres)</td>
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<td>Topographical and Boundary surveys</td>
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</tr>
<tr>
<td></td>
<td>Environmental Assessment</td>
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</tr>
<tr>
<td></td>
<td>Grading and Erosion Control</td>
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</tr>
<tr>
<td></td>
<td>Excavation &amp; Backfill</td>
<td>incl.</td>
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</tr>
<tr>
<td></td>
<td>Gravel sub base bidg</td>
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<tr>
<td></td>
<td>Soil Treatment</td>
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</tr>
<tr>
<td></td>
<td>Storm Drainage, rip rap, &amp; retention</td>
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</tr>
<tr>
<td></td>
<td>Earthen &amp; gravel fire lanes</td>
<td>incl.</td>
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<tr>
<td></td>
<td>Guard and security</td>
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<tr>
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<td>Gravel Roadways</td>
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</tr>
<tr>
<td></td>
<td>Asphalt pavement</td>
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<tr>
<td></td>
<td>Concrete pavement</td>
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<tr>
<td></td>
<td>Parking strips</td>
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<tr>
<td></td>
<td>Curb &amp; Gutter</td>
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<tr>
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<tr>
<td></td>
<td>Landscape &amp; Sprinkler</td>
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<tr>
<td></td>
<td>Water service</td>
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<td></td>
<td>Electrical service</td>
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<td>Natural gas service</td>
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<tr>
<td></td>
<td>Sanitary Sewer</td>
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<tr>
<td></td>
<td>Signage and Flag</td>
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<tr>
<td></td>
<td>Fencing</td>
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<tr>
<td></td>
<td>Maintenance Slabs</td>
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<td>Division</td>
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<td>Concrete / Forms / Finish</td>
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<tr>
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<td>Cold storage area sub slab (ft)</td>
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<tr>
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<td>Freezer Floor Slab (ft)</td>
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<tr>
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<td>Cooler Floor Slabs (ft)</td>
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<td></td>
<td>Office Floor Slabs (ft)</td>
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</tr>
<tr>
<td></td>
<td>Process Floor Slabs (ft)</td>
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<tr>
<td></td>
<td>Mech. Floor Slabs (ft)</td>
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<td>Concrete curbing (ft)</td>
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<tr>
<td></td>
<td>Dock Pits</td>
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<td></td>
<td>Small Exterior Stairs</td>
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<tr>
<td></td>
<td>Misc. concrete</td>
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<tr>
<td></td>
<td>Ground Pen Construction</td>
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</tr>
<tr>
<td></td>
<td>Concrete Walls</td>
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<td></td>
<td>Concrete Roof Structure</td>
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163
<table>
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<tr>
<th>Division</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Item Total</th>
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<td>Cattle Pen Fencing</td>
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<td>Misc. steel and Metals</td>
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<td>Condenser Framing incl.</td>
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<td>Overhead dock pallet storage frames</td>
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</tr>
<tr>
<td></td>
<td>SS Metal / Trim lot</td>
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</tr>
<tr>
<td></td>
<td>SS Trench / Grating lot</td>
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<td>Division 6 Carpentry</td>
<td>Rough carpentry</td>
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<td></td>
<td>Finish carpentry &amp; millwork</td>
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<td>IMP Walls (exterior)</td>
<td>17,000</td>
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<td>Roof System (4&quot; insul./ 40 mil. Evaloy)</td>
<td>102,000</td>
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<td>Caulking and sealing</td>
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<td>Division 8 Doors &amp; Windows (office areas excluded)</td>
<td>Door Package</td>
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<td>HM Doors, frames, &amp; hardware incl.</td>
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</tr>
<tr>
<td>Additional Construction Requirements</td>
<td>Quantity</td>
<td>Unit Cost</td>
<td>Item Total</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Anaerobic Digester</td>
<td>allow</td>
<td>$2,300,000</td>
<td>$2,300,000</td>
</tr>
<tr>
<td>Wastewater treatment Design</td>
<td>excluded</td>
<td>$240,000</td>
<td>$240,000</td>
</tr>
<tr>
<td>Wastewater treatment facilities</td>
<td>excluded</td>
<td>$4,500,000</td>
<td>$4,500,000</td>
</tr>
<tr>
<td>** Potable Water treatment and distributio</td>
<td>excluded</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>** Offsite Road Access Improvements</td>
<td>excluded</td>
<td>$0</td>
<td>$0</td>
</tr>
</tbody>
</table>

Subtotal $7,040,000

SubTotal $37,211,110

General Contractors Fee 6.00% (does not include process equip) $1,623,367

Design & Engineering Fees 3.50% $1,302,389

A/E Site Representation Startup & Commissioning $125,000

10% Contingency $3,721,111

Grand Total $43,982,976

Cost Per S.F. $355.56

** Capital items provided by the local community
12. **Research food safety requirements for Asian markets and how this might impact facility design.**

AFSI has reviewed the Food Safety requirements for Japan, China, Korea, and Vietnam with the U.S. Meat Export Federation and USDA / FSIS. Food Safety requirements have been covered in the intervention spreadsheet and the Hazard Analysis and Critical Control Points (HACCP) plan, both of which are shown in section 7.3.

The intervention spreadsheet (which is a guide to how critical functions such as Production Management and Food Safety Management are managed and accountable for given steps along the path to producing a finished product) and HAACP plan will be more than adequate to cover the shelf-life requirements for shipment of fresh product to these Asian countries.

The rapid chill system proposed by AFSI for offal products (shown on the next page) will also facilitate fresh or frozen shipments at minimum costs to export markets. The export potential will, thus, be dependent on the marketing plan; the product will be exportable.

This freezing method has proven effective in shipping fresh, rapid-chilled offal to Japan and Korea. The rapid chill offal unit would interface well with the frozen storage cells designed into the plant in the offal harvest area adjacent to the slaughter floor.

The proposed plant was designed to maximize Food Safety with enough multiple-hurdle, redundant interventions to stop pathogens on consumer products if properly executed. The same microbiological control mechanisms will control extended shelf life and allow export of fresh, vacuum-packaged beef products.

Careful attention to the HACCP requirements will facilitate Federal Meat Inspection, which is the absolute requirement for commerce within Montana, across the United States, and internationally. State Meat Inspection was not considered because Federal Inspection is required for export to foreign countries.

13. **Research technologies used to process meat for long shipping times such as Asian markets.**

The offal chill unit depicted schematically in “Figure 9. Schematic of Rapid Chill Unit for Offal” (below) is designed to handle 3500 pounds per cycle, or 70 head per hour, using chilled liquid glycol. Vacuum-packaged hot offal is placed on a cleated interlocks belt. The belt cleats create a form to shape the product into a cube that can be fitted into a corrugated box for storage and shipment. The -63°F glycol removes the latent heat and freezes the outer two-thirds of the product, creating a frozen shell around the offal product. The interior of the product will have reached a temperature of 32°F to 38°F. If the packaged offal product is calibrated in a freezer, the core temperature will quickly equilibrate to that storage temperature—fresh or frozen. This freezing method has proven effective in shipping fresh, rapid-chilled offal to Japan and Korea. The rapid chill offal unit
would interface well with the frozen storage cells designed into the plant in the offal harvest area adjacent to the slaughter floor.

The costs of this rapid chill unit were not included in the plant costs shown elsewhere, but the cost of this unit is approximately, $225,000 which will depend on kill number and speed.

Figure 9. Schematic of Rapid Chill Unit for Offal

14. **Conduct some investigation into the possibility of upgrading a few current facilities in Montana to work in conjunction with larger, new facility.**

In April of 2014 One Montana visited Pioneer Meats in Big Timber Montana. In May of 2014 One Montana visited Ranchland Packing in Butte and Lower Valley Processing in Kalispell. In July of 2014 One Montana visited Stillwater Packing in Columbus Montana. The purpose of the visits with these existing meat processing facilities was to understand what effect the construction of a new meat processing plant in Montana would have on their businesses.

The consensus seemed to be that the construction of a new processing plant the size of the one proposed in this study would not, in the long run, negatively impact their businesses, and might in fact offer them opportunities to expand some segments of their operations.

According to one of the plant owners, the one detrimental effect that building a larger processing plant in Montana might cause would be a loss of skilled labor from the existing
small meat processing plants to the new, larger one. This would be wage dependent of course, and if the smaller plants could not pay a competitive wage in comparison with the larger plant, they might see a loss of workers.

However, the plant owner noted a potential upside to this situation. He thought that while at first, small plants might see a loss of their workforce to the larger plant, he thought that in the end, the larger plant would likely become a source of skilled labor for the smaller plants. So, while he might lose some workers at first, in the end, he thought he might actually gain skilled workers from the existence of a larger plant.

Other opportunities to work with a larger processing plant were noted. The two most significant ones that were brought up were the opportunity to sell hides and offal to a larger processing plant and the possibility of being able to buy more local trim meats and other cuts that the existing processing plants in Montana need to make value-added products or specialty meat products. One plant owner suggested that all processing plants in Montana that wanted to send hides to the proposed new facility be upgraded with new hide pulling machines. It was his opinion that having the same hide puller in each plant would result in consistently processed hides that would receive a better price.

Finally, the processing plants that manufacture value-added meats like hot dogs, sausages, briskets, or jerky products are often looking for a source trim meats for many of those products. Some are unable to source those products from Montana, and are instead forced to import them from neighboring states. A larger processing plant would likely be able to sell these smaller plants trim meats, and the smaller plants would not have to pay as big a shipping fee.

But the most consistent theme across all of the meetings with smaller meat processors was that there would be such a difference in scale between what they currently do and what a larger plant would do, that none of them felt particularly threatened by the notion of a larger plant. According to most of the owners One Montana spoke to, their businesses would continue to operate in much the same manner, were a larger plant to be built. In fact, all of the plants that One Montana spoke to were extremely busy, and most said that their customer base would be unlikely to shift their processing to a larger plant.
CONCLUSION to Task 7: COST OF GOODS SOLD and ANNUAL INCOME STATEMENT

“Table 20. Summary of Cost of Goods Sold” (COGS) (included on the following page) is the central financial document in the meat packing world; accordingly, all financial information flows to and from this table.

The COGS table is divided into two major halves: the top half is itemized COGS of variable costs; the bottom half is Sales, General, and Administrative (S, G, & A) Costs, or fixed costs per head. The three columns on the right side of the table document annual costs for the 65,000 head in the slaughter plan, cost per pound of meat, assuming standard weights for livestock and dressing percentages, and, finally, percent Cost combining fixed and variable costs.

From the total variable costs of $174.50 (43.22 percent of fixed cost total), two major costs are evident: (1) Wages and Benefits are $57.98 per head, or 14.36 percent; and (2) Packaging Costs (boxes and vacuum bags) are $50.00 per head, or 12.38 percent. Combined Utility costs (gas, electric, water, and sewer) are $23.00 per head, or 6.99 percent.

Plant depreciation is calculated using a Total Plant Cost of $43.98M (see “Table 19. Preliminary Cost Estimates for Sixteen Divisions of Construction, as Defined by the Construction Specifications Institute,”) and accelerated amortization for 10 years (to be negotiated), or $439,830 annual depreciation. Plant and equipment amortization cost in this range would be $6.77 per head processed, or 1.68 percent of the total.

In the S, G, & A (56.78 percent of total fixed cost) portion of the table, three entries comprise 48.73 percent of the total: Promotion and Marketing are budgeted at $152.00 per head (37.65 percent), and Salaried Wages and Benefits make up the remaining 11.08 percent, or $44.76 per head. The $9.88M Promotion and Marketing budget is clearly essential to the success of the proposed plant because the company is not viable without the value-added beef and bison consumer products, i.e. jerky and ground products.

With the $152 per head promotional cost, the total plant COGS and S, G, & A expense is $403.75. Without the $152 per head promotional cost, the total plant COGS and S, G, & A expense would still be $251.75 per head, clearly, higher than the $200 to $225 per head operating costs of the major meat packers in the U.S.

The success of this plant is dependent upon its ability to produce and merchandise consumer-ready / value-added products. Of the total combined budgets, 37.65 percent is promotion and marketing. The question is not, “Can the company afford $9.88M to advertise its products?” Rather, the question is, “Is $9.88M enough to assure market penetration and sustainability?”

Realize that by spending $152 per head on product promotion, the proposed plant and associated brand will be taking sales operations to new levels in the industry. Commodity meat companies do not promote or produce branded products; by incorporating value-

170
added jerky and fermented sausage, The proposed plant is not operating by established commodity rules.

Table 20. Summary of Cost of Goods Sold

<table>
<thead>
<tr>
<th>MONTANA BEEF PACKERS</th>
<th>FED CATTLE</th>
<th>HEAD / YEAR</th>
<th>COST / LB.</th>
<th>% COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Goods Sold</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Labor Wages</td>
<td>$ 15.60</td>
<td>$ 70.56</td>
<td>$ 0.046</td>
<td>17.48%</td>
</tr>
<tr>
<td>Workers Comp</td>
<td>0.75%</td>
<td>$ 0.53</td>
<td>$ 0.000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>6.00%</td>
<td>$ 4.23</td>
<td>$ 0.001</td>
<td>0.00%</td>
</tr>
<tr>
<td>Social Security-Company Portion</td>
<td>7.00%</td>
<td>$ 4.94</td>
<td>$ 0.005</td>
<td>0.00%</td>
</tr>
<tr>
<td>401K Company Portion</td>
<td>4.00%</td>
<td>$ 2.82</td>
<td>$ 0.002</td>
<td>0.00%</td>
</tr>
<tr>
<td>Total Wages &amp; Benefits / Person</td>
<td>39.75%</td>
<td>$ 56.61</td>
<td>$ 64,094</td>
<td>0.16%</td>
</tr>
<tr>
<td>Total Wages &amp; Benefits / Head</td>
<td>1.7 cattle / man hr.</td>
<td>$ 57.98</td>
<td>$ 64,094</td>
<td>0.16%</td>
</tr>
<tr>
<td>Supplies Plant</td>
<td>$ 1.00</td>
<td>$ 1.00</td>
<td>$ 0.007</td>
<td>0.00%</td>
</tr>
<tr>
<td>Laundry and Uniforms</td>
<td>$ 1.50</td>
<td>$ 1.50</td>
<td>$ 0.004</td>
<td>0.00%</td>
</tr>
<tr>
<td>Gas and Electric</td>
<td>$ 18.00</td>
<td>$ 17.00</td>
<td>$ 0.015</td>
<td>0.00%</td>
</tr>
<tr>
<td>Water and Sewer</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Equipment Repair/Maintenance</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Outside Services/ Pest Control</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.00</td>
<td>0.00%</td>
</tr>
<tr>
<td>Depreciation</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Garbage Removal</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Micro Testing / Residue Analysis</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.00</td>
<td>0.00%</td>
</tr>
<tr>
<td>Equipment Rental / Forklifts</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.00</td>
<td>0.00%</td>
</tr>
<tr>
<td>Safety Training</td>
<td>0.00%</td>
<td>$ 0.00</td>
<td>$ 0.000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Licensing and Fees</td>
<td>$ 0.25</td>
<td>$ 16.25</td>
<td>$ 0.001</td>
<td>0.00%</td>
</tr>
<tr>
<td>Plant Sanitation, Cleaning Supplies</td>
<td>0.00%</td>
<td>$ 10.00</td>
<td>$ 65,000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Packaging Cost (Boxes and Bags)</td>
<td>0.00%</td>
<td>$ 50.00</td>
<td>$ 3,250,000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Miscellaneous Expense</td>
<td>$ 0.00</td>
<td>$ 0.00</td>
<td>$ 0.000</td>
<td>0.00%</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>$ 174.60</td>
<td>11,042,362</td>
<td>$ 0.268</td>
<td>43.22%</td>
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</tbody>
</table>

Sales, General, Administration

| Cost of Goods Sold        |            |             |            |        |
| Salary Employee Wages     | $ 32.15    | $ 2,090,000 | $ 0.003    | 7.96%  |
| Fixed Payroll Taxes       | 0.75%      | $ 0.24      | $ 0.000    | 0.00%  |
| Workers Comp              | 1.00%      | $ 1.93      | $ 0.001    | 0.00%  |
| Health Insurance          | 5.00%      | $ 2.65      | $ 0.002    | 0.00%  |
| Social Security-Company Portion | 7.00% | $ 2.25 | $ 1.46 | 0.00% |
| 401K Company Portion      | 6.63%      | $ 2.13      | $ 0.004    | 0.00%  |
| Salained Wages and Benefits Subtotal | 42.38% | $ 44.76 | $ 2,909,109 | 0.074 |
| Supplies Administration   | $ 1.00     | $ 65,000    | $ 0.002    | 0.00%  |
| Professional Services/Accounting/Legal | 0.00%  | $ 0.00 | $ 0.00 | 0.00% |
| Travel/Lodging/Entertainment | 0.00%  | $ 0.00 | $ 0.00 | 0.00% |
| Relocation/Search Fees    | $ 0.25     | $ 16.25     | $ 0.001    | 0.00%  |
| Promotion of Branded Meat Products | 0.00%  | $ 150.00 | $ 9,750,000 | 0.00% |
| Consulting/Other Other    | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Property Taxes            | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Business Insurance        | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Engineering Fees          | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Auto Expense              | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Telephone/Internet        | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Postage/FedEx/UPS          | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Marketing                 | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Miscellaneous Expense     | 0.00%      | $ 0.00      | $ 0.000    | 0.00%  |
| Total S,G, & A            | $ 219.26   | $ 14,901,609 | $ 0.378    | 56.78% |

Cost of Goods and SO&A Expense | $ 403.75 | $ 28,240,971 | $ 0.865 | 100.00% |
Table 21. Proposed Plant—Annual Income Statement

<table>
<thead>
<tr>
<th>CONFIDENTIAL</th>
<th>MONTANA BEEF COMPANY</th>
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</thead>
<tbody>
<tr>
<td>ANNUAL INCOME STATEMENT</td>
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</table>

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</tr>
</thead>
<tbody>
<tr>
<td>Montana Cattle</td>
<td>$585.82</td>
<td>4,984.11</td>
<td>18,289.12</td>
<td>21,015.56</td>
<td>28,289.59</td>
<td>15,159.56</td>
</tr>
<tr>
<td>Cattle Ship</td>
<td>978.32</td>
<td>2,023.05</td>
<td>11,380.30</td>
<td>1,037,926</td>
<td>3,164,755</td>
<td>2,115,246</td>
</tr>
<tr>
<td>Beef Beef Cattle</td>
<td>533.33</td>
<td>2,023.05</td>
<td>11,380.30</td>
<td>1,037,926</td>
<td>3,164,755</td>
<td>2,115,246</td>
</tr>
<tr>
<td>Beef Ship</td>
<td>978.32</td>
<td>2,023.05</td>
<td>11,380.30</td>
<td>1,037,926</td>
<td>3,164,755</td>
<td>2,115,246</td>
</tr>
<tr>
<td>Total</td>
<td>2,502.47</td>
<td>6,996.12</td>
<td>30,898.72</td>
<td>23,329.22</td>
<td>38,243.90</td>
<td>15,159.56</td>
</tr>
</tbody>
</table>

| TOTAL REVENUE | $11,162,330 | $9,509,736 | $13,557,525 | $15,752,865 | $16,808,531 | $11,359,812 |

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</tr>
</thead>
<tbody>
<tr>
<td>Cost of Goods Sold</td>
<td>$11,584.80</td>
<td>9,710.90</td>
<td>10,193.60</td>
<td>10,175.90</td>
<td>10,175.90</td>
<td>10,175.90</td>
</tr>
<tr>
<td>Cattle Shirt Sales</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
</tr>
<tr>
<td>Regional Cattle</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
</tr>
<tr>
<td>Total</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
<td>2,023.05</td>
</tr>
</tbody>
</table>

| TOTAL CIGS | $10,439,026 | $9,509,736 | $13,557,525 | $15,752,865 | $16,808,531 | $11,359,812 |

| GROSS OPERATIONAL MARGIN | $1,723,304 | $15,066,010 | $12,039,759 | $3,607,130 | $2,016,590 | $1,157,493 |

| SELLING, GENERAL, AND ADMINISTRATION | $1,831,035 | $1,646,931 | $1,831,035 | $1,646,931 | $1,831,035 | $1,646,931 |
| Selling and Marketing Costs | $1,831,035 | $1,646,931 | $1,831,035 | $1,646,931 | $1,831,035 | $1,646,931 |

| TOTAL SG&A | $4,662,046 | $3,293,862 | $4,662,046 | $3,293,862 | $4,662,046 | $3,293,862 |

| TOTAL CIGS & SG&A | $6,291,311 | $6,803,902 | $8,294,963 | $9,956,497 | $10,874,631 | $9,509,736 |

| COMPUTING CAPITAL NEEDS | $21,693,383 | $21,693,383 | $21,693,383 | $21,693,383 | $21,693,383 | $21,693,383 |

| EBITDA | $40,735 | $40,735 | $40,735 | $40,735 | $40,735 | $40,735 |

| INTEREST EXPENSE | $24,975 | $24,975 | $24,975 | $24,975 | $24,975 | $24,975 |

| DEPRECIATION EXPENSE | $95,522 | $95,522 | $95,522 | $95,522 | $95,522 | $95,522 |

| CASH MARGIN | $921,929 | $921,929 | $921,929 | $921,929 | $921,929 | $921,929 |

| INCOME TAXES - 42.5% of Gross Income | $395,683 | $395,683 | $395,683 | $395,683 | $395,683 | $395,683 |

| NET INCOME | $526,246 | $526,246 | $526,246 | $526,246 | $526,246 | $526,246 |

<table>
<thead>
<tr>
<th>Income Statement Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Receivables Net Receivable</td>
<td>15,066,934</td>
</tr>
<tr>
<td>Net Profit</td>
<td>$526,246</td>
</tr>
</tbody>
</table>

172
Total Revenue grows from $41.2M to $222.2M in years 1 through 6; simultaneously, the number of head processed increases from 11,250 in Year 1 (17 percent of annual capacity) to 51,000 in Year 6 (78 percent of annual capacity). Revenue grows rabidly in Years 1 and 2 and slows in the last four years. Revenue appreciates at 3 percent annually.

Variable Operating Expenses include livestock (by class), slaughter and fabrication, Cost of Goods Sold, value-added processing costs, and distribution / freight costs. Operating costs are inflated 1.5 percent annually.

The fixed major costs include brand promotion and salaried wages and benefits, which comprise 48.24 percent of the total S, G, & A. Total fixed cost is $229.26 per head, or 56.78 percent of the total operating cost of $403.75 per head. (See also “Table 20. Summary of Cost of Goods Sold.”)

Plant cost is estimated to be $43,982,976 (see “Table 19. Preliminary Cost Estimates for Sixteen Divisions of Construction, as Defined by the Construction Specifications Institute,”); working capital, $20,000,000; and owners’ equity, 50 percent; with a combined capital and operating loan of $31,991,488 at 8 percent interest with payments of $2,559,319 annually, or $39.37 per head.

State and federal taxes are calculated at 6.9 percent and 36 percent, respectively, and grow from $2.9M in Year 1 to $23.8M in Year 6.

Net income grows from $3.8M ($342 per head) in Year 1 to 31.6M in Year 6 ($620 per head). Although the income grows reasonably, net income / equity never exceeds 2 percent to 5 percent.
Task 8: Producer and Processor Practices (Consultant)

1. **Determine the appropriate guidelines for producers selling to a Montana-branded meat processing venture.**

A critical management matrix for beef and buffalo has been drafted which identifies appropriate guidelines for producers. This matrix is shown below. It demonstrates each critical management function in the supply chain, from genetics through meat processing. To a large extent, the producer guidelines will be determined by the specific marketing parameters—organic, forage-fed, ranch-raised, corn-fed—selected by the marketing team. The guidelines for each of these categories are clearly defined by USDA and are identified by specific USDA labels.

In “Table 22. Summary of Critical Management Functions”, plant management functions are listed down the left side, and critical management functions are listed across the top of the matrix. Thorough management requires careful attention to detail across the multiple functions of the plant.

Table 22. Summary of Critical Management Functions

<table>
<thead>
<tr>
<th>SYSTEM SEGMENT</th>
<th>PRODUCTION MANAGEMENT</th>
<th>FOOD SAFETY MANAGEMENT</th>
<th>HUMANE HANDLING</th>
<th>ANIMAL HEALTH MANAGEMENT</th>
<th>ENVIRONMENTAL MANAGEMENT</th>
<th>VALUE-ADDED MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCUREMENT</td>
<td>Brand Accountability</td>
<td>Ante-Mortem Interface</td>
<td>Supply Chain Audits</td>
<td>Feed Back on Infection Sites</td>
<td>Manure from Cattle</td>
<td>Trace Back</td>
</tr>
<tr>
<td></td>
<td>Certified Angus® Certified Programs</td>
<td>Residues Control Trace Back</td>
<td>Crew Training Truck Mgmt.</td>
<td>to Producers Trucks on Hwy.</td>
<td>Quality / Yield</td>
<td></td>
</tr>
<tr>
<td>SLAUGHTER</td>
<td>Prevent Contamination</td>
<td>HACCP / Pathogens</td>
<td>Ante-Mortem Inspect.</td>
<td>Trace Back</td>
<td>Waste Water Treatment</td>
<td>Case-Ready Cutoff</td>
</tr>
<tr>
<td></td>
<td>Meat Product Shelf Life</td>
<td>Exclusion Bacteria</td>
<td>Truck Unloading</td>
<td>Condemn Records to Supply Chain</td>
<td>Manure Composting</td>
<td>Carcass Grading</td>
</tr>
<tr>
<td></td>
<td>Meat Color / Tenderness</td>
<td>Shelf Life</td>
<td>Knock Supervision</td>
<td></td>
<td>Solid Waste Disposal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cold Chain</td>
<td>Stick Supervision</td>
<td></td>
<td>Anaerobic Digester</td>
<td></td>
</tr>
<tr>
<td>FABRICATION</td>
<td>Red Meat Yield</td>
<td>Cold Chain</td>
<td>Bruise Feedback / Mapping</td>
<td>Feed Back on Injection Sites</td>
<td>Dry Clean-Up</td>
<td>Trace Back</td>
</tr>
<tr>
<td></td>
<td>Product Identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALUE-ADDED</td>
<td>Meat Quality</td>
<td>Cold Chain</td>
<td>Injection Site Feedback</td>
<td>Dry Clean-Up</td>
<td>Trace Back</td>
<td></td>
</tr>
<tr>
<td>MARKETING</td>
<td>Inventory Management</td>
<td>Customer</td>
<td>Customer Training</td>
<td>Customer</td>
<td>Training</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consumer Convenience</td>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISTRIBUTION</td>
<td>Inventory Management</td>
<td>Cold Chain</td>
<td>Meat Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receivables Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSUMER</td>
<td>Cold Chain</td>
<td>Cold Chain</td>
<td>Consumer Feedback</td>
<td>Trace Back</td>
<td>Consumer Feedback</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cooking</td>
<td>Trace Back</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cross-Contamination Pathogens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The proposed plant will have the video monitoring, traceability, and tracking infrastructure to create several USDA-Certified programs to align with producers within the state, i.e. organic, forage-finished, natural, source- and age-verified, Angus or other breeds.
Producer guidelines and training will be part of the USDA Certification process; consequently, producers should have input into the development of the certificate to insure their buy-in early in the process. Data-driven feedback helps to assure positive relationships between the company and its suppliers.

2. **Determine the practices a meat processing facility would set in place for processing meat. These might include traceability, humane slaughter, producer relations, etc.**

*Traceability – Plate to Consumer:* Allows the consumer to know for certain where their food came from. This is uncommon in the current meat industry.

The proposed plant will have the video monitoring, traceability, and tracking infrastructure to create several USDA-Certified programs to align with producers within the state, i.e. organic, forage-finished, natural, source- and age-verified, Angus or other breeds.

Animal identification and trace-back management become the backbone of the Food Safety residue monitoring system, the herd health management system, and the meat / carcass Yield feedback system used to manage individual cattle throughout the production process. The entire management of the production process will revolve around the identification system. Notice the Non-Hormone Treated Cattle (NHTC) and Source and Age Verified (SAV) tags in the ears of the animal pictured.

The traceability system begins at the mother’s side. Notice the Radio Frequency Identification (RFID) tags in the calf’s ear. This system enables trace back of the meat a consumer has purchased to the packing plant, feed lot, calf ranch, calf, and, finally, the genetics of origin.

The proposed plant will utilize the cutting-edge calf-to-consumer traceability system created by IMI Global, with which consumers can use their cell phones to access meat traceability data from cow to the point of purchase. This system will verify “WHERE YOUR MEAT COMES FROM,” thus adding transparency and trust for the consumer.

Connecting the traceability software to the trolley tracking software and integrating all of the plant computer system to the financial or accounting system should be contracted to Rob Streight at ProTrace Solutions ([robstreight5589@comcast.net](mailto:robstreight5589@comcast.net); [http://www.protracesolutions.com/protrace/](http://www.protracesolutions.com/protrace/)).

*Humane Slaughter –* Monitored by continuous third-party video auditing: provides consumer assurances that all livestock are handled properly in the plant.

Humane Handling, like Food Safety, demands an attitude that accepts no compromise. Humane Handling first requires training for all employees. Within the company
operational structure, Humane Handling is best managed using a third-party, continuous (24/7) video camera monitoring system, such as that available from Arrowsight (Adam Aronson, President [adam.aronson@arrowsight.com]). When / if the trained auditor notes problems or discrepancies, the footage is e-mailed to the designated manager and the appropriate team members so that the incident can be properly managed and the history, documented. In working with USDA compliance officers, how an incident is handled and the video record of the corrected action is often more important than the incident, itself.

Enclosed Livestock Pens keep animals cleaner by keeping the pens from turning to mud in the rain or snow. Also, in the instance of bison, enclosed pens have been shown to have a calming effect on the animals prior to slaughter, which is desirable.

The covered cattle pens are shown attached to the plant in the upper right corner. The covered cattle pens are shown in greater detail in "Figure 8. Proposed Plant – Schematic of Livestock Pen Details" (shown on the following page).

The pens are designed for easy loading and driving to slaughter by a single person.
Figure 8. Proposed Plant – Schematic of Livestock Pen Details
Extensive Food Safety Management – Include residue monitoring (a necessity for organic marketing and advisable for all product): This ensures that meat leaving the plant is as safe for human consumption as it can possibly be made.

The Food Safety Manager writes and administers the Hazard Analysis Critical Control Point (HACCP) system. The Slaughter Manager must train and monitor people on the high bench to be certain that pathogens are not transferred from their habitat in the hair or on the skin of the cattle to the carcass surface, which will eventually be consumed. Extended shelf-life is created and maintained in the same process-management scenario because pathogens and spoilage bacteria cannot be seen and must be killed using chemicals or a hot-water intervention. Once the carcass is clean, it must be kept clean as it travels from work station to work station through the plant: everyone is involved and must be trained.

Note: This HACCP system is often referred to throughout this document. It is important for the layperson to understand that a HACCP system is not a manufactured, mechanical system of any kind. Rather, it is a planning document in the form of a series of protocols and steps for managing the food safety in the plant. The HACCP plan is created by the plant food safety manager and the management team. Working together they will develop the HACCP as plant operations progress and improve over time. Furthermore, it will depend on the customer base and products produced. It is not an off the shelf product and requires team interaction as the plant begins to be built. As such, no line item costs are attached to it anywhere in this document.

Third-Party Microbiological Monitoring ensures reliable testing and that there is no way that test results might be manipulated to keep the plant from having to close.

The Arrowsight system mentioned above also works for Hygiene and other Food Safety audits.

Food Safety requires an attitude of 100 percent commitment that must be expressed and lived by every company employee, from the Company president and each member of the management team to plant maintenance and sanitation crews. Failure is not an option!

Producer Relations: The final area of practice addressed in this scope of work item is how the proposed processing plant/business entity that controls it works with local producers to source animals for the processing facility. Because the animals that would be sourced for this facility would come from Montana ranches, first and foremost, it would be important to hire someone familiar with Montana beef markets to be in charge of procurement/purchase of live cattle and bison for the processing facility. Hiring someone who knows the "lay of the land" in Montana will be vital to ensuring a steady supply of livestock to the processing facility. Secondly, to ensure steady supply, the processing facility will need to develop good working relationships with Montana feedlots. Finally, it will be important to ensure that the processing plant makes an effort to cultivate positive working relationships with individual ranches that are sources of cattle and bison. Again, much of the success of this will likely depend on the individual(s) hired in this role.
END REPORT
Appendices:
Appendix A:

One Montana RFP issued November 5, 2013 for Conceptual Design.

REQUEST FOR PROPOSAL (RFP)

Montana Meat Processing Feasibility Study—Conceptual Design

One Montana
2066 Stadium Drive, Suite 202
Bozeman, Montana 59715

Revised November 5, 2013
1. Summary and Background

One Montana is currently accepting proposals to conduct research related to conceptual design for a meat processing plant to be located in Montana. This work will be part of a larger feasibility study that One Montana is conducting. This study is examining the potential to significantly expand the meat processing capacity in Montana through the construction of a meat processing plant in the state. As part of this study, it is important to understand the challenges that might be faced in designing a meat processing plant in Montana.

The purpose of this RFP is to solicit proposals from various candidate organizations, conduct a fair and extensive evaluation based on criteria listed herein, and select the candidate who best represents the direction One Montana wishes to go.

One Montana is a non-partisan, nonprofit organization dedicated to moving Montana forward through rural-urban partnerships. We do this by the collaboration of likely and unlikely partners to build large-scale initiatives to solve our state’s challenges. It can serve as a national model for collaboration and community development. One Montana’s mission is to create a vibrant Montana by connecting rural and urban communities.

One Montana is based in Bozeman, Montana, but our various programs reach across the state.

Our projects are diverse and include:

- Rural Urban Exchanges between high schools and local business leaders and entrepreneurs
- Facilitation between groups struggling with divisive issues driven by disparities between rural and urban viewpoints
- Statewide Conferences on topics that impact rural-urban connections
The One Montana Collaboration Center which will serve as a resource for community building by helping communities and organizations connect with one another

2. Proposal Guidelines

This Request for Proposal represents the requirements for an open and competitive process. Proposals sent electronically will be accepted until 5p.m. Mountain Time November 11, 2013. Proposals sent through the mail must be postmarked no later than November 11, 2013. Any proposals received after this will be returned to the sender.

All proposals must be signed by an official agent or representative of the company submitting the proposal.

If the organization submitting the proposal must outsource or contract any work to meet the requirements contained herein, this must be clearly stated in the proposal. Additionally, all costs included in the proposal must be all inclusive to include any outsourced or contracted work. Any proposals which call for outsourcing or contracting work must include a name and description of the organizations being contracted.

All costs must be itemized to include an explanation of all fees and costs.

While One Montana is the organization conducting the feasibility study, funds for a portion of the work to be conducted will be administered to the winning candidate by the Prospera Business Network (based in Bozeman), on behalf of the Montana Department of Commerce Big Sky Economic Development Trust Fund. One Montana is also the recipient of a Local Technical Assistance award from the US Department of Commerce Economic Development Administration. Therefore, contract terms and conditions will be negotiated between the contractor, One Montana, and Prospera upon selection of the winning RFP.

Payment under any such contract will be split between the funding sources of One Montana and Prospera, and will require separate invoicing. The contractor will be responsible for a statement of complete billing and copies of invoices for each billing party for the billing period covered.

Furthermore, the consultant who is selected will have to satisfy the requirements of both the Big Sky Economic Development Trust Fund and the Economic Development Administration in order for any funds to be released.

This RFP does not form or constitute a contractual document. One Montana and/or Prospera shall not be liable for any loss, expense, damage or claim arising out of the
advice given or not given or statements made or omitted to be made in connection with this RFP. Also, One Montana and or Prospera will not be responsible for any expenses which may be incurred in the preparation of this RFP.

A professional consulting contract will be required of the selected consultant and if the contract fails to be negotiated, One Montana and Prospera reserve the right to contract with another consultant.

Proposers may withdraw their proposal either personally or by written request at any time prior to the due date set for receiving proposals. No proposal may be withdrawn or modified after the due date and time, unless and until the award of the contract is delayed for a period exceeding ninety (90) days.

The proposer must honor its quote for a period of ninety (90) days after the RFP due date.

The contractor will need to satisfy all requirements for insurance coverage as required by Prospera and One Montana.

3. Project Purpose and Description

The purpose of this project is as follows:

The scope outlined in this RFP is part of a larger feasibility study around meat processing in Montana. The purpose of the feasibility study is to determine if it is possible to build a meat processing facility in Montana that will significantly increase the processing capacity in the state. Montana has long been known as a producer of quality beef, and to a lesser extent, a producer of lamb and bison. However, most of the meat processing plants in the state are small, and the majority of the livestock in the state that are raised for meat are shipped elsewhere for finishing, slaughter, and fabrication. Because Montana producers are essentially exporters of raw materials, and the animals they raise are largely processed and sold under large meatpacking labels, most Montana producers are unable to capture added value from their products.

Meanwhile, consumer demand for meat products raised and processed outside the Midwest-based, commodity-driven market is increasing. Demand for “local”, “organic”, “natural”, “grass-fed”, “humanely-processed”, (among others) products grows every year. In many cases, these products come from small producers who have found a way to market their animals outside of the larger meat processing industry, often through the creation of a “ranch-branded” product, the use of marketing strategies associated with the above terms, and by utilizing local meat processors. All of these strategies allow them to capture added value from their animals, value that allows them to recoup the higher production costs associated with small-scale production.
While Montana has seen the introduction of some ranch-branded meat products that have met with success, others have started and failed. The reasons most commonly identified are low processing capacity, which creates a bottleneck on supply while also forcing processing costs up due to a lack of economies of scale, and insufficiently developed marketing strategies for these niche products.

This feasibility study aims to thoroughly examine all the moving parts that comprise the puzzle of meat processing in Montana. The basic assumption is that if a larger meat processing plant were constructed in the state, such a plant would be a net gain for producers. It would allow them to process their animals locally, and provide them with the option of developing their own ranch-branded product or with selling their livestock to a branded meat program operated by the owners of the processing plant, thus removing the startup risks of building their own brand.

For those who have already established a branded product, it would allow them to greatly expand their business. The scope of work dealt within this RFP is designed to answer questions related to producing conceptual designs for a meat processing plant in Montana. The overall goal of the feasibility study is to determine whether or not it is possible to build a meat processing plant in Montana that can process between 250-500 head of livestock a day, and do so in a manner that makes it possible to capture added value from the animal. This will need to be taken into account when producing conceptual designs of a processing plant.

**Project Description:**

One Montana is seeking a firm to provide conceptual design of a meat processing plant as a component of a larger feasibility study. While the conceptual design is an important component of the study, there are other topics that will be covered. These include:

- Marketing research and analysis
- Wastewater, byproduct disposal, site requirements
- Economic analysis
- Analysis of regulatory processes
- Labor related issues
- Research of producer and processor practices

The final report delivered to One Montana will need to provide a thoroughly researched estimate of the cost to build a meat processing plant in the state that meets the requirements laid out in the scope of work.

4. **Project Scope**
The scope of this project is comprised of the following:

1. Conduct charette process with appropriate experts on facility design to identify program, infrastructure needs, and site requirements.
2. Determine most cost efficient design for best workflow and throughput.
3. Research meat processing technologies that provide optimal food safety, maximize profit, maintain workplace safety, and allow for complete pasture to plate traceability.
4. Examine the potential for multispecies processing.
5. Visit at least one meat processing plant in the U.S. to understand workflow and plant design. REVISED

6. Conduct interviews with experts to provide information on meat processing industries in New Zealand and Uruguay. Conduct an analysis of how Montana can benefit from similar methodologies.
7. Identify methods of capturing value from byproducts—rendering, hides, offal, and pet food.
8. Conduct research into potential plant locations for a meat processing plant in MT. Identify and analyze 3 potential sites.
9. Reconvene appropriate experts in a charette to produce conceptual designs for a meat processing facility.
10. Provide preliminary cost estimates for a facility to include: the 16 divisions of construction, as defined by the Construction Specifications Institute.
11. Research food safety requirements for Asian markets and how this might impact facility design.
12. Research technologies used to process meat for long shipping times such as Asian markets.
13. Determine the appropriate guidelines for producers selling to a Montana-branded meat processing venture.
14. Determine the practices a meat processing facility would set in place for processing meat. These might include traceability, humane slaughter, producer relations, etc.
15. Examine relevant state, federal, and product-related regulatory processes to determine what steps would need to be taken for a meat processing facility in Montana to be able to sell, in-state, out of state, and internationally.

One Montana elements to be included in report:

1. Document how the four meat processing plants that were visited were chosen and complete summary overviews for each visit regarding the facilities and information obtained.
2. Conduct some investigation into the possibility of upgrading a few current facilities in Montana to work in conjunction with larger, new facility.

One Montana will be responsible for providing research on the above two items. However, it will be necessary for the successful contractor to incorporate the information from those two items into their report.

5. Request for Proposal and Project Timeline

Request for Proposal Timeline:

All proposals sent electronically in response to this RFP are due no later than 5p.m. Mountain Time, November 11, 2013. All proposals sent through the mail must be postmarked no later than November 11, 2013.

Evaluation of proposals will be conducted from November 12, 2013, until November 15, 2013. If additional information or discussions are needed with any applicants during this window, the applicant(s) will be notified.

The selection decision for the winning applicant will be made no later than November 15, 2013.

Upon notification, the contract with the winning applicant will begin immediately. Contract negotiations will be completed by November 21, 2013.

Notification will be made to unsuccessful candidates by November 21, 2013.

Project Timeline

A mid-point progress report will be delivered to One Montana by February 14, 2014. This report will detail work done on the project and provide a preliminary finding.

Provide a Draft Final Report to One Montana, the oversight committee, and EDA that follows the Final Report guidelines.

A final report that fully addresses each of the points listed in Section 4 under Project Scope will be delivered to One Montana by April 30, 2014. The contractor will be required to provide 10 paper copies of the final report as well as 10 copies on CD or USB drives.

In addition, to meet the reporting requirements for Prospera Business Network, it will be necessary to submit quarterly progress reports to Prospera.

6. Budget
All proposals must include proposed costs to complete the tasks described in the project scope. Costs should be stated as one-time or non-recurring costs (NRC) or monthly recurring costs (MRC). Total costs for the project are not to exceed $29,000.00. Proposals that exceed this amount will not be considered.

All costs and fees must be clearly described in each proposal, with itemized costs shown. Bidders that do not satisfactorily explain costs will be asked to resubmit their proposals.

7. Applicant Qualifications

Applicants should provide the following items as part of their proposal for consideration:

- Description of experience designing meat processing plants
- Description of experience with charrette process
- Description of familiarity with Montana’s meat processing market
- Description of experience and familiarity with the meat processing industry
- At least one (no more than three) examples of similar design work conducted by your organization
- Anticipated resources you will assign to this project (total number, role, title, experience)
- Your organizations anticipated timeline for completion of the project
- Your project management methodology

8. Proposal Evaluation Criteria

One Montana will evaluate all proposals based on the following criteria. To ensure consideration for this Request for Proposal, your proposal should complete and include all of the following criteria:

- Overall proposal suitability: proposed solution(s) must meet the scope and needs included herein and be presented in a clear and organized manner.
- Organizational Experience: Applicants will be evaluated on their experience as it pertains to the scope of this project
- Previous work: Applicants will be evaluated on examples of their work that demonstrate relevancy and applicability to the project
- Value and cost: Applicants will be evaluated on the cost of their solution(s) based on the work to be performed in accordance with the scope of this project
- Technical expertise and experience: Applicants must provide descriptions and documentation of staff expertise and experience
All applicants **must** submit a copy of the proposal electronically. Submissions should be sent to: info@onemontana.org. All submissions should be formatted as a .pdf file. All electronic submissions must be made no later than 5p.m. Mountain Time, November 11, 2013. If applicants choose to send additional, physical copies of the proposal, they should send 5 copies to the address below, postmarked no later than November 11, 2013:

One Montana  
2066 Stadium Drive, Suite 202  
Bozeman, Montana 59715
Appendix B. One Montana RFP issued November 5, 2013 for Labor.

REQUEST FOR PROPOSAL (RFP)

Montana Meat Processing Feasibility Study—Labor

One Montana
2066 Stadium Drive, Suite 202
Bozeman, Montana 59715

November 5, 2013
1. Summary and Background

One Montana is currently accepting proposals to conduct research related to labor issues and requirements for workforce in a meat processing plant located in Montana. This work will be part of a larger feasibility study that One Montana is conducting. This study is examining the potential to significantly expand the meat processing capacity in Montana through the construction of a meat processing plant in the state. As part of this study, it is important to understand the challenges that might be faced in staffing a meat processing plant in Montana.

The purpose of this RFP is to solicit proposals from various candidate organizations, conduct a fair and extensive evaluation based on criteria listed herein, and select the candidate who best represents the direction One Montana wishes to go.

One Montana is a non-partisan, nonprofit organization dedicated to moving Montana forward through rural-urban partnerships. We do this by the collaboration of likely and unlikely partners to build large-scale initiatives to solve our state’s challenges. It can serve as a national model for collaboration and community development. One Montana’s mission is to create a vibrant Montana by connecting rural and urban communities.

One Montana is based in Bozeman, Montana, but our various programs reach across the state.

Our projects are diverse and include:
- Rural - Urban Exchanges between high school students and local business leaders and entrepreneurs.
- Facilitation between groups struggling with divisive issues driven by disparities between rural and urban viewpoints
- Statewide Conferences on topics that impact rural-urban connections
- The One Montana Collaboration Center which will serve as a resource for community building by helping communities and organizations connect with one another
2. Proposal Guidelines

This Request for Proposal represents the requirements for an open and competitive process. Proposals sent electronically will be accepted until 5p.m. Mountain Time, November 11, 2013. Proposals sent through the mail must be postmarked no later than November 11, 2013. Any proposals received after this will be returned to the sender. All proposals must be signed by an official agent or representative of the company submitting the proposal.

If the organization submitting the proposal must outsource or contract any work to meet the requirements contained herein, this must be clearly stated in the proposal. Additionally, all costs included in the proposal must be all inclusive to include any outsourced or contracted work. Any proposals which call for outsourcing or contracting work must include a name and description of the organizations being contracted.

All costs must be itemized to include an explanation of all fees and costs.

While One Montana is the organization conducting the feasibility study, funds for a portion of the work to be conducted will be administered to the winning candidate by the Prospera Business Network (based in Bozeman), on behalf of the Montana Department of Commerce Big Sky Economic Development Trust Fund. One Montana is also the recipient of a Local Technical Assistance award from the US Department of Commerce Economic Development Administration. Therefore, contract terms and conditions will be negotiated between the contractor, One Montana, and Prospera upon selection of the winning RFP.

Payment under any such contract will be split between the funding sources of One Montana and Prospera, and will require separate invoicing.

Furthermore, the consultant who is selected will have to satisfy the requirements of both the Big Sky Economic Development Trust Fund and the Economic Development Administration in order for any funds to be released.

This RFP does not form or constitute a contractual document. One Montana and/or Prospera shall not be liable for any loss, expense, damage or claim arising out of the advice given or not given or statements made or omitted to be made in connection with this RFP. Also, One Montana and or Prospera will not be responsible for any expenses which may be incurred in the preparation of this RFP.

A professional consulting contract will be required of the selected consultant and if the contract fails to be negotiated, One Montana and Prospera reserve the right to contract with another consultant.
Proposers may withdraw their proposal either personally or by written request at any time prior to the due date set for receiving proposals. No proposal may be withdrawn or modified after the due date and time, unless and until the award of the contract is delayed for a period exceeding ninety (90) days.

The proposer must honor its quote for a period of ninety (90) days after the RFP due date.

The contractor will need to satisfy all requirements for insurance coverage as required by Prospera and One Montana.

3. Project Purpose and Description

The purpose of this project is as follows:

The scope outlined in this RFP is part of a larger feasibility study around meat processing in Montana. The purpose of the feasibility study is to determine if it is possible to build a meat processing facility in Montana that will significantly increase the processing capacity in the state. Montana has long been known as a producer of quality beef, and to a lesser extent, a producer of lamb and bison. However, most of the meat processing plants in the state are small, and the majority of the livestock in the state that are raised for meat are shipped elsewhere for finishing, slaughter, and fabrication. Because Montana producers are essentially exporters of raw materials, and the animals they raise are largely processed and sold under large meatpacking labels, most Montana producers are unable to capture added value from their products.

Meanwhile, consumer demand for meat products raised and processed outside the Midwest-based, commodity-driven market is increasing. Demand for “local”, “organic”, “natural”, “grass-fed”, “humanely-processed”, (among others) products grows every year. In many cases, these products come from small producers who have found a way to market their animals outside of the larger meat processing industry, often through the creation of a “ranch-branded” product, the use of marketing strategies associated with the above terms, and by utilizing local meat processors. All of these strategies allow them to capture added value from their animals, value that allows them to recoup the higher production costs associated with small-scale production.

While Montana has seen the introduction of some-ranch branded meats that have met with success, others have started and failed. The reasons most commonly identified are low processing capacity, which creates a bottleneck on supply while also forcing processing costs up due to a lack of economies of scale, and insufficiently developed marketing strategies for these niche products.

This feasibility study aims to thoroughly examine the moving parts that comprise the puzzle of meat processing in Montana. The assumption behind the project is that if a larger meat processing plant were constructed in the state, such a plant would be a net gain for producers. It would allow them to process their animals locally, and provide
them with the option of developing their own ranch-branded product or selling their livestock to a branded meat program operated by the owners of the processing plant, thus removing the startup risks of building their own brand. For those who have already established a branded product, it would allow them to greatly expand their business.

The scope of work dealt with in this RFP is designed to answer questions related to staffing a meat processing plant in Montana. The overall goal of the feasibility study is to determine whether or not it is possible to build a meat processing plant in Montana that can process between 250-500 head of livestock a day, and do so in a manner that makes it possible to capture added value from the animal. This will need to be taken into account when studying strategies for staffing a processing plant.

**Project Description:**

One Montana is seeking a firm to provide labor research as a component of a larger feasibility study. While the labor research is an important component of the study, there are other topics that will be covered. These include:

- Marketing research and analysis
- Wastewater, byproduct disposal, site requirements
- Economic analysis
- Analysis of regulatory processes
- Conceptual design work
- Research of producer and processor practices

The final report delivered to One Montana will need to provide in-depth analysis of Montana’s labor market, provide estimates regarding wages and staffing requirements, and importantly compile a list of challenges related to staffing a meat processing facility and provide examples of solutions used to overcome those challenges, or, using their knowledge of Montana’s labor market, formulate original solutions.

**4. Project Scope**

The scope of this project is comprised of the following:

1. Examine Montana’s labor market in relation to the needs and employment training necessary for a meat processing facility.
2. Make estimates regarding wages and staffing requirements for the facility.
3. Compile a list of personnel related issues for meat processors with potential solutions.
5. Request for Proposal and Project Timeline

Request for Proposal Timeline:

All proposals sent electronically in response to this RFP are due no later than 5p.m. Mountain Time, November 11, 2013. All proposals sent through the mail must be postmarked no later than November 11, 2013.

Evaluation of proposals will be conducted from November 12, 2013, until November 15, 2013. If additional information or discussions are needed, with any bidders during this window, the applicant(s) will be notified.

The selection decision for the winning applicant will be made no later than November 15, 2013.

Upon notification, the contract with the winning applicant will begin immediately. Contract negotiations will be completed by November 21, 2013.

Notifications to applicants who were not selected will be completed by November 21, 2013.

Project Timeline

A mid-point progress report will be delivered to One Montana by March 14, 2014. This report will detail work done on the project and provide a preliminary finding.

Provide a Draft Final Report to One Montana, the oversight committee, and EDA that follows the final report guidelines.

A final report that fully addresses each of the points listed in Section 4 under Project Scope will be delivered to One Montana by April 30, 2014. The contractor will be required to provide 10 paper copies of the final report as well as 10 copies on CD or USB drives.

In addition, to meet the reporting requirements for Prospera Business Network, it will be necessary to submit quarterly progress reports to Prospera.

6. Budget

All proposals must include proposed costs to complete the tasks described in the project scope. Costs should be stated as one-time or non-recurring costs (NRC) or monthly recurring costs (MRC). Total costs for the project are not to exceed $5,000.00. Proposals that exceed this amount will not be considered.
All costs and fees must be clearly described in each proposal, with itemized costs shown. Bidders that do not satisfactorily explain costs will be asked to resubmit their proposals.

7. Applicant Qualifications

Applicants should provide the following items as part of their proposal for consideration:

- Description of experience in conducting labor research
- Description of familiarity with Montana’s labor market
- Description of experience and familiarity with the meat processing industry
- At least one (no more than three) examples of similar research conducted by your organization
- Anticipated resources you will assign to this project (total number, role, title, experience)
- Your organization’s anticipated timeline for completion of the project
- Your project management methodology

8. Proposal Evaluation Criteria

One Montana will evaluate all proposals based on the following criteria. To ensure consideration for this Request for Proposal, your proposal should complete and include all of the following criteria:

- Overall proposal suitability: proposed solution(s) must meet the scope and needs included herein and be presented in a clear and organized manner.
- Organizational Experience: Applicants will be evaluated on their experience as it pertains to the scope of this project
- Previous work: Applicants will be evaluated on examples of their work that demonstrate relevancy and applicability to the project
- Value and cost: Applicants will be evaluated on the cost of their solution(s) based on the work to be performed in accordance with the scope of this project
- Technical expertise and experience: Applicants must provide descriptions and documentation of staff expertise and experience
All applicants **must** submit a copy of the proposal electronically. Submissions should be sent to: info@onemontana.org. All submissions should be formatted as a .pdf file. All electronic submissions must be made no later than 5p.m. Mountain Time, November 11, 2013. If applicants choose to send additional, physical copies of the proposal, they should send 5 copies to the address below, postmarked no later than November 11, 2013:

One Montana  
2066 Stadium Drive, Suite 202  
Bozeman, Montana 59715
Appendix C. One Montana RFP issued November 5, 2013 for Marketing.

REQUEST FOR PROPOSAL (RFP)

Montana Meat Processing Feasibility Study—Marketing

One Montana
2066 Stadium Drive, Suite 202
Bozeman, Montana 59715

November 5, 2013
1. Summary and Background

One Montana is currently accepting proposals to conduct marketing and sales research related to Montana meat products. This work will be part of a larger feasibility study that One Montana is conducting. This study is examining the potential to significantly expand the meat processing capacity in Montana through the construction of a meat processing plant in the state. As part of this study, it is important to understand the nature of marketing meat products produced in Montana and what added value can or cannot be captured by branding that associates meat products with the larger overall “Montana brand” that has been developed through years of tourism, literature, film, etc. It will also be necessary to research the history of meat processing in Montana to identify the factors that have contributed to the present state of the industry.

The purpose of this RFP is to solicit proposals from various organizations, conduct a fair and extensive evaluation based on criteria listed herein, and select the candidate who best represents the direction One Montana wishes to go.

One Montana is a non-partisan, nonprofit organization dedicated to moving Montana forward through rural-urban partnerships. We do this by the collaboration of likely and unlikely partners to build large-scale initiatives to solve our state’s challenges. It can serve as a national model for collaboration and community development. One Montana’s mission is to create a vibrant Montana by connecting rural and urban communities.

One Montana is based in Bozeman, Montana, but our various programs reach across the state.

Our projects are diverse and include:
- Rural Urban Exchanges between high schools and local business leaders and entrepreneurs
- Facilitation between groups struggling with divisive issues driven by disparities between rural and urban viewpoints
- Statewide Conferences on topics that impact rural-urban connections
• The One Montana Collaboration Center which will serve as a resource for community building by helping communities and organizations connect with one another

2. Proposal Guidelines

This Request for Proposal represents the requirements for an open and competitive process. Proposals sent electronically will be accepted until 5p.m. Mountain Time, November 11, 2013. Proposals sent through the mail must be postmarked no later than November 11, 2013. Any proposals received after this will be returned to the sender. All proposals must be signed by an official agent or representative of the company submitting the proposal.

If the organization submitting the proposal must outsource or contract any work to meet the requirements contained herein, this must be clearly stated in the proposal. Additionally, all costs included in the proposal must be all inclusive to include any outsourced or contracted work. Any proposals which call for outsourcing or contracting work must include a name and description of the organizations being contracted.

All costs must be itemized to include an explanation of all fees and costs.

While One Montana is the organization conducting the feasibility study, funds for a portion of the work to be conducted will be administered to the winning candidate by the Prospera Business Network (based in Bozeman), on behalf of the Montana Department of Commerce Big Sky Economic Development Trust Fund. One Montana is also the recipient of a Local Technical Assistance award from the US Department of Commerce Economic Development Administration. Therefore, contract terms and conditions will be negotiated between the contractor, One Montana, and Prospera upon selection of the winning RFP.

Payment under any such contract will be split between the funding sources of One Montana and Prospera, and will require separate invoicing. The contractor will be responsible for a statement of complete billing and copies of invoices for each billing party for the billing period covered.

Furthermore, the consultant who is selected will have to satisfy the requirements of both the Big Sky Economic Development Trust Fund and the Economic Development Administration in order for any funds to be released.

This RFP does not form or constitute a contractual document. One Montana and/or Prospera shall not be liable for any loss, expense, damage or claim arising out of the advice given or not given or statements made or omitted to be made in connection with
this RFP. Also, One Montana and or Prospera will not be responsible for any expenses which may be incurred in the preparation of this RFP.

A professional consulting contract will be required of the selected consultant and if the contract fails to be negotiated, One Montana and Prospera reserve the right to contract with another consultant.

Proposers may withdraw their proposal either personally or by written request at any time prior to the due date set for receiving proposals. No proposal may be withdrawn or modified after the due date and time, unless and until the award of the contract is delayed for a period exceeding ninety (90) days.

The proposer must honor its quote for a period of ninety (90) days after the RFP due date.

The contractor will need to satisfy all requirements for insurance coverage as required by Prospera and One Montana.

3. Project Purpose and Description

The purpose of this project is as follows:

The scope outlined in this RFP is part of a larger feasibility study around meat processing in Montana. The purpose of the feasibility study is to determine if it is possible to build a meat processing facility in Montana that will significantly increase the processing capacity in the state. Montana has long been known as a producer of quality beef, and to a lesser extent, a producer of lamb and bison. However, most of the meat processing plants in the state are small, and the majority of the livestock in the state that are raised for meat are shipped elsewhere for finishing, slaughter, and fabrication. Because Montana producers are essentially exporters of raw materials, and the animals they raise are largely processed and sold under large meatpacking labels, most Montana producers are unable to capture added value from their products.

Meanwhile, consumer demand for meat products raised and processed outside the Midwest-based, commodity-driven market is increasing. Demand for “local”, “organic”, “natural”, “grass-fed”, “humanely-processed”, (among others) products grows every year. In many cases, these products come from small producers who have found a way to market their animals outside of the larger meat processing industry, often through the creation of a “ranch-branded” product, the use of marketing strategies associated with the above terms, and by utilizing local meat processors. All of these strategies allow them to capture added value from their animals, value that allows them to recoup the higher production costs associated with small-scale production.

While Montana has seen the introduction of some-ranch branded meat products that have met with success, others have started and failed. The reasons most commonly identified are low processing capacity, which creates a bottleneck on supply while also
forcing processing costs up due to a lack of economies of scale, and insufficiently developed marketing strategies for these niche products.

This feasibility study aims to thoroughly examine the moving parts that comprise the puzzle of meat processing in Montana. The basic assumption is that if a larger meat processing plant were constructed in the state, such a plant would be a net gain for producers. It would allow them to process their animals locally, and provide them with the option of developing their own ranch-branded product or selling their livestock to a branded meat program operated by the owners of the processing plant, thus removing the startup risks of building their own brand.

For those who have already established a branded product, it would allow them to greatly expand their business. The scope of work dealt with in this RFP is designed to answer questions related to marketing and branding of meat products associated with Montana. The overall goal of the feasibility study is to determine whether or not it is possible to build a meat processing plant in Montana that can process between 250-500 head of livestock a day, and do so in a manner that makes it possible to capture added value from the animal.

Project Description:

One Montana is seeking a firm to provide marketing research as a component of a larger feasibility study. While the marketing research is an important component of the study, there are other topics that will be covered. These include:

- Labor related issues
- Wastewater, byproduct disposal, site requirements
- Economic analysis
- Analysis of regulatory processes
- Conceptual design work
- Research of producer and processor practices

The final report delivered to One Montana will need to provide in-depth analysis of both the past and present state of Montana’s meat processing sector. It will also need to provide information and analysis of each point listed in the project scope.

4. Project Scope

The scope of this project is comprised of the following topics:

1. Research history of branded meat ventures in Montana and the associated marketing challenges they faced.
2. Research potential unique qualities and opportunities of a Montana meat product that could add value.
3. Research the demand for Montana-branded meat products at the state, regional, national, and international level.
4. Research market potential for Montana meat products in Japan and Taiwan and suggest marketing strategies for those products.

5. Determine the competitiveness of Montana-branded meat products in the value-added market.
6. Determine price premiums for Montana-branded meat products.
7. Provide analysis of marketing strategies used by value-added meat ventures on the state, regional, national, and international level in order to determine the best method of marketing Montana-branded products.
8. Conduct sales research to determine best potential distribution channels of Montana-branded meat products.

One Montana elements to be included in report:

1. Research the previous feasibility studies completed on this subject within the State of Montana. Document the studies found and present analysis of the studies.
2. Research any previous feasibility studies completed on this subject in other States to review their findings and results. Document the studies found and present analysis of the studies.
3. Research history of meat processing in Montana and factors that contributed to its decline.
4. Research the supply of beef, lamb, and bison in Montana.
5. Provide projections of potential growth in supply assuming a functioning processing plant.

One Montana will be responsible for providing research on the above five items. However, it will be necessary for the successful contractor to incorporate the information from those five items into their report.

5. Request for Proposal and Project Timeline

Request for Proposal Timeline:

All proposals sent electronically in response to this RFP are due no later than 5p.m. Mountain Time, November 11, 2013. All proposals sent through the mail must be postmarked no later than November 11, 2013.
Evaluation of proposals will be conducted from November 12, 2013, until November 15, 2013. If additional information or discussions are needed, with any bidders during this window, the applicant(s) will be notified.

The selection decision for the winning applicant will be made no later than November 15, 2013.

Upon notification, the contract with the winning applicant will begin immediately. Contract negotiations will be completed by November 21, 2013.

Notification will be made to unsuccessful candidates by November 21, 2013.

Project Timeline

A mid-point progress report will be delivered to One Montana by March 14, 2014. This report will detail work done on the project and provide a preliminary finding.

Provide a Draft Final Report to One Montana, the oversight committee, and EDA that follows the final report guidelines.

A final report that fully addresses each of the points listed in Section 4 under Project Scope will be delivered to One Montana by April 30, 2014. The contractor will be required to provide 10 paper copies of the final report as well as 10 copies on CD or USB drives. This will represent the fulfillment of all obligations of this RFP.

In addition, to meet the reporting requirements for Prospera Business Network, it will be necessary to submit quarterly progress reports to Prospera.

6. Budget

All proposals must include proposed costs to complete the tasks described in the project scope. Costs should be stated as one-time or non-recurring costs (NRC) or monthly recurring costs (MRC). Total costs for the project are not to exceed $30,848.00. Proposals that exceed this amount will not be considered.

All costs and fees must be clearly described in each proposal, with itemized costs shown. Bidders that do not satisfactorily explain costs will be asked to resubmit their proposals.

7. Applicant Qualifications

Applicants should provide the following items as part of their proposal for consideration:

- Description of experience in conducting marketing and sales research
• Description of familiarity with Montana's brand presence
• Description of proven successful branding experience for at least one Montana branded product
• Description of experience and familiarity with the meat processing industry

• At least one (no more than three) example of market research conducted by your organization
• Anticipated resources you will assign to this project (total number, role, title, experience)

• Your organizations anticipated timeline for completion of the project
• Your project management methodology

8. Proposal Evaluation Criteria

One Montana will evaluate all proposals based on the following criteria. To ensure consideration for this Request for Proposal, your proposal should complete and include all of the following criteria:

• Overall proposal suitability: proposed solution(s) must meet the scope and needs included herein and be presented in a clear and organized manner.
• Organizational Experience: Applicants will be evaluated on their experience as it pertains to the scope of this project
• Previous work: Applicants will be evaluated on examples of their work that demonstrate relevancy and applicability to the project
• Value and cost: Applicants will be evaluated on the cost of their solution(s) based on the work to be performed in accordance with the scope of this project
• Technical expertise and experience: Applicants must provide descriptions and documentation of staff expertise and experience

All applicants must submit a copy of the proposal electronically. Submissions should be sent to: info@onemontana.org. All submissions should be formatted as a .pdf file. All electronic submissions must be made no later than 5p.m. Mountain Time, November 11, 2013. If applicants choose to send additional, physical copies of the proposal, they should send 5 copies to the address below, postmarked no later than November 11, 2013:

One Montana
2066 Stadium Drive, Suite 202
Bozeman, Montana 59715
Appendix D. Newspapers Advertisements for RFP.
REQUEST FOR PROPOSALS

One Montana, a Bozeman-based nonprofit, is issuing Requests for Proposals for work to be done on a feasibility study about meat processing in Montana. The project is intended to provide information about the possibility of expanding meat processing in Montana. Contractors are being sought to perform research into three key areas of the study: Conceptual Design, Marketing, and Labor. If you have previous experience in the meat processing industry in Montana or elsewhere, and believe that you would be a qualified applicant, visit www.onemontana.org or email us at info@onemontana.org for more information or call 1-406-622-7654. All applications are due October 7th, 2013. All applicants will have to provide proof of experience, as well as meet all requirements set forth in the RFP.

AFFIDAVIT OF PUBLICATION

STATE OF MONTANA

County of Gallatin

Jill Hall

being duly sworn, deposes and says; that he/she is legal ad clerk of the Bozeman Daily Chronicle, a newspaper of general circulation, printed and published in Bozeman, Gallatin County, Montana; and that the notice hereunto annexed REQUEST FOR PROPOSALS ON

has been correctly published in the regular and entire issues of every number of said paper for 5 insertions.

Said notice was published on:
09/19/2013 09/20/2013 09/21/2013 09/22/2013 09/23/2013

Nellie Hall

Subscribed and sworn to before me this 25th day of September, 2013

Glenda Burton

Notary Public for the State of Montana
Residing at Bozeman, Montana

Second receipt from reissuing RFP in Bozeman Daily Chronicle:
# BIG SKY PUBLISHING

**BOZEMAN CHRONICLE/BNL/P/L/WYN**  
**C/O ISJ PAYMENT PROCESSING CTR**  
**P.O. BOX 1570**  
**POCATELLO ID 83204-1570**  
**(406) 582-2637**  
**Fax (406) 587-7995**  

**Advertising Invoice**

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**Billing Account Name and Address**

LEGAL#3996 ONE MONTANA  
SUITE 202  
2066 STADIUM DRIVE  
BOZEMAN MT 59715

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Please send your payment with your account number on your check to:

**Big Sky Publishing c/o ISJ Payment Proc. Ctr. PO Box 1570, Pocatello, ID 83204-1570**

**Please Return Upper Portion With Payment**

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**Thank you**

**Statement of Account - Aging of Past Due Amounts**

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**BIG SKY PUBLISHING**  
**(406) 582-2637**  

*** UNAPPLIED AMOUNTS ARE INCLUDED IN TOTAL AMOUNT DUE**
REQUEST FOR PROPOSALS

One Montana, a Bozeman-based nonprofit, is issuing Requests for Proposals for work to be done on a feasibility study about meat processing in Montana. The project is intended to provide information about the possibility of expanding meat processing in Montana. Contractors are being sought to perform research into three key areas of the study: Conceptual Design, Marketing, and Labor. If you have previous experience in the meat processing industry in Montana or elsewhere, and believe that you would be a qualified applicant, visit: www.onemontana.org or email us at info@onemontana.org for more information or call 1-406-522-7654. All applications are due by November 11, 2013. All applicants will have to provide proof of experience, as well as meet all requirements set forth in the RFP.

AFFIDAVIT OF PUBLICATION
STATE OF MONTANA
County of Gallatin

being duly sworn, deposes and says; that he/she is legal ad clerk of the Bozeman Daily Chronicle, a newspaper of general circulation, printed and published in Bozeman, Gallatin County, Montana; and that the notice hereunto annexed REQUEST FOR PROPOSALS ON

has been correctly published in the regular and entire issues of every number of said paper for 4 insertions.

Said notice was published on:

Subscribed and sworn to before me this
12th day of November, 2013

Notary Public for the State of Montana
Residing at Bozeman, Montana
Appendix E. Email from EDA confirming receipt of top two RFP respondents in each category.

---

From: Duncan, Jodi  
Sent: Friday, November 22, 2013 10:27 AM  
To: Matthew Bitz  
Subject: RE: RFPS and respondents

Matt,

Thanks for the revised RFP’s and for the copies of the proposals that were submitted. Here are my comments regarding the proposals:

**Conceptual Design and Labor Components:**

Agrifoods Solutions – Although appears to have a vast knowledge of the beef industry the proposal that was submitted did not address the Conceptual Design or the Labor RFP’s scope of work elements. EDA didn’t get a copy of the attached principles resumes. Based on the proposal submitted there is no assurance that each of the scope of work elements will be addressed. In addition, the RFP requested that all costs be itemized and an explanation provided for all fees and costs, this was also not included. The proposal didn’t address the project timeline at all which was on page 8 of the RFP. The proposal also didn’t address each of the items listed under Applicant Qualifications on page #7 of the RFP.

If this proposal is the one to be chosen by One Montana to do the Conceptual Design and Labor portions of the project I would ensure that they address each of the scope of work elements in both the Conceptual Design and Labor RFP’s including their coordination with One Montana on the Conceptual Design (elements 1 & 2) on page 7 of the RFP. I would also ensure that they itemize and explain all fees and cost, address the timeline and ensure they address the items on page #7 under Applicant Qualifications.

Food & Livestock Planning, Inc. – they addressed all of the scope of work elements in the RFP and followed the information requested in the RFP more closely.

Both of the above applicants appear to be qualified to complete the work. EDA has limited information and didn’t participate in the interviews. The only concern with Agrifoods Solutions is what has been noted above.

**Marketing Component:**

Kathryn Quanbeck – she addressed all of the scope of work elements in the RFP and followed the information requested in the RFP more closely.

Mercury- they focused on addressing the applicant qualifications specifically but didn’t address the scope of work elements in the RFP. They also mention incentives of $100 to each expert on page 18 and 19 of the proposal and incentives, awards or prizes are not an allowable expense under the grant.

If this proposal is the one to be chosen by One Montana to do the Marketing Component of the project I would ensure that they address each of the scope of work elements in the RFP and that they understand that incentives are not allowed.

Both of the above applicants appear to be qualified to complete the work. EDA has limited information and didn’t participate in the interviews. The only concern with Mercury is that the scope of work was not addressed specifically and incentives are not allowed.
Prior to executing a final contract with either company please ensure that the scope of work noted in the RFP is clearly identified in the contract so that One Montana, Prospera and EDA has assurance that the consultants will address all of the elements in the scope of work. Thanks for allowing EDA to provide feedback on the proposals submitted. Best, Jodi Duncan

From: Matthew Bitz [mailto:mmatt@onemontana.org]
Sent: Tuesday, November 19, 2013 2:58 PM
To: Duncan, Jodi
Subject: RFPs and respondents

Hi Jodi,

Great news about ASAP. Thank you for letting us know. Attached are the final RFPs we posted. I’ve also attached the final two RFPs we liked in each category for you to have on file. We’ve made a decision with regards to conceptual design and labor, but are still deliberating on marketing.

Conceptual Design and Labor:
Agrifoods solutions (our pick)
Food and Livestock Planning

Marketing:
Kathryn Quanbeck
MercuryCSC.

Hope you had a good time away from the office.

Best,

Matt

Matthew Bitz
Program Manager
One Montana
2066 Stadium Drive, Suite 202
Bozeman MT 59715
406.522.7654
Appendix F. EDA receipt of signed PSC for Agrifoods.

Matthew Bitz

From: Duncan, Jodi
Sent: Thursday, January 02, 2014 4:49 PM
To: Matthew Bitz
Subject: RE: Signed PSC

Matt,

EDA received via e-mail attachment on 1/2/14 a copy of the signed contract for our files. The only item that was not repeated verbatim from the scope of work on page 2 of the contract was item 5.E which stated “visit at least one meat processing plant” and the approved scope of work task 7 item #5 states “visit at least four processing plants” with the following sentence (Site visits will likely be spread across several individuals). Even though the consultant may not be visiting all four sites as you have previously stated this scope of work element must remain the same as presently presented in the approved scope of work and that approved scope verbiage must be addressed. Even if you all don’t end up visiting four sites, then the scope of work should remain as is and then you would address why or why not in the report submitted to EDA. All other items in the scope of work were included verbatim except that one and I realize you didn’t state four visits in the contract because the consultant was not going to visit all four, just one. I did however need to point this out for my records and file. You will be providing a copy of the final RFP and signed contracts in all future reports to EDA (Mid-Point Report, Draft Final and Final) so please keep this handy to be submitted with these reports. Thanks again and Happy New Year, Jodi Duncan

Jodi Duncan | Program Specialist | Economic Development Administration, Denver Regional Office | 410 17th Street, Suite 250 | Denver, CO 80202 | (303) 844-4801 | jduncan@eda.gov | (303) 844-3968 (fax)

From: Matthew Bitz [mailto:mattb@onemontana.org]
Sent: Thursday, January 02, 2014 10:27 AM
To: Duncan, Jodi
Subject: Signed PSC

Jodi,

Please find attached the signed PSC between Agrifoods, Prospera and One Montana for EDA to have on file.

Best,

Matt

Matthew Bitz
Program Manager
One Montana
2066 Stadium Drive, Suite 202
Bozeman MT 59715
406.522.7654
Appendix G. Signed PSC for Agrifoods.

PROFESSIONAL SERVICES CONTRACT

BSTF Grant# 2-13-17
EDA Grant #05-06-05422

Between:
Prospera Business Network and One Montana and AgriFood Solutions International, LLC

This Contract is entered into this 1st day of December, 2013, by and between Prospera Business Network,
herein referred to as the “CRDC” and One Montana, herein referred to as “Partner” and jointly referred to
here as “Contracting Entities”, and AgriFood Solutions International, LLC, 1511 South Texas Avenue #165,
College Station, Texas 77840, herein referred to as the “Contractor.”

WHEREAS, the Montana Department of Commerce, herein referred to as "the Department," has awarded
the CRDC grant funds under the Big Sky Economic Development Trust Fund (BSTF) for up to a sum not to
exceed $12,500 of the cost of providing the services defined in the Scope of Work herein and

WHEREAS, One Montana is responsible for a sum not to exceed $21,500 of the cost of providing the
services defined in the Scope of Work herein; and

WHEREAS, the Contracting Entities desire to engage the Contractor to render certain services related to the
administration of the above described project; and

WHEREAS, the Contracting Entities desire to enter into an agreement with the Contractor as hereinafter
provided to assure the effective management of the project;

NOW, THEREFORE, the parties hereto do mutually agree as follows:

1. EMPLOYMENT OF CONTRACTOR. The Contracting Entities agrees to engage the Contractor,
   and the Contractor agrees to provide the services as outlined in the Scope of Work as described in
   Section 5.

2. INDEPENDENT CONTRACTOR. It is understood by the parties hereto that the Contractor is an
   independent contractor and that neither its principals nor its employees, if any, are employees of the
   Contracting Entities for purposes of tax, retirement system, or social security (FICA) withholding. It
   is further understood that pursuant to section 39-71-401, MCA, the Contractor has obtained, and will
   maintain at its expense for the duration of this Contract, coverage in a workers' compensation plan
   for its principals and employees for the services to be performed hereunder.

3. LIAISON. The CRDC designated liaison with the Contractor is Stuart R. Leidner, Executive
   Director. The Contractor's designated liaison with the Contracting Entities is Rod Bowling, Ph.D.,
   CEO and Senior Technology Partner. The Partner's liaison with the Partner is Matthew Bitz,
   One Montana.

4. EFFECTIVE DATE AND TIME OF PERFORMANCE. This Contract takes effect on December
   1st, 2013. The services to be performed by the Contractor will be completed no later than December
   31st, 2014.

Professional Service Agreement – Prospera Business Network & AgriFood Solution

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5. **SCOPE OF SERVICES.** Specifically, the Contractor will perform the following tasks for the purpose of preparing the Conceptual Design and Labor Analysis:

A. Conduct charrette process with appropriate experts on facility design to identify program, infrastructure needs, and site requirements.

B. Determine most cost efficient design for best workflow and throughput.

C. Research meat processing technologies that provide optimal food safety, maximize profit, maintain workplace safety, and allow for complete pasture to plate traceability.

D. Examine the potential for multispecies processing.

E. Visit at least one meat processing plant in the U.S. to understand workflow and plant design.

F. Conduct interviews with experts to provide information on meat processing industries in New Zealand and Uruguay. Conduct an analysis of how Montana can benefit from similar methodologies.

G. Identify methods of capturing value from byproducts—rendering, hides, offal, and pet food.

H. Conduct research into potential plant locations for a meat processing plant in MT. Identify and analyze 3 potential sites.

I. Reconvene appropriate experts in a charrette to produce conceptual designs for a meat processing facility.

J. Provide preliminary cost estimates for a facility to include: the 16 divisions of construction, as defined by the Construction Specifications Institute.

K. Research food safety requirements for Asian markets and how this might impact facility design.

L. Research technologies used to process meat for long shipping times such as Asian markets.

M. Determine the appropriate guidelines for producers selling to a Montana-branded meat processing venture.

N. Determine the practices a meat processing facility would set in place for processing meat. These might include traceability, humane slaughter, producer relations, etc.

O. Examine relevant state, federal, and product-related regulatory processes to determine what steps would need to be taken for a meat processing facility in Montana to be able to sell, in-state, out of state, and internationally.

P. Examine Montana’s labor market in relation to the needs and employment training necessary for a meat processing facility.
Q. Make estimates regarding wages and staffing requirements for the facility.

R. Compile a list of personnel related issues for meat processors with potential solutions.

S. Incorporate the following elements to be provided separately by One Montana into a final written report:

1. Document how the four meat processing plants that were visited were chosen and complete summary overviews for each visit regarding the facilities and information obtained.

2. Conduct some investigation into the possibility of upgrading a few current facilities in Montana to work in conjunction with larger, new facility.

T. Provide written report to Contracting Entities.

It is understood and agreed by the parties that the services of the Contractor do not include any of the following: the disbursement or accounting of funds distributed by the Contracting Entities’ financial officer, legal advice, fiscal audits or assistance with activities not related to the project.

6. COMPENSATION. For the satisfactory completion of the services to be provided under this Contract, the Contractor will be paid a sum not to exceed $34,000.00 as in the manner approved and set forth as agreed upon. Monthly billings may be submitted to the Contracting Entities. The CRDC will pay the Contractor up to one half of the project costs of the total eligible project costs submitted up to a sum not to exceed $12,500.00, of the eligible expenses, in the manner approved and set forth herein. The Partner will pay the Contractor one half, plus any remaining balance after the first $25,000 in eligible costs submitted for a sum not to exceed $21,500.00. Disbursement of funds will be made by CRDC upon approval and receipt of funds by the Department of all documentation submitted through the CRDC. Disbursement of funds will be made by Partner upon approval by Partner of all document submitted through Partner. Each specific service the Contractor will provide under this contract, and the maximum amount that the Contracting Entities will pay the Contractor for each of these services is set forth in the Scope of Work described above. The Contractor may submit monthly requests for payment, based on actual work performed, which must be accompanied by an itemized invoice describing the services furnished, the number of hours worked to accomplish each item, the amount being billed for each item, a description of any other eligible expenses incurred during the billing period, and the total amount being billed.

7. CONFLICT OF INTEREST. The Contractor covenants that it presently has no interest and will not acquire any interest, direct or indirect, in the BSTF/Partner project which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that, in performing this Contract, it will employ no person who has any such interest.

8. MODIFICATION AND ASSIGNABILITY OF CONTRACT. This Contract contains the entire agreement between the parties, and no statements, promises, or inducements made by either party, or agents of either party, which are not contained in the written Contract, are valid or binding. This Contract may not be enlarged, modified or altered except upon written agreement signed by both

Professional Service Agreement – Prospera Business Network & AgriFood Solution
parties hereto. The Contractor may not subcontract or assign its rights, including the right to compensation, or duties arising hereunder without the prior written consent of the Contracting Entities. Any subcontractor or assignee will be bound by all of the terms and conditions of this contract.

9. **CONDITIONAL AGREEMENT.** It is expressly understood by the parties hereto that CRDC's performance under this Contract is dependent and conditioned upon the receipt of the funds from the Department and that in the event that said funds are not provided, the CRDC incurs no responsibilities or liabilities under this Contract.

10. **INSURANCE.**

(a) **General Requirements.** The Contractor shall maintain for the duration of the contract, at its cost and expense, insurance against claims for injuries to persons or damages to property, including contractual liability, which may arise from or in connection with the performance of the work by the Contractor, agents, employees, representatives, assigns, or subcontractors. This insurance shall cover such claims as may be caused by any negligent act or omission.

(b) **Primary Insurance.** The Contractor’s insurance coverage shall be primary insurance with respect to the Contracting Entities, the State of Montana, its officers, officials, employees, and volunteers and shall apply separately to each project or location. Any insurance or self-insurance maintained by the Contracting Entities, State of Montana, its officers, officials, employees or volunteers shall be excess of the Contractor’s insurance and shall not contribute with it.

(c) **Specific Requirements for Commercial General Liability Insurance.** The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns, or subcontractors.

The Contracting Entities, and the State of Montana, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds; for liability arising out of activities performed by or on behalf of the Sub-recipient, including the insured’s general supervision of the Contractor; products, and completed operations; premises owned, leased, occupied, or used.

(d) **Specific Requirements for Professional Liability Insurance.** The Contractor shall purchase and maintain occurrence coverage with combined single limits for each wrongful act of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns, or subcontractors. **Note:** if "occurrence" coverage is unavailable or cost prohibitive, the Contractor may provide "claims made" coverage provided the following conditions are met: (1) the commencement date of the contract must not fall outside the effective date of insurance coverage and it will be the retroactive date for insurance coverage in future years; and (2) the claims made policy must have a three-year tail for claims that are made (filed) after the cancellation or expiration date of the policy.

(e) **Specific Requirements for Automobile Liability.** The Contractor shall purchase and maintain coverage with split limits of $500,000 per person (personal injury), $1,000,000 per accident occurrence (personal injury), and $100,000 per accident occurrence (property damage), or combined single limits...
of $1,000,000 per occurrence to cover such claims as may be caused by any act, omission, or negligence of the contractor or its officers, agents, representatives, assigns, or subcontractors.

The Contracting Entities, the State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds for automobiles leased, hired, or borrowed by the Contractor.

(f) **Deductibles and Self-Insured Retentions.** Any deductible or self-insured retention must be declared to and approved by the Contracting Entities. At the request of the Contracting Entities, either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Contracting Entities, the State of Montana, its officers, officials, employees, or volunteers; or (2) at the expense of the Contractor, the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

(g) **Certificate of Insurance/Endorsements.** A certificate of insurance from an insurer with a Best’s rating of no less than A- indicating compliance with the required coverages, are to be received by the Contracting Entities, prior to beginning any activity provided for under the Contract. The Subrecipient must notify the Contracting Entities, immediately, of any material change in insurance coverage, such as changes in limits, coverages, change in status of policy, etc. The Contracting Entities reserve the right to require complete copies of insurance policies at all times.

11. **COMPLIANCE WITH WORKERS’ COMPENSATION ACT.** The Contractor accepts responsibility for requiring all contractors and subcontractors being reimbursed with Program grant funds to supply the Contracting Entities with proof of compliance with the Montana Workers’ Compensation Act while performing work for the State of Montana. (MCA §§ 39-71-120, 39-71-401, and 39-71-405.) Neither the Contractor nor its employees are employees of the Contracting Entities. The proof of insurance/exemption must be in the form of workers’ compensation insurance, an independent contractor exemption, or documentation of corporate officer status, and must be received by the Contracting Entities within 10 working days of the execution of this Contract and must be kept current for the entire term of the Contract.

**CONTRACTS WILL BE TERMINATED PURSUANT TO THE PROVISIONS OF SECTION 12 IF THE CONTRACTOR FAILS TO PROVIDE THE REQUIRED DOCUMENTATION WITHIN THE ALLOTTED TIME FRAME.**

Coverage may be provided through a private carrier or through the State Compensation Insurance Fund (406) 444-6500. An exemption can be requested through the Department of Labor and Industry, Employment Relations Division (406) 444-1446. Corporate officers must provide documentation of their exempt status.

12. **TERMINATION OF CONTRACT.** This Contract may only be terminated in whole or in part as follows:

a) **Termination Due to Loss or Reduction of Funding.** The Contracting Entities, at their sole discretion, may terminate or reduce the scope of this Contract if available funding sources are eliminated or reduced for any reason. If a termination or modification is so required, the Contracting Entities may, if sufficient program funds are available, compensate the Contractor for eligible services rendered and actual, necessary, and eligible expenses incurred as of the revised termination date. The Contracting Entities will notify the Contractor of the effective date of the termination or modification of this
Contract and, if a reduction in funding is required, will provide the Contractor with a modified Project budget.

b) Termination for Cause with Notice to Cure Requirement. The Contracting Entities may terminate this Contract for failure of the Contractor, its contractors, or subcontractors to perform or comply with any of the services, duties, terms or conditions contained in this Contract after giving the Contractor written notice of the stated failure. The written notice will demand performance of the stated failure within a specified period of time of not less than thirty (30) days. If the demanded performance is not completed within the specified period, the termination is effective at the end of the specified period.

c) Effect of Termination. In the event of termination due to the Contractor's, its contractors', or subcontractors' failure to perform or comply with any of the services, duties, terms, or conditions of this Contract, any costs incurred will be the responsibility of the Contractor. However, at its decision, the Contracting Entities may approve requests by the Contractor for reimbursement of expenses incurred. The Contracting Entities' decision to authorize payment of any costs incurred or to recover expended funds will be based on a consideration of the extent to which the expenditure of those funds represented a good faith effort of the Contractor to comply with all of those services, duties, terms, or conditions of this Contract, and on whether the failure to comply with any of those services, duties, terms, or conditions resulted from circumstances beyond the Contractor's control.

13. COMPLIANCE WITH LAWS.

a) The Contractor must, in performance of work under this Contract, fully comply with all applicable federal, state, and tribal laws, rules, policies, and regulations concerning, but not limited to, human rights, civil rights, employment law, and labor law. Any subletting or subcontracting by the Contractor subjects subcontractors to the same provision.

b) The Contractor shall promptly refer to the Contracting Entities any credible evidence that a principal, employee, agent, contractor, sub-grantee, subcontractor, or other person has submitted any false claim or has committed any criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity, or similar misconduct involving funds provided under this Contract.

13. DOCUMENTS INCORPORATED BY REFERENCE. The CRDC's application to the Department for funding, dated May 6th, 2013 and all applicable federal and state statutes and regulations are incorporated into this Contract by this reference and are binding upon the Contractor.

14. EQUAL EMPLOYMENT OPPORTUNITY. Any hiring of employees by the Contractor under this Contract will be on the basis of merit and qualification, and the Contractor will not discriminate against any person on the basis of race, color, religion, creed, sex, national origin, age, disability, marital status, or political belief. As used herein, "qualifications" means qualifications that are generally related to competent performance of the particular occupational task.
15. **OWNERSHIP AND PUBLICATION OF MATERIALS.** All reports, information, data, and other materials prepared by the Contractor pursuant to this Contract are the property of the Contracting Entities and the Department which have the nonexclusive and unrestricted authority to release, publish or otherwise use, in whole or part, information relating thereto. Any reuse without written verification or adaptation by the Contractor for the specific purpose intended will be at the owner’s sole risk and without liability or legal exposure to the Contractor. No material produced in whole or in part under this Contract may be copyrighted or patented in the United States or in any other country without the prior written approval of the Contracting Entities, the Department and the EDA.

16. **REPORTS AND INFORMATION.** The Contractor will maintain accounts and records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to this Contract and such other records as may be deemed necessary by the Contracting Entities to assure proper accounting for all project funds.

17. **ACCESS TO RECORDS.** It is expressly understood that the Contractor’s records relating to this Contract will be available during normal business hours for inspection by the Contracting Entities, the Department, and when required by law, the Montana Legislative Auditor and Legislative Fiscal Analyst as well as the EDA.

18. **PLACE OF PERFORMANCE, CONSTRUCTION, AND VENUE.** The parties understand and agree that performance of this contract is within the Certified Regional Development Corporation region and that in the event of litigation concerning it, venue is in the 18th Judicial District in and for the County of Gallatin, State of Montana.

This Contract will be construed under and governed by the laws of the State of Montana.

19. **INDEMNIFICATION.** The Contractor waives any and all claims and recourse against the Contracting Entities, including the right of contribution for loss and damage to persons or property arising from, growing out of, or in any way connected with or incidental to the Contractor’s performance of this contract except for liability arising out of the sole negligence of the Contracting Entities or their officers, agents or employees. Further, the Contractor will indemnify, hold harmless, and defend the Contracting Entities against any and all claims, demands, damages, costs, expenses or liability arising out of the Contractor’s performance of this Contract except for liability arising out of the sole negligence of the Contracting Entities or their officers, agents or employees.

20. **DEFAULT AND REMEDIES.** In the event of a default by any party to this contract, notice shall be sent to the defaulting party which sets forth the basis of the default and the defaulting party shall have 30 days from the date of mailing of the notice to cure the default. In the event the default is not cured within 30 days, the non-defaulting party(ies) may terminate this contract and shall be entitled to all remedies available under applicable state or federal law. This provision shall not apply to a dispute arising between CRDC and Partner, which shall be submitted to a mediator for resolution prior to the institution of any legal action between them. In the event of a legal action, all remedies under applicable state and federal law shall be available.

21. **LEGAL FEES.** In the event any party incurs legal expenses to enforce the terms and conditions of this Contract, the prevailing party is entitled to recover reasonable attorney’s fees and other costs and expenses, whether the same are incurred with or without suit.
22. **ELIGIBILITY.** The Contractor certifies that the Contractor's firm and the firm's principals are not debarred, suspended, voluntarily excluded, or otherwise ineligible for participation in State of Montana assisted contracts.

IN WITNESS WHEREOF, the parties hereto have executed this Contract on the ___ day of December, 2013

Agrifoods Solutions International, LLC  
By: Rod Bowling, CEO and Senior Technology Partner  
DATE: December 5, 2013

Gallatin Development Corporation, d/b/a Prospera Business Network  
By: Mary R. Lebow, Executive Director  
DATE: 12/16/13

One Montana  
By: Lisa Grace, Executive Director  
DATE: 12/16/13
Appendix H. EDA receipt of signed PSC for MercuryCSC.

Matthew Bitz

From: Duncan, Jodi
Sent: Thursday, January 30, 2014 6:25 AM
To: Matthew Bitz
Subject: RE: MercuryCSC PSC - received

Matt,

Thanks for the e-mail attachment of the signed contract with Mercury CSC. After my review I found that this contract contained all of the elements identified in the EDA approved scope of work which is the main thing I was looking for. I've placed a copy in the file. Please keep this signed contract handy as a copy will be required for the Mid-Point Report to EDA as well as the Draft Final and Final Reports. Thanks, Jodi Duncan

Jodi Duncan | Program Specialist | Economic Development Administration, Denver Regional Office | 410 17th Street, Suite 250 | Denver, CO 80202 | (303) 844-4801 | jduncan@eda.gov | (303) 844-3968 (fax)

From: Matthew Bitz [mailto:mattb@onemontana.org]
Sent: Wednesday, January 29, 2014 1:35 PM
To: Duncan, Jodi
Subject: MercuryCSC PSC

Hi Jodi,

It was great to visit with you last week, hope that nice weather is holding out for you. Attached is the signed PSC for MercuryCSC for you to have on file.

Best,

Matt

Matthew Bitz
Program Manager
One Montana
2066 Stadium Drive, Suite 202
Bozeman MT 59715
406.522.7654
Appendix I. Signed PSC for MercuryCSC.

PROFESSIONAL SERVICES CONTRACT

BSTF Grant# 2-13-37
EDA Grant #05-6-05422

Between:
Prospera Business Network and One Montana and MercuryCSC

This Contract is entered into this 14th day of January, 2014, by and between Prospera Business Network, herein referred to as the “CRDC” and One Montana, herein referred to as “Partner” and jointly referred to here as “Contracting Entities”; and MercuryCSC, 22 South Grand Avenue, Bozeman MT 59715, herein referred to as the “Contractor,”

WHEREAS, the Montana Department of Commerce, herein referred to as "the Department," has awarded the CRDC grant funds under the Big Sky Economic Development Trust Fund (BSTF) for up to a sum not to exceed $12,500 of the cost of providing the services defined in the Scope of Work herein and

WHEREAS, One Montana is responsible for a sum not to exceed $18,348.00 of the cost of providing the services defined in the Scope of Work herein; and

WHEREAS, the Contracting Entities desire to engage the Contractor to render certain services related to the administration of the above described project; and

WHEREAS, the Contracting Entities desire to enter into an agreement with the Contractor as hereinafter provided to assure the effective management of the project;

NOW, THEREFORE, the parties hereto do mutually agree as follows:

1. EMPLOYMENT OF CONTRACTOR. The Contracting Entities agrees to engage the Contractor, and the Contractor agrees to provide the services as outlined in the Scope of Work as described in Section 5.

2. INDEPENDENT CONTRACTOR. It is understood by the parties hereto that the Contractor is an independent contractor and that neither its principals nor its employees, if any, are employees of the Contracting Entities for purposes of tax, retirement system, or social security (FICA) withholding. It is further understood that pursuant to section 39-71-401, MCA, the Contractor has obtained, and will maintain at its expense for the duration of this Contract, coverage in a workers' compensation plan for its principals and employees for the services to be performed hereunder.

3. LIAISON. The CRDC designated liaison with the Contractor is Stuart R. Leidner, Executive Director. The Contractor’s designated liaison with the Contracting Entities is Maclaren Latta, Vice President of Consumer Insights. The Partner's liaison with the Partner is Matthew Bitz, One Montana.

4. EFFECTIVE DATE AND TIME OF PERFORMANCE. This Contract takes effect on January 14th, 2014. The services to be performed by the Contractor will be completed no later than December 31st, 2014.

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5. **SCOPE OF SERVICES.** Specifically, the Contractor will perform the following tasks for the purpose of preparing the **Marketing Analysis**:

A. Research history of branded meat ventures in Montana and the associated marketing challenges they faced.

B. Research potential unique qualities and opportunities of a Montana meat product that could add value.

C. Research the demand for Montana-branded meat products at the state, regional, national, and international level.

D. Research market potential for Montana meat products in Japan and Taiwan and suggest marketing strategies for those products.

E. Determine the competitiveness of Montana-branded meat products in the value-added market.

F. Determine price premiums for Montana-branded meat products.

G. Provide analysis of marketing strategies used by value-added meat ventures on the state, regional, national, and international level in order to determine the best method of marketing Montana-branded products.

H. Conduct sales research to determine best potential distribution channels of Montana-branded meat products.

I. Provide analysis of best potential sales strategies.

J. Incorporate the following elements to be provided separately by Onc Montana into a final written report:
   1. Research the previous feasibility studies completed on this subject within the State of Montana. Document the studies found and present analysis of the studies.
   2. Research any previous feasibility studies completed in other States to review their findings and results. Document the studies found and present analysis of the studies.
   3. Research history of meat processing in Montana and factors that contributed to its decline.
   4. Research the supply of beef, lamb, and bison in Montana.
   5. Provide projections of potential growth in supply assuming a functioning processing plant.

K. Provide written report to Contracting Entities.

It is understood and agreed by the parties that the services of the Contractor do not include any of the following: the disbursement or accounting of funds distributed by the Contracting Entities' financial officer, legal advice, fiscal audits or assistance with activities not related to the project.
6. **COMPENSATION**. For the satisfactory completion of the services to be provided under this Contract, the Contractor will be paid a sum not to exceed $30,548.00 as in the manner approved and set forth as agreed upon. Monthly billings may be submitted to the Contracting Entities. The CRDC will pay the Contractor up to one half of the project costs of the total eligible project costs submitted up to a sum not to exceed $12,500.00, of the eligible expenses, in the manner approved and set forth herein. The Partner will pay the Contractor one half, plus any remaining balance after the first $25,000 in eligible costs submitted for a sum not to exceed $18,348.00. Disbursement of funds will be made by CRDC upon approval and receipt of funds by the Department of all documentation submitted through the CRDC. Disbursement of funds will be made by Partner upon approval by Partner of all documentation submitted through Partner. Each specific service the Contractor will provide under this contract, and the maximum amount that the Contracting Entities will pay the Contractor for each of these services is set forth in the Scope of Work described above. The Contractor may submit monthly requests for payment, based on actual work performed, which must be accompanied by an itemized invoice describing the services furnished, the number of hours worked to accomplish each item, the amount being billed for each item, a description of any other eligible expenses incurred during the billing period, and the total amount being billed.

7. **CONFLICT OF INTEREST**. The Contractor covenants that it presently has no interest and will not acquire any interest, direct or indirect, in the BSTI/Partner project which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that, in performing this Contract, it will employ no person who has any such interest.

8. **MODIFICATION AND ASSIGNABILITY OF CONTRACT**. This Contract contains the entire agreement between the parties, and no statements, promises, or inducements made by either party, or agents of either party, which are not contained in the written Contract, are valid or binding. This Contract may not be enlarged, modified or altered except upon written agreement signed by both parties hereto. The Contractor may not subcontract or assign its rights, including the right to compensation, or duties arising hereunder without the prior written consent of the Contracting Entities. Any subcontractor or assignee will be bound by all of the terms and conditions of this contract.

9. **CONDITIONAL AGREEMENT**. It is expressly understood by the parties hereto that CRDC's performance under this Contract is dependent and conditioned upon the receipt of the funds from the Department and that in the event that said funds are not provided, the CRDC incurs no responsibilities or liabilities under this Contract.

10. **INSURANCE**.

(a) **General Requirements**. The Contractor shall maintain for the duration of the contract, at its cost and expense, insurance against claims for injuries to persons or damages to property, including contractual liability, which may arise from or in connection with the performance of the work by the Contractor, agents, employees, representatives, assigns, or subcontractors. This insurance shall cover such claims as may be caused by any negligent act or omission.

(b) **Primary Insurance**. The Contractor's insurance coverage shall be primary insurance with respect to the Contracting Entities, the State of Montana, its officers, officials, employees, and volunteers and shall apply separately to each project or location. Any insurance or self-insurance maintained by the Contracting Entities, State of Montana, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
(c) Specific Requirements for Commercial General Liability Insurance. The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns, or subcontractors.

The Contracting Entities, and the State of Montana, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds; for liability arising out of activities performed by or on behalf of the Sub-recipient, including the insured’s general supervision of the Contractor; products, and completed operations; premises owned, leased, occupied, or used.

(d) Specific Requirements for Professional Liability Insurance. The Contractor shall purchase and maintain occurrence coverage with combined single limits for each wrongful act of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns, or subcontractors. Note: if “occurrence” coverage is unavailable or cost prohibitive, the Contractor may provide “claims made” coverage provided the following conditions are met: (1) the commencement date of the contract must not fall outside the effective date of insurance coverage and it will be the retroactive date for insurance coverage in future years; and (2) the claims made policy must have a three-year tail for claims that are made (filed) after the cancellation or expiration date of the policy.

(e) Specific Requirements for Automobile Liability. The Contractor shall purchase and maintain coverage with split limits of $500,000 per person (personal injury), $1,000,000 per accident (personal injury), and $100,000 per accident occurrence (property damage), OR combined single limits of $1,000,000 per occurrence to cover such claims as may be caused by any act, omission, or negligence of the contractor or its officers, agents, representatives, assigns, or subcontractors.

The Contracting Entities, the State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds for automobiles leased, hired, or borrowed by the Contractor.

(f) Deductibles and Self-Insured Retentions. Any deductible or self-insured retention must be declared to and approved by the Contracting Entities. At the request of the Contracting Entities, either (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Contracting Entities, the State of Montana, its officers, officials, employees, or volunteers; or (2) at the expense of the Contractor, the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

(g) Certificate of Insurance/Endorsements. A certificate of insurance from an insurer with a Best’s rating of no less than A- indicating compliance with the required coverages, are to be received by the Contracting Entities prior to beginning any activity provided for under the Contract. The Sub-recipient must notify the Contracting Entities, immediately, of any material change in insurance coverage, such as changes in limits, coverages, change in status of policy, etc. The Contracting Entities reserve the right to require complete copies of insurance policies at all times.

11. COMPLIANCE WITH WORKERS’ COMPENSATION ACT. The Contractor accepts responsibility for requiring all contractors and subcontractors being reimbursed with Program grant funds to supply the Contracting Entities with proof of compliance with the Montana Workers’ Compensation Act while performing work for the State of Montana. (MCA §§ 39-71-120, 39-71-401, and 39-71-405.)

Professional Service Agreement – Prospera Business Network & AgriFood Solution
Neither the Contractor nor its employees are employees of the Contracting Entities. The proof of insurance/exemption must be in the form of workers' compensation insurance, an independent contractor exemption, or documentation of corporate officer status, and must be received by the Contracting Entities within 10 working days of the execution of this Contract and must be kept current for the entire term of the Contract.

CONTRACTS WILL BE TERMINATED PURSUANT TO THE PROVISIONS OF SECTION 12 IF THE CONTRACTOR FAILS TO PROVIDE THE REQUIRED DOCUMENTATION WITHIN THE ALLOTTED TIME FRAME.

Coverage may be provided through a private carrier or through the State Compensation Insurance Fund (406) 444-6500. An exemption can be requested through the Department of Labor and Industry, Employment Relations Division (406) 444-1446. Corporate officers must provide documentation of their exempt status.

12. **TERMINATION OF CONTRACT** This Contract may only be terminated in whole or in part as follows:

a) **Termination Due to Loss or Reduction of Funding.** The Contracting Entities, at their sole discretion, may terminate or reduce the scope of this Contract if available funding sources are eliminated or reduced for any reason. If a termination or modification is so required, the Contracting Entities may, if sufficient program funds are available, compensate the Contractor for eligible services rendered and actual, necessary, and eligible expenses incurred as of the revised termination date. The Contracting Entities will notify the Contractor of the effective date of the termination or modification of this Contract and, if a reduction in funding is required, will provide the Contractor with a modified Project budget.

b) **Termination for Cause with Notice to Cure Requirement.** The Contracting Entities may terminate this Contract for failure of the Contractor, its contractors, or subcontractors to perform or comply with any of the services, duties, terms or conditions contained in this Contract after giving the Contractor written notice of the stated failure. The written notice will demand performance of the stated failure within a specified period of time of not less than thirty (30) days. If the demanded performance is not completed within the specified period, the termination is effective at the end of the specified period.

c) **Effect of Termination.** In the event of termination due to the Contractor's, its contractors', or subcontractors' failure to perform or comply with any of the services, duties, terms, or conditions of this Contract, any costs incurred will be the responsibility of the Contractor. However, at its joint discretion, the Contracting Entities may approve requests by the Contractor for reimbursement of expenses incurred. The Contracting Entities' decision to authorize payment of any costs incurred on or to recover expended Program funds will be based on a consideration of the extent to which the expenditure of those funds represented a good faith effort of the Contractor to comply with the any of those services, duties, terms, or conditions of this Contract, and on whether the failure to comply with any of those services, duties, terms, or conditions resulted from circumstances beyond the Contractor's control.

*Professional Service Agreement – Prospera Business Network & AgriFood Solution*
13. **COMPLIANCE WITH LAWS**
   
a) The Contractor must, in performance of work under this Contract, fully comply with all applicable federal, state, and tribal laws, rules, policies, and regulations, concerning, but not limited to, human rights, civil rights, employment law, and labor law. Any subletting or subcontracting by the Contractor subjects subcontractors to the same provision.
   
b) The Contractor shall promptly refer to the Contracting Entities any credible evidence that a principal, employee, agent, contractor, sub-grantee, subcontractor, or other person has submitted any false claim or has committed any criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity, or similar misconduct involving funds provided under this Contract.
   
13. **DOCUMENTS INCORPORATED BY REFERENCE** The CRDC's application to the Department for funding, dated May 6th, 2013 and all applicable federal and state statutes and regulations are incorporated into this Contract by this reference and are binding upon the Contractor.

14. **EQUAL EMPLOYMENT OPPORTUNITY** Any hiring of employees by the Contractor under this Contract will be on the basis of merit and qualifications, and the Contractor will not discriminate against any person on the basis of race, color, religion, creed, sex, national origin, age, disability, marital status, or political belief. As used herein, "qualifications" means qualifications that are generally related to competent performance of the particular occupational task.

15. **OWNERSHIP AND PUBLICATION OF MATERIALS** All reports, information, data, and other materials prepared by the Contractor pursuant to this Contract are the property of the Contracting Entities and the Department which have the nonexclusive and unrestricted authority to release, publish, or otherwise use, in whole or part, information relating thereto. Any reuse without written verification or adaptation by the Contractor for the specific purpose intended will be at the owner's sole risk and without liability or legal exposure to the Contractor. No material produced in whole or in part under this Contract may be copyrighted or patented in the United States or in any other country without the prior written approval of the Contracting Entities, the Department and the EDA.

16. **REPORTS AND INFORMATION** The Contractor will maintain accounts and records, including personnel, property, and financial records, adequate to identify and account for all costs pertaining to this Contract and such other records as may be deemed necessary by the Contracting Entities to assure proper accounting for all project funds.

17. **ACCESS TO RECORDS** It is expressly understood that the Contractor's records relating to this Contract will be available during normal business hours for inspection by the Contracting Entities, the Department, and when required by law, the Montana Legislative Auditor and Legislative Fiscal Analyst as well as the EDA.

18. **PLACE OF PERFORMANCE, CONSTRUCTION, AND VENUE** The parties understand and agree that performance of this contract is within the Certified Regional Development Corporation region and that in the event of litigation concerning it, venue is in the 18th Judicial District in and for the County of Gallatin, State of Montana.

This Contract will be construed under and governed by the laws of the State of Montana.

**Professional Service Agreement – Prospera Business Network & AgriFood Solution**
19. **INDEMNIFICATION.** The Contractor waives any and all claims and recourse against the Contracting Entities, including the right of contribution for loss and damage to persons or property arising from, growing out of, or in any way connected with or incidental to the Contractor’s performance of this contract except for liability arising out of the sole negligence of the Contracting Entities or their officers, agents or employees. Further, the Contractor will indemnify, hold harmless, and defend the Contracting Entities against any and all claims, demands, damages, costs, expenses or liability arising out of the Contractor’s performance of this Contract except for liability arising out of the sole negligence of the Contracting Entities or their officers, agents or employees.

20. **DEFAULT AND REMEDIES.** In the event of a default by any party to this contract, notice shall be sent to the defaulting party which sets forth the basis of the default and the defaulting party shall have 30 days from the date of mailing of the notice to cure the default. In the event the default is not cured within 30 days, the non-defaulting parties may terminate this contract and shall be entitled to all remedies available under applicable state or federal law. This provision shall not apply if a dispute arising between CRDC and Partner, which shall be submitted to a mediator for resolution prior to the institution of any legal action between them. In the event of a legal action, all remedies under applicable state and federal law shall be available.

21. **LEGAL FEES.** In the event any party incurs legal expenses to enforce the terms and conditions of this Contract, the prevailing party is entitled to recover reasonable attorney’s fees and other costs and expenses, whether the same are incurred with or without suit.

22. **ELIGIBILITY.** The Contractor certifies that the Contractor’s firm and the firm’s principals are not debarred, suspended, voluntarily excluded, or otherwise ineligible for participation in State of Montana assisted contracts.

IN WITNESS WHEREOF, the parties hereto have executed this Contract on the ___/__/__ day of __________, 2014.

MercuryCSC

By: Maclaren Latta, Vice President of Consumer Insights

DATE: 01/15/14

Gallatin Development Corporation, d/b/a
Prospera Business Services

By: Steve L. Daine, Executive Director

DATE: 1/14/14

One Montana

By: Lisa Grace, Executive Director

DATE: 1/15/14

Professional Service Agreement - Prospera Business Network & AgriFood Solution
Appendix J: Expert Interviews

ONE MONTANA
EXPERT INTERVIEWS
02.06.14

Research Topic #1: Research history of branded meat ventures in Montana and the associated marketing challenges they faced.

TOPIC #1 BURNING QUESTIONS
• What has and has not worked in the past for Montana-branded meats?
• What is currently working?
• What can be learned and considered for future Montana-branded meats?

METHODOLOGY: Secondary Research, Expert Interviews

PURPOSE OF THESE INTERVIEWS

The purpose of these expert interviews is to better understand the value that the Montana brand brings to meats, as well as lessons learned, through the eyes of producers who have or are currently leveraging the Montana name.

PARTICIPANTS

MercuryCSC will contact several branded meat ventures in Montana that have used the Montana name in its brand. Contacts are:

1. Montana Branded Beef Association, Steve Christiansen @ (406) 360-3310
2. Montana Natural Beef, Will Tusick and his wife Jan @ (406) 676-6501
3. Montana Legend aka Great Northern Cattle Co., Derek Kampfe
4. Big Sky Montana Beef, Ty Malek @ (406) 733-6200
5. Montana Waygu Cattle Co., Rick Woiniski, @ (406) 451-5513
6. Harding Land & Cattle – http://montanabeef.com/, @ (406) 635-5788
7. Montana Natural Lamb Co-Op, Crazy Mountain Cattle Co, Rick Jarrett or Halverson Ranch, Kevin Halverson

Wally Congdon @ (406) 925-1351 will also be asked for his perspective during the producer interviews.

DISCUSSION GUIDE

Introductions
I’m contacting you on behalf of One Montana, a Bozeman-based nonprofit, that is conducting a feasibility study about meat processing in Montana. As part of this
project. I’m evaluating whether or not the Montana name will capture more value for a Montana-branded meat product.

The reasons I wanted to speak to you were because of your background and experiences, and I want to hear your thoughts and opinions. I expect this interview to last about 15-30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

I’ve spent some time researching online about your business, but tell me about you and your work, where are you located, etc.

Your Business
Which species do you raise?

What types of production protocol did/do you follow?

Did/do you sell direct to wholesalers and/or consumers?

Where did/do you have your meat processed?

Were/are you happy with this arrangement?

The Industry
I’d love to get your overall perspective on the ranching and meat industry. What changes are you seeing? What seems to be staying the same?

Montana Brand
Now tell me about your experience with using the Montana brand in promoting your products.

What was/has been positive?
What was/has been negative?

Were there any marketing challenges you faced?

What was/has been the reactions from buyers/wholesalers? Did they see value in the Montana brand?

What was/has been the reactions from consumers? Did they see value in the Montana brand?

PAGE 2
Did you have any issues with supply and/or meeting demand?

What would you do/have done differently?

From your perspective, what are the greatest challenges facing a Montana branded meat product? What do you think needs to be done to address those challenges?

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts to share? If something comes up, please call me or send me an email at your convenience.

Thanks again.

This project is funded in part with support from the Montana Department of Commerce Big Sky Economic Development Trust Fund.
Appendix K: Producer Survey

ONE MONTANA
PRODUCER INTERVIEWS
02.06.14

Research Topic #2: Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO PRODUCERS)
- What are we selling?
- Can producers deliver a consist supply of slaughter-ready animals?

METHODOLOGY: Producers Interviews

PURPOSE OF THESE INTERVIEWS

The purpose of these producer interviews is to:
- Better understand the potential unique qualities and opportunities for a Montana meat product that could add value for consumers.

PARTICIPANTS

Based on discussions with Mercury CSC, One Montana and Cole Mannix, Kathryn Quanbeck will contact the following producers (note there is some overlap here with Research Topic 1 participants):
- Yellowstone: Contact Terry Holliingsworth
- La Ceusa: Contact Race King
- Big Sky Natural: Contact Wally Congdon @ 406-925-1351
- B-Bar: Contact Wes Henthorne (406) 932-4197
- MT Meat Co.: Garl Germann @ 406-580-1812
- Lifeline Farms: Contact Steve Elliot @ 406-642-9717
- Montana Branded Beef Association, Steve Christianson @ (406) 360-3310
- Montana Natural Beef, Will Tusick and his wife Jan @ (406) 676-5901
- Montana Legend aka Great Northern Cattle Co., Derek Kampfe
- Big Sky Montana Beef, Ty Malek @ (406) 733-6200
- Montana Waygu Cattle Co., Rick Woienski, @ (406) 451-5513
- Harding Land & Cattle – http://montanabeef.com, @ (406) 635-5788
- Montana Natural Lamb, Crazy Mountain Cattle Co, Rick Jarrett or Halverson Ranch, Kevin Halverson

Oversight Committee Members
- Francis Blake—Rancher, Keewaydin Ranch; Co-Owner, Blake Nursery, Big Timber, MT
• **Glenn Duff**—Interim Dean, College of Agriculture, Montana State University, Bozeman, MT
• **Rich Harjes**—Rancher, Willow Springs Ranch, Belgrade, MT
• **Cole Mannix**—Director of Operations, Salt of the Earth Ranchers Cooperative, Helena, MT
• **Jim Peterson**—Former Montana State Senator; Rancher, Buffalo, MT
• **Errol Rice**—Executive Vice President, Montana Stockgrowers Association, Helena, MT
• **Bryan Ulring**—Ranch Manager, J Bar L Ranch, Lima, MT; Founding Partner, Yellowstone Grassfed Beef, Bozeman, MT
• **Becky Weed**—Rancher, Thirteen Mile Lamb and Wool Company, Belgrade, MT

In addition, I will ask Errol Rice to distribute the survey to Montana Stockgrowers Association members.
DISCUSSION GUIDE

Introductions
Thank you for agreeing to talk with me. I’m conducting a survey on behalf of the One Montana Meat Processing Feasibility Study and would like you a few questions about your ranch and your interest in possibly selling live animals to a new Montana brand.

The primary purpose of this survey is to determine the most likely product attributes for a Montana brand. To do so, we need to know what Montana ranchers are currently producing, where they are producing it, and when those animals will be ready. We believe that the consumer demand for meat products raised and processed outside the Midwest-based, commodity-driven market is increasing. Producers and brands who can access this market capture added value from their animals, value that allows them to recoup higher production costs. Today, we’re trying to get a sense of who might raise animals for a new, Montana brand and what the attributes of that brand would be.

The secondary purpose of this survey is to gather information on existing ranch brands that might become fee-for-service processing clients for a new facility. We need to know when they need services, what kinds of services and how many head they are likely to bring to a new facility.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

*****

Ranch Name:
Contact Person:
Phone:
Email:

1. Where is your ranch located?

2. Which species do you raise? How many head (by species)?

3. Do you have your own ranch brand? If yes, what is your brand? Why did you make the decision to have your own brand?
4. Do you sell live animals to an existing brand? If yes, which brand? Have you ever sold animals to a Montana-based brand in the past? What was your experience like with that program? Any insights on why it was or wasn’t successful?

5. When do you calve? Any interest in adjusting your calving date to accommodate processing seasonality?

6. Are you interested in potentially selling live animals to a Montana brand? Why would you be interested?

7. If yes, which of the following production protocol would work best for your ranch management practices?

\{For Cattle Producers\}
- natural beef: no hormones, no antibiotics
- grassfed, grass-finished beef (no grain, no supplements)
- organic, grain-finished beef
- organic, grassfed, grass-finished beef
- would you be more interested in selling feeder calves, fed cattle (steers and heifers) or cull cows and bulls?

\{For Lamb Producers\}
- grassfed lamb
- grain finished lamb
- organic lamb

\{For Bison Producers\}
- grassfed bison
- grain finished bison
- organic bison

8. How many head (by species) do you think you could allocate to a new Montana brand? Which month(s) would those animals be ready for sale?

9. Branded beef programs typically offer producers a more stable market. There is a tradeoff for this stability: often the highs aren’t as high but the lows aren’t as lows as the commodity market.

Please indicate a range of premiums that would be necessary for you to contract with this entity:
   a. 0 – 5%
   b. 5 – 10%
   c. 10 – 15%
   d. more than 15%
10. What would it take for you to supply a new Montana brand with cattle in the low production months of January, February, and March?

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you'd like to share? If something comes up, please call me or send me an email at your convenience.

Thanks again.

This project is funded in part with support from the Montana Department of Commerce Big Sky Economic Development Trust Fund.
Appendix L: Buyer Survey

ONE MONTANA
BUYER INTERVIEWS
02.06.14

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO BUYERS)
- Who is going to purchase our products in the local/regional, domestic and international markets?
- Will a Montana-branded niche product equate to a higher value?
- Does it need to be processed in Montana?

METHODOLOGY: Buyer Interviews

PURPOSE OF THESE INTERVIEWS

The purpose of these buyer interviews is to:
- Better understand the demand for Montana-branded meat products at the state, regional and national level.
- Better understand the competitiveness of Montana-branded meat products in the value-added market.

PARTICIPANTS

Based on the results of the producer and customer survey, as well as input from One Montana on target markets, Kathryn Quanbeck will contact the following buyers:

- Retailers: tbd
- Butcher Shops: tbd
- Distributors: tbd
- Hotels: tbd
- Restaurants: tbd
- Institutional Food Service: tbd
DISCUSSION GUIDE

Introductions
Thank you for agreeing to talk with me. I’m conducting a survey on behalf of the One Montana Meat Processing Feasibility Study and would like you to ask you a few questions about your niche meat buying habits and preferences.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

*****

Business Name:
Location:
Contact Person/Position:
Phone:
Email:

1. Type of company
   a. distributor
   b. retail grocer
   c. butcher shop
   d. hotel
   e. restaurant
   f. institutional food service

2. Ownership status
   a. chain/franchise
   b. corporate
   c. independent
   d. other: ____________________

Niche meat purchasing/sales
Niche meats are non-commodity meats with one or more of these attributes: grass-fed/finished, certified organic, no hormones/no antibiotics, free-range, certified humane, Halal, kosher, local.

I’m asking about fresh and frozen meats, plus “value added” products like sausage or jerky. For the purposes of this survey we are only focused on beef, lamb and bison.

1. Which of the following do you currently sell or serve? Circle all that apply:
beef  bison  lamb

2. Which niche meats do you currently sell or serve? Circle all that apply:
   a. Grass-fed
   b. Certified Organic
   c. Naturally raised (no hormones/no antibiotics)
   d. Certified Humane
   e. Locally-grown
   f. Kosher
   g. Halal
   h. Other: ________________

3. What are the approximate volumes of the niche meats you market? (lbs. per week/month)

4. Do you expect the volume of niche meats you sell or serve to increase during the next year? During the next three years?

5. If so, which types of niche meats and approximately how much of an increase?

6. What other niche meats would you like to sell if you could find a supplier?

7. Niche meats often cost more than commodity meats. On average, what kind of premium do you typically pay for the niche meats you purchase?

8. RETAILERS ONLY: How do you sell meat?
   a. Fresh – meat case (full-service)
   b. Fresh – pre-packaged (self-service)
   c. Frozen

9. Do you purchase/sell frozen meats? Why or why not?

10. Do you purchase any meats by the whole or half carcass? Why or why not?

11. Do you sell any meats that are only available seasonally? If not, why not?

12. Which cuts are most popular with your customers?
13. Which cuts are least popular?

14. Rate these product qualities on a scale of 1 to 5, with 1 = not important, 5 = very important:
   a. Taste  1 2 3 4 5  
   b. Consistent size and shape of cuts  1 2 3 4 5  
   c. Health benefits  1 2 3 4 5  
   d. Price  1 2 3 4 5  
   e. Year-round supply (not seasonal)  1 2 3 4 5  

15. Rate these production-oriented qualities, 1 to 5, with 1 = not important; 5 = very important:
   a. No added hormones or antibiotics  1 2 3 4 5  
   b. Certified organic  1 2 3 4 5  
   c. Grass-fed  1 2 3 4 5  
   d. Environmental stewardship  1 2 3 4 5  
   e. Humane treatment  1 2 3 4 5  
   f. Family-farmed  1 2 3 4 5  
   g. Locally-grown  1 2 3 4 5  
   h. Personal connection with producer  1 2 3 4 5  

16. How do you define “local” for meats?

17. If you purchase/sell locally-grown meats:
   a. How long have you done so?

   b. Where do you purchase them? (e.g. direct from the producer, farmers market, distributor)

   c. What challenges are most difficult in purchasing locally grown meats?

18. Do you have any thoughts or opinions on meat products from Montana? What are your associations when I say “Montana”?

19. Do your customers ever ask for specific niche meats? If so, which species and qualities?

20. FOR RETAILERS: How would you describe your customers who buy niche meats? Do they have similar characteristics?
21. How many meat suppliers do you use? Who are they?

22. How do you identify your suppliers to your customers?
   a. labels
   b. brochures and other in-store information
   c. meet the producer days
   d. don’t identify them

23. How often do you place meat orders and receive deliveries?

24. What are your biggest challenges in purchasing niche meats?

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

Thanks again.

This project is funded in part with support from the Montana Department of Commerce Big Sky Economic Development Trust Fund.
ONE MONTANA
CONSUMER INTERVIEWS
02.06.14

Research Topic #2: Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

Research Topic #5: Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO CONSUMERS)
- Who is going to purchase our products in the local/regional, domestic and international markets?
- Will a Montana-branded niche product equate to a higher value?
- Does it need to be processed in Montana?

METHODOLOGY: Consumer Interviews

PURPOSE OF THESE INTERVIEWS

The purpose of these consumer interviews is to:
- Better understand the potential unique qualities and opportunities for a Montana meat product that could add value for consumers.
- Better understand the demand for Montana-branded meat products at the state, regional and national level.
- Better understand the competitiveness of Montana-branded meat products in the value-added market.

PARTICIPANTS

Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:
- Live in the eastern part of the United States
- Well-educated
- Affluent but may not be necessarily rich
- Health conscious
- Environmentally conscious
- Socially minded
- Want a greater sense of connectedness
DISCUSSION GUIDE

Introductions
Thank you for agreeing to talk with me. I am curious about what you have to say about the types of food you purchase and how you make decisions around what you buy – specifically as it relates to meat.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

What do you look for when purchasing foods and why?

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

What do you look for when purchasing meat? {Probe, if needed.}

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. {Probe, if needed.}

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
- Priced competitively
- Federally approved (USDA)
- Source verified/traceable/transparent
Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

What would you expect from a Montana meat product? Would you expect that product to be processed in Montana?

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you'd like to share? If something comes up, please call me or send me an email at your convenience.

Thanks again.

This project is funded in part with support from the Montana Department of Commerce Big Sky Economic Development Trust Fund.
Appendix N: Trade Expert Survey

ONE MONTANA
TRADE EXPERT INTERVIEWS
02.06.14

Research Topic #5: Research market potential for Montana meat products in Japan and Taiwan and suggest marketing strategies for those products.

TOPIC #4 BURNING QUESTIONS
• Is there market potential in Japan and Taiwan?
• If so, what are the constraints?
• If so, what are the opportunities?

METHODOLOGY: Trade Expert Interviews

PURPOSE OF THESE INTERVIEWS
The purpose of these trade expert interviews is to better understand the market potential in Japan and Taiwan. MercuryCSC will work with One Montana’s existing relationships and conduct interviews with those who have existing knowledge and understanding of the Japanese and Taiwanese markets – including trade experts and their contacts.

PARTICIPANTS
TBD

MercuryCSC will work with One Montana to reach out to 4-6 trade experts and their contacts.

Participants will be contacted via email.

EMAIL OUTREACH
I’m contacting you on behalf of One Montana, a nonprofit organization located in the United States, to better understand the potential demand for Montana meat products in Japan/Taiwan.

Base on your background and experiences, I want to hear your thoughts and opinions.

Below are several questions for your consideration. Please review and provide me with your perspectives. Thank you for your time and consideration.

1. Currently, is there an established Montana brand awareness? If so, what?
2. Is there “romance” attached to products from Montana? If so, from what does this quality derive?

3. Is there an existing demand for Montana meat (beef, lamb, bison)?

4. What qualities of Montana meat (beef, lamb, bison) are most desirable?

5. In what market segments would Montana meat be used?

6. What cuts of meat from Montana would be most desirable?

7. What value is placed on traceability of products from Montana, beyond meeting the general trade requirements for the shipment of U.S. beef? Would a Montana product that is traceable to the producer have a premium?

8. Would there be more value to a Montana meat product that was processed in Montana than a Montana meat product that was processed elsewhere in the U.S.?

9. What quantities of meat are desired?

10. Is there a preference for unfrozen or frozen products? Would unfrozen products capture a premium?

11. Please describe the ideal meat product sourced from Montana.

12. Is there any other information that you think would be helpful for us to know?

Thank you for your time. We appreciate getting your opinions and thoughts.

This project is funded in part with support from the Montana Department of Commerce Big Sky Economic Development Trust Fund.
Appendix O: Economic Analysis Tool for Producers

Producer Economic Analysis Instructions

Overview

Livestock producers who are considering direct marketing their meat products to consumers must evaluate the economics of this marketing option carefully. By definition, a value-added product must actually add value – that is, direct marketing meat must have an economic advantage over conventional live animal marketing opportunities. This Excel spreadsheet is designed to help livestock producers evaluate value-added economics.

To properly analyze whether direct marketing is a viable opportunity, this economic analysis requires a producer’s “meat business” to purchase finished animals from his/her “livestock business.” This analysis does not account for the cost of producing a live animal; rather, the analysis assumes that the livestock business is profitable in selling a live animal at current market price.

To complete this analysis, add your numbers to the yellow cells. The white cells in the spreadsheet are calculated automatically. Please note that the numbers currently in the yellow cells are realistic examples. Your actual numbers may vary from these examples.

Several issues for producers to note:

1. Direct expenses are those costs that vary directly with the number of animals marketed. Overhead expenses are costs that are incurred regardless of the number of animals marketed. Obviously, overhead costs like marketing and storage will vary somewhat by volume, but they are still included as overheads.

2. Dressing percentages (that is, the ratio of the hot carcass weight to liveweight) for the four species analyzed are in the following ranges:
   a. Lamb: 48-50%
   b. Beef: 56-60%
   c. Pork: 65-70%
   d. Goat: 45-48%

   Actual dressing percentages may vary slightly from these guidelines.

3. Retail yield will vary depending on the products fabricated (that is, whether products are bone-in or boned, ground, etc.). Generally, retail yields will be 30-33%.

4. Transportation costs (for live animals and processed meat) are a significant factor in determining profitability. In general, it is not profitable for producers to process one or two animals at a time. Transportation expenses are calculated at the current IRS mileage reimbursement rate, which includes fuel and wear-and-tear on your vehicle. An alternative way to analyze this cost is to plug in a commercial haul rate for contract livestock hauling.

5. Marketing expenses should include fees (such as farmers’ market membership fees, stall fees, advertising, etc.).

6. Labor includes charges for the time required transporting animals (which is calculated based on an average speed of 50 miles per hour to include loading and unloading time). Labor also includes marketing time. Producers should estimate the hours required to market and sell all products from a single animal. Obviously there are trade-offs relative to marketing labor – it may take less time to sell a whole animal to a restaurant than through a farmers’ market, but the wholesale price will be less than the retail price.
## Value-Added Meat Economic Analysis (Developed by UC Cooperative Extension)

### LAMB

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Animal Finish Weight</td>
<td>$100</td>
</tr>
<tr>
<td>Live Animal Price (per lb)</td>
<td>$5.27</td>
</tr>
<tr>
<td>Dressing Percentage</td>
<td>52%</td>
</tr>
<tr>
<td>Retail Product Yield (% of live wt)</td>
<td>11%</td>
</tr>
<tr>
<td>Average Retail Price (per lb)</td>
<td>$3.70</td>
</tr>
<tr>
<td>Roundtrip Mileage to Processor</td>
<td>1.90</td>
</tr>
<tr>
<td>Mileage Rate (Cent)</td>
<td>$0.47</td>
</tr>
<tr>
<td>Number of Animals</td>
<td>10</td>
</tr>
<tr>
<td>Live Animal Value</td>
<td>$300.00</td>
</tr>
<tr>
<td>Retail Value</td>
<td>$350.00</td>
</tr>
<tr>
<td>Hot Carcass Weight</td>
<td>250#</td>
</tr>
<tr>
<td>Retail Product Weight</td>
<td>31.9</td>
</tr>
<tr>
<td>Hourly Labor Rate</td>
<td>$10.00</td>
</tr>
<tr>
<td>Marketing Hour/Head</td>
<td>2.6</td>
</tr>
<tr>
<td>Transportation Hours</td>
<td>5.3</td>
</tr>
<tr>
<td>Slaughter Charge (per head)</td>
<td>$75.00</td>
</tr>
<tr>
<td>Processing Charge (per head)</td>
<td>$60.00</td>
</tr>
<tr>
<td>OR - Processing Charge (per lb H.W)</td>
<td>-</td>
</tr>
<tr>
<td>Loads</td>
<td>3</td>
</tr>
</tbody>
</table>

### BEEF

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Animal Finish Weight</td>
<td>$125.00</td>
</tr>
<tr>
<td>Live Animal Price (per lb)</td>
<td>$5.27</td>
</tr>
<tr>
<td>Dressing Percentage</td>
<td>52%</td>
</tr>
<tr>
<td>Retail Product Yield (% of live wt)</td>
<td>12%</td>
</tr>
<tr>
<td>Average Retail Price (per lb)</td>
<td>$3.70</td>
</tr>
<tr>
<td>Roundtrip Mileage to Processor</td>
<td>2.00</td>
</tr>
<tr>
<td>Mileage Rate (Cent)</td>
<td>$0.47</td>
</tr>
<tr>
<td>Number of Animals</td>
<td>13</td>
</tr>
<tr>
<td>Live Animal Value</td>
<td>$350.00</td>
</tr>
<tr>
<td>Retail Value</td>
<td>$450.00</td>
</tr>
<tr>
<td>Hot Carcass Weight</td>
<td>440#</td>
</tr>
<tr>
<td>Retail Product Weight</td>
<td>34.0</td>
</tr>
<tr>
<td>Retail Product Weight</td>
<td>345.0</td>
</tr>
<tr>
<td>Hourly Labor Rate</td>
<td>$10.00</td>
</tr>
<tr>
<td>Marketing Hour/Head</td>
<td>2.9</td>
</tr>
<tr>
<td>Transportation Hours</td>
<td>7.9</td>
</tr>
<tr>
<td>Slaughter Charge (per head)</td>
<td>$80.00</td>
</tr>
<tr>
<td>Processing Charge (per head)</td>
<td>$60.00</td>
</tr>
<tr>
<td>OR - Processing Charge (per lb H.W)</td>
<td>-</td>
</tr>
<tr>
<td>Loads</td>
<td>3</td>
</tr>
</tbody>
</table>

### BISON

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Animal Finish Weight</td>
<td>$175.00</td>
</tr>
<tr>
<td>Live Animal Price (per lb)</td>
<td>$5.27</td>
</tr>
<tr>
<td>Dressing Percentage</td>
<td>52%</td>
</tr>
<tr>
<td>Retail Product Yield (% of live wt)</td>
<td>12%</td>
</tr>
<tr>
<td>Average Retail Price (per lb)</td>
<td>$3.70</td>
</tr>
<tr>
<td>Roundtrip Mileage to Processor</td>
<td>2.00</td>
</tr>
<tr>
<td>Mileage Rate (Cent)</td>
<td>$0.47</td>
</tr>
<tr>
<td>Number of Animals</td>
<td>23</td>
</tr>
<tr>
<td>Live Animal Value</td>
<td>$400.00</td>
</tr>
<tr>
<td>Retail Value</td>
<td>$500.00</td>
</tr>
<tr>
<td>Hot Carcass Weight</td>
<td>440#</td>
</tr>
<tr>
<td>Retail Product Weight</td>
<td>340.0</td>
</tr>
<tr>
<td>Hourly Labor Rate</td>
<td>$10.00</td>
</tr>
<tr>
<td>Marketing Hour/Head</td>
<td>3.9</td>
</tr>
<tr>
<td>Transportation Hours</td>
<td>8.9</td>
</tr>
<tr>
<td>Slaughter Charge (per head)</td>
<td>$80.00</td>
</tr>
<tr>
<td>Processing Charge (per head)</td>
<td>$60.00</td>
</tr>
<tr>
<td>OR - Processing Charge (per lb H.W)</td>
<td>-</td>
</tr>
<tr>
<td>Loads</td>
<td>3</td>
</tr>
</tbody>
</table>

### Instructions:

Put actual numbers in yellow cells. Clear cells will calculate automatically.
## APPENDIX P: Beef Cutting Test Template

### BEFORE YOU START, SEE INSTRUCTIONS BELOW THE TABLE.

**BEEF CUTTING TEST WORKSHEET**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LBS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenderloin 195A</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Top Sirloin Butt 184</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Tri-Tip Defatted 185D</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Ball Tip</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>New York Strip 180</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Hanging Tender</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Ribeye 112 A</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Short Ribs 123 B</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Texas Rib</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Eye of Round 171C</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Flank 171 B</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Inside Round 169</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Peeled Knuckle 167A</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Chuck Rolls Brita 116A</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Chuck Tender 116B</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Chuck Shoulderend 114</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Flank</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Brisket</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Outside Skirt</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Inside Skirt</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>90% trim</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>80% trim</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL SALEABLE LB</strong></td>
<td><strong>0.0% MEAT YIELD</strong></td>
<td></td>
</tr>
</tbody>
</table>

**FILL IN / CHANGE YELLOW CELLS**

1. List the items you have cut from your animal in column D
2. Enter the pounds per item from your experience
3. Enter the hot and/or cold carcass weight from a special request to your processor

---

**NOTES:**

- anything that returns value to you
- may be boneless or bone-in
- could be a short list, for example combining several parts for use as trim for ground beef
- live weight is not used in this calculation - but may be useful to you, if available
# Appendix Q: Index of Mail/Online Beef Providers

## Index of Mail/Online Beef Providers

*As of 12/17/13*

<table>
<thead>
<tr>
<th>Company</th>
<th>Category/Emphasis</th>
<th>Sample Prices</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omaha Steaks</td>
<td>High quality grain fed. No mention of organic, grass fed or antibiotic or hormone free.</td>
<td>Ribeye - $1.875/oz, Burger - $ .375/oz, Private Reserve Ribeye - $2.500/oz, Burger - $ .520/oz</td>
<td>Has 3 manufacturing plants, a distribution center and a freezer warehouse, corporate offices and telemarketing facility. Employees 1,800 people. Also sells wine and seafood, pork and poultry (raw and prepared), soups, appetizers, desserts and pet treats.</td>
</tr>
<tr>
<td>Crystal River Meats</td>
<td>Local operation; breeding, process and packaging w/i 200 mile radius. Grass-fed, no grains, antibiotic and hormone-free.</td>
<td>Ribeye - $1.563/oz, Burger - $ .484/oz</td>
<td>Purchases cattle from local producers through strict verification process. Cattle are raised on open pasture. Milk to grass; no grains. Also sells pork and lamb. Website emphasizes “good for you, good for the environment, good for our local economy”.</td>
</tr>
<tr>
<td>Niman Ranch</td>
<td>100% Angus, hormone and antibiotic free, all vegetarian diet</td>
<td>Ribeye - $2.000/oz, Burger - $ .819/oz, <strong>1.80 to $2.60 based on size of steak</strong></td>
<td>A network of 700 farms and ranches throughout the U.S. Also sells pork and lamb, poultry and eggs. Website emphasizes environmental stewardship, humane animal handling, family farm history and includes testimonials from professional chefs and recipes.</td>
</tr>
<tr>
<td>La Cense Beef</td>
<td>Black Angus, free roaming, rotational grazing, grass-fed, no grains. Verified through Verified Beef for source, age, non-hormones, non-antibiotic, no animal byproducts or growth promotants.</td>
<td>Ribeye - $2.292/oz, Burger - $ .625/oz, <strong>Slightly less for smaller steaks</strong></td>
<td>Website emphasizes sustainable ranching and humane animal handling. Has information on the health benefits of grass fed beef, testimonials from customers and recipes and cooking videos. Also sells “best and serve” fully cooked meats and a “Beef of the Month” club. (Has a burger truck in NYC.)</td>
</tr>
<tr>
<td>DeBragga</td>
<td>In addition to Wagyu, also sells grass fed beef (called “naturally raised meat”) - free of</td>
<td>Ribeye - $1.77/oz, Burger - $ .91/oz, <strong>for grass fed</strong></td>
<td>Also sells port, lamb, poultry, veal, venison, bacon, sausage and ham, as well as seasonings (black truffle butter, sea salt, foie gras, veal stock and marrow bones - 12 for $35) and branded apparel (apron, hat, shirt). Article on difference between dry aged and wet aged beef and on aging “naturally raised” beef. Another article on grass</td>
</tr>
</tbody>
</table>
## Index of Mail/Online Beef Providers

**As of 12/17/13**

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
<th>Description and Details</th>
<th>Prices</th>
</tr>
</thead>
</table>
| Allen Brothers           | Chicago, IL       | All beef is dry aged and USDA prime. Steaks are very large (18 oz+). No mention of grain v. grass fed or whether hormones or antibiotics are given.                                                                                                                   | Ribeye - $2.625/oz* **  
                          | www.allenbrothers.com  | **$2.08 for dry aged; larger steaks slightly higher  
                          | Burger - $6.25/oz*  
                          | *for wet aged  
                          | **$2.77/oz for dry aged steaks  
                          | Primarily a supplier to restaurants. Also sell port, lamb, veal, game ( elk, venison, bison), poultry, seafood, prepared (osso buco, vegetable side dishes, soups, chili, meat pies, appetizers) as well as  
                          | desserts (cheeses, cakes, pies, cheesecake). Many meat items packaged as assortments.                                                                                           |                          |
| Heritage Foods USA       | Brooklyn, NY      | Sells only “heritage breed” meat (Wagyu, Piedmontese, Dexter) from network of 50 small American farms. Provides detailed information about source. No hormones or antibiotics. Raised humanely.                                                                                       | Ribeye - $1.48/oz*  
                          | www.heritagefoodsusa.com | **Burger - $9.16/oz  
                          | for Akaushi/Angus combo  
                          | (other breeds available)  
                          | *Angus beef  
                          | **$2.45/oz for Akaushi beef  
                          | Formed in 2001 as the sales and marketing arm for Slow Food USA. Became independent in 2004. Is a processor for 200 pigs, 7,500 turkeys for Thanksgiving and “a few hundred” head of cattle per year. Also sells pork, lamb, bison, chicken, duck, goose, turkey, anchovies, tuna and side dishes. Has an “American Beef Road Trip” program – a variety of breeds from different parts of the country each month. Website has a profile with pictures of each producer farm, many (but not all) of whom are “Animal Welfare Approved” or “Certified Humane”. Have a Native American board member and one NA provider (Deep Run Pawpaw Orchard). |                          |
| Kansas City Steaks        | Kansas City, KS   | All steaks are from corn-fed western-Kansas beef and wet.                                                                                                                                                    | Ribeye - $1.94/oz  
                          | www.kansascitysteaks.com  | **Burger - $6.25/oz  
                          | Also sells Wagyu/Kobe beef, veal, pork, chicken, turkey, seafood, side dishes, appetizers, desserts, seasonings and heat and serve dishes and monthly steak plans. |                          |

*Note: Prices are in dollars per pound.*
## Index of Mail/Online Beef Providers

*As of 12/17/13*

<table>
<thead>
<tr>
<th>Provider</th>
<th>Information/Notes</th>
</tr>
</thead>
</table>
| Pat LeFrieda Meats North Bergen, NJ [www.lafrieda.com](http://www.lafrieda.com) | Beef is grass-fed and finished on corn. No antibiotics, hormones or growth promotants. Humane treatment. Ribeye - $2.25/oz*  
Burger - $4.375/oz**  
*Angus, wet aged  
Dry aged-$2.81/oz  
**Blends:  
Brisket - $3.88/oz  
Short rib-$3.96/oz  
Dry aged -$1.25/oz  
Have a Food Network TV show Meat Men. Claims met is processed and shipped the same day. Operate from a 36,000 sq. ft. facility with two dry aging rooms with 80,000 steaks. Make over 75,000 hamburgers a day from blends of meat. Also sell veal, lamb, pork, sausage, and branded apparel (aprons, hats, shirts). |
| Lobels New York, NY [www.lobels.com](http://www.lobels.com) | In addition to prime, also sells "natural prime", raised in open pastures on 100% vegetarian diet with no antibiotics or growth hormones, raised on six farms stretching from Dakotas to Nebraska. Dry aged. Grain finished. Ribeye - $2.68/oz*  
Burger - $1.13/oz*  
*Natural prime beef - wet aged  
Also sells USDA prime, Piedmontese prime, American Wagyu, all natural lamb, pork, veal, sausage, poultry, and seafood. Sells oils, marinades, sauces and condiments, branded merchandise (gift boxes, coolers, hats, cooking tools, books, etc.). Gives a generic description (i.e. “raised in the open meadows of the Rocky Mountain high country” or “raised on small Amish and Mennonite farms in the rolling hills of the Pennsylvania Dutch country” or “raised on small Midwestern family farms” but no specifics for producers. |
| Stock Yards Chicago, IL [www.stockyards.com](http://www.stockyards.com) | Sells USDA Prime. No information about diet, antibiotics, growth hormones or humane treatment. Ribeye - $2.65/oz*  
Burger - $6.21/oz  
Also sells veal, lamb, seafood, pork, poultry, ribs, hot dogs, appetizers, sides and desserts, as well as wine and some branded merchandise. |
### Index of Mail/Online Beef Providers

**As of 12/17/13**

<table>
<thead>
<tr>
<th>Provider</th>
<th>Description</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandt Beef</td>
<td>Ribs and thanking processes own beef. No hormones or antibiotics. Humane</td>
<td>Ribeye: $1.77 oz,</td>
<td>Goal is to “connect with chefs and consumers to reignite and share</td>
</tr>
<tr>
<td><strong><a href="http://www.brandtbeef.com">www.brandtbeef.com</a></strong></td>
<td>treatment. Grain finished (165+ days).</td>
<td>Burger: $5.35 oz.</td>
<td>a passion for sustainable eating”. Promotes the use of the whole</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>animal. Also sells jerky, bacon. Primarily sells upscale</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>restaurants but also in some retail markets and through distributors</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>including in Hong Kong, Singapore, Tokyo and Korea. An article</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>critical of Brandt’s claim as “the true natural” and problems with</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the term “true natural” can be found at:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="http://passionatefoodie.blogspot.com/2013/05/rant-brandt-beef-is-it-true-natural.html">http://passionatefoodie.blogspot.com/2013/05/rant-brandt-beef-is-it-true-natural.html</a> and cites diet of 15% alfalfa, 10% sugar beet pulp and 75% GMO corn.</td>
</tr>
<tr>
<td>Ultimate Foods Washington, NJ</td>
<td>Sells “natural” meats with no growth hormones or antibiotics; source and</td>
<td>Ribeye: $1.25 oz,</td>
<td>Also sell pork, lamb, bison, poultry and exotic game (ostrich, wild</td>
</tr>
<tr>
<td><strong><a href="http://www.ultimatefoodclub.com">www.ultimatefoodclub.com</a></strong></td>
<td>age verified. All beef is Certified Piedmontese Beef raised on family</td>
<td>Burger: $5.43 oz.</td>
<td>bore, elk, rabbit, pheasant, duck, venison, alligator and rattlesnake).</td>
</tr>
<tr>
<td></td>
<td>ranches in open rangelands.</td>
<td>*Boneless, no bone</td>
<td>No information on providers on website.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in sold.</td>
<td></td>
</tr>
<tr>
<td>Meyer’s Natural Angus Beef Loveland,</td>
<td>Sell only Angus cattle. No antibiotics or growth hormones. Vegetarian</td>
<td>Ribeye: $2.587 oz,</td>
<td>Started on ranch in Helmville, MT, which is now the Meyer Company</td>
</tr>
<tr>
<td>CO</td>
<td>diet only. Source verified. Humanely treated. Have a premium “Artisan Dry</td>
<td>Burger: $ do not sell</td>
<td>Ranch, the largest working ranch (43,000 acres) in the Big Blackfoot</td>
</tr>
<tr>
<td><strong><a href="http://www.meyernaturalangus.com">www.meyernaturalangus.com</a></strong></td>
<td>Aged” brand.</td>
<td>online.</td>
<td>River valley. Has been expanded by purchase of Wales Brothers Ranch</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Dry aged - $2.697/</td>
<td>Started Red Angus genetic operation in 1990, restores riparian areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oz.</td>
<td>and uses low density grazing. Started the Meyer Natural Foods</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Handled Program (3rd party verified). Robert Meyer, owner.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Purchased the Dakota Beef brand, an organic beef producer in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Howard, N.D. In 2010. Did not purchase Dakota Beef’s processing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>plant.</td>
</tr>
</tbody>
</table>

### Index of Mail/Online Beef Providers

**As of 12/17/13**

<table>
<thead>
<tr>
<th>Provider</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meyer uses Cargill, Greater Omaha</td>
<td>Meyer uses Cargill, Greater Omaha Packing and American Foods Group for</td>
</tr>
<tr>
<td>Packing and American Foods Group</td>
<td>processing. In 2008, a problem arose when Coleman Natural Foods sold out</td>
</tr>
<tr>
<td>Group for processing. In 2008, a</td>
<td>to Meyer. Without notifying its customers, Whole Foods, Coleman thereafter</td>
</tr>
<tr>
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Appendix R: MercuryCSC Final Report to One Montana
MONTANA MEAT PROCESSING FEASIBILITY STUDY: MARKETING

This report was prepared under an award from the U.S. Department of Commerce Economic Development Administration for One Montana and the Prospera Business Network, funded in part by the Montana Department of Commerce Big Sky Economic Development Trust Fund.

This study was completed by Maclaren Latta, Kathryn Quanbeck and Matthew Bitz. The statements, conclusions and recommendations in this report are those of the authors and do not necessarily reflect the views of the Economic Development Administration.

June 25, 2014
PROJECT TEAM
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Kathryn Quanbeck, Meat Processing Consultant
Matthew Bitz, Program Manager, One Montana

REFERENCE AS

ACKNOWLEDGMENTS
We want to thank the cooperating ranchers, consumers, meat buyers and meat industry experts who gave their time and participated in our surveys.
MONTANA MEAT PROCESSING FEASIBILITY STUDY: MARKETING

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June 2014

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OVERVIEW

The overall purpose of the project is to determine if it is possible to build a meat processing facility in Montana that will significantly increase the processing capacity in the state. Montana has long been known as a producer of quality beef, and to a lesser extent, a producer of lamb and bison.

However, most of the meat processing plants in the state are small and the majority of the livestock in the state that are raised for meat are shipped elsewhere for finishing, slaughter, and fabrication.

Because Montana producers are essentially exporters of raw materials, and the animals they raise are largely processed and sold under large meatpacking labels, most Montana producers are unable to capture added value from their products.

Meanwhile, consumer demand is increasing for meat products that are raised and processed outside the Midwest-based, commodity-driven market. Demand for “local,” “organic,” “natural,” “grass-fed,” and “humanely-processed,” among other products, grows every year.

For the purposes of this study, these marketing terms are defined as follows:

- **Local**: meeting the buyer’s geographical criteria for local. In some cases, this may be a range (e.g. “raised within 250 miles”), a state (“Montana Grown”) or a region (“Rocky Mountain grown”)
- **Natural**: animals raised to meet specific production protocols. Most commonly, these programs incorporate grain-finished feeding and require that animals are not administered hormones, antibiotics or growth promotants.
- **Organic**: raised in accordance with the USDA National Organic Program Standards and certified by an approved third-party certifier.
- **Grass-fed**: “animals that are born, raised, and finished on open grass pastures where perennial and annual grasses, forbs, legumes, brassicas, browse and post-harvest crop residue without grain are the sole energy sources, with the exception of mother’s milk, from birth to harvest. Hay, haylage, silage, and ensilage from any of the above sources may be fed to animals while on pasture during periods of inclement weather or low forage quality.”
- **Humanely processed**: for most buyers, this means animals that are slaughtered in accordance with Dr. Temple Grandin’s recommended animal handling, stunning and

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50 Annual sales of less than $2.5 million, per the Food Safety Inspection Service’s (FSIS) definition.
51 cutting and further processing a carcass into saleable products.
slaughter practices. Per USDA regulations all livestock must be slaughtered in accordance with the Humane Slaughter Act\(^57\) (passed in 1958), but most consumers are not aware of these regulations.

- **Source Verified:** Age and Source Verified programs were first designed to meet Japanese export market requirements. To participate in a USDA Process Verified Program (PVP) or a USDA Quality System Assessment (QSA), producers must supply the necessary documentation regarding the source and age of their cattle and comply with all third party audit requirements. In most cases, producers are required to “tag all cows and calves with a unique number in your herd, keep calving records (that include dam and calf identification, calving date and sex of calf) and tag cattle with an electronic (or RFID) eartag.”\(^58\) In most parts of the country, participating in a PVP or QSA program will increase the value of your cattle.

- **Commodity:** At its most basic, a commodity is a marketable good that is essentially interchangeable with goods of the same type. Commodities lack differentiation: price becomes the point of differentiation since all goods in the commodity class are of uniform quality. A common example of a commodity is a barrel of oil: all barrels of oil are essentially the same, regardless of the producer. Commodities can be bought and sold commodities using futures contracts on exchanges (like the Chicago Board of Trade) that standardize the quantity and minimum quality of the commodity being traded. In the case of beef, commodity beef is seen to be an undifferentiated product: beef from cattle from one ranch or one feedlot cannot be distinguished from beef from another ranch or feedlot. The commodity beef supply chain produces a uniform, consistent product.

- **Grain-fed:** All cattle begin their lives on grass. At approximately 750 to 900 lbs., grain-fed cattle are moved to a feedlot to be fed a diet of corn, soy, grains, and other supplements to reach slaughter weight.

In many cases, these products come from smaller producers who have found a way to market their animals outside of the larger meat processing industry, often through the creation of a branded product; the use of marketing strategies associated with the above terms; and by utilizing local meat processors. All of these strategies allow them to capture added value from their animals, value that allows them to recoup the higher production costs associated with lower volume, premium production\(^59\).

While Montana has seen the introduction of some successful branded meat products, others have started and failed. The reasons most commonly identified are: low processing capacity, which creates a bottleneck on meat supply while also forcing processing costs up

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due to a lack of economies of scale; and insufficiently developed marketing strategies for these niche products.\textsuperscript{60}

This feasibility study was developed to examine the moving parts that comprise the puzzle of meat processing in Montana. The overall goal of the study was to determine whether or not it is possible to build a meat processing plant in Montana that can process between 250-500 head of livestock a day, and do so in a manner that makes it possible to capture added value from the animal.

The basic assumption of this study was that if a larger meat processing plant were constructed in the state, such a plant would be a net gain for producers. It would allow producers to process their animals locally, and provide them with the option of either developing their own branded products, selling to existing Montana-based brands, and/or selling their livestock to a new branded meat program operated by the owners of the processing plant. For those who have already established a branded product, it would allow them to greatly expand their business.

The key questions posed to the marketing research team were:

- What are we selling?
- Can Montana producers deliver a consistent supply of slaughter-ready animals?
- Who is going to purchase these products?
- Will Montana-branded meat products equate to a higher value?
- Does it need to be processed in Montana?
- Can the branded program use existing infrastructure or must a new facility be built?

These questions were included in the marketing scope of work for the feasibility study, designed to conduct initial research related to the marketing and branding of Montana-based meat products. This report is the result of that research.

\textsuperscript{60} 2012, One Montana meetings with producers.
BACKGROUND

As the One Montana team traveled the state in 2011 and 2012, holding meetings for other One Montana projects, the topic of meat processing kept coming up. It was raised by those in the niche meat sector, producing for local markets as well as those in traditional production agriculture: all were looking for an alternative to the status quo. Many believed very strongly that the beef they raise here in Montana is of the highest quality, and they want to be paid a premium for it.

These conversations often circled back to the same question: “Could Montana support a larger meat processing facility?” Meat processing was seen as the real barrier to expanding marketing opportunities for Montana producers.

With this interest in increasing processing capacity to expand market opportunities, One Montana developed a project proposal to examine two things:

- Building and operating a new processing facility.
- Expanding existing or developing a new Montana-based brand to serve as a key customer (or “anchor tenant”) for that new processing plant.

This section of the project, the Montana Meat Processing Feasibility Study: Marketing, focused on the following research topics:

RESEARCH TOPICS

1. Research the previous feasibility studies completed on this subject within the State of Montana. Document the studies found and present analysis of the studies.

2. Research any previous feasibility studies completed on this subject in other states to review their findings and results. Document the studies found and present analysis of the studies.

3. Research history of branded meat ventures in Montana and the associated marketing challenges they faced.

4. Research history of meat processing in Montana and factors that contributed to its decline.

5. Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

6. Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)
7. Research market potential for Montana meat products in Japan and Taiwan and suggest marketing strategies for those products.

8. Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)


10. Research the supply of beef, lamb, and bison in Montana.

11. Provide projections of potential growth in supply assuming a functioning processing plant.

12. Provide analysis of marketing strategies used by value-added meat ventures on the state, regional, national, and international level in order to determine the best method of marketing Montana-branded products.

13. Conduct sales research to determine best potential distribution channels of Montana-branded meat products.

EXECUTIVE SUMMARY

The purpose of this project was to conduct initial research to better understand how Montana producers could capture more value from their high quality livestock. One option, explored here, is the possibility of expanding existing Montana-based brands and/or creating one or more new Montana-based brand(s) that could serve as the primary processing-services client(s) for a new Montana meat processing facility. This project is a first look at what characteristics the brand(s) might require to help provide the steady throughput a new processing facility needs.

During the course of this project, after reviewing existing research, interviewing producers (those currently selling livestock and those currently selling branded meats), consumers, retail meat buyers and industry experts, it has become clear that there is not a one-size-fits-all answer to the project’s key questions:

- What are we selling?
- Can Montana producers deliver a consistent supply of slaughter-ready animals?
- Who is going to purchase these products?
- Will Montana-branded meat products equate to a higher value?
- Does it need to be processed in Montana?
- Can the branded program use existing infrastructure or must a new facility be built?

While no one clear answer stood out, we have determined that, with the right economic conditions, it is possible for the market for Montana meat brands to expand to the size and scale to warrant a new, medium-sized processing facility.

Based on what we uncovered during this research project, we determined that this facility would have to significantly differentiate its business model from existing commodity meat processing facilities by focusing on branded meat programs and by-product markets, capturing a higher value at every step in the supply chain. This Montana meat “company” and processing plant could handle everything from natural beef brands to cull cow programs to bison brands. While commodity cattle could be processed at this plant, the resulting meat products are unlikely to be cost competitive with the large-scale commodity processors in the Great Plains.

This processing plant could also distinguish itself, and add another opportunity to potentially capture higher value for its products, by offering best-in-class traceability, maintaining source-verification protocols throughout the supply chain.

It would also be possible to process lamb, but because the plant design has been optimized for beef and bison, lamb processing at this facility would be a very small fraction of the work, and done on a custom basis only. The Montana meat “company” would not develop a brand for lamb.
In reality, a processing facility of this type would need to encompass several different business entities; each entity focused on its own market segment, sharing the processing infrastructure.

From a marketing perspective, each product line and sales channel would need to be evaluated to determine whether or not a specific brand would be created for that product line and sales channel.

For example, the processing facility could potentially serve one or more grass-fed beef brands; one or more natural, grain-fed beef brands; a bison brand; a pet treat brand; and a fertilizer or soil amendment brand – all utilizing the facility and sharing costs and overhead where appropriate.

Below is an illustration that speaks to the variety of potential options.

For this project, we focused on fresh meats (raw product) and explored value-added products – i.e., non-commodity meats. We did not look at further processed products such as jerky, snack sticks or summer sausage.

Evaluation of further processed products – as well as other market segments such as pet treats and soil amendments – were not incorporated into this initial research and would need to be explored further before determining the market potential.
Opportunities

In our analysis of Montana-branded, fresh meat marketing opportunities, several options came to light with the end-goal of capturing more value from Montana livestock.

Each of the marketing channels noted below could be targeted by either expanding existing brands or creating one or more new brands. Where appropriate, we provided examples of existing Montana brands that currently sell into these market channels. These are only examples: we have not included every Montana-based meat brand here; and there are many successful programs not listed in this report.

Montana institutions: It seems only natural that Montana institutions (schools, hospitals, etc.) would serve Montana beef and bison. Public institutions are taxpayer supported and thus it makes sense that they would use their food purchasing dollars to support Montana farmers and ranchers whenever possible.

This is not a new idea: the Western Sustainability Exchange (WSE) in Livingston, MT has a pilot program processing cull cows for hamburger and a few cuts, selling to food service accounts. Interested producers could work with WSE to expand this program.

Montana-based branded programs like Big Sky Natural Beef and Rancher’s Original successfully sell to Montana institutional markets (among other market channels). These brands are currently able to use existing processing facilities, but as the institutional market expands, it is possible that some processing could take place at a new facility.

This would be an opportunity for One Montana to work with interested producers and WSE, along with other organizations like WSE that may be doing something similar, to expand this “Montana Meat in Montana Institutions” program. The National Center for Appropriate Technology (NCAT) based in Butte, MT recently received a grant to increase the availability of Montana beef in Montana institutions.

Natural, grain-fed beef: Montana is home to several branded natural, grain-fed beef programs and even more producers who raise and sell calves to out-of-state natural programs. Expanding the finishing capacity in-state for natural, grain-fed beef cattle could increase the demand for processing services in Montana. Such a program is likely to require that animals are raised to meet specific production protocols. Most commonly, these programs incorporate grain-finished feeding and require that animals are not administered hormones, antibiotics or growth promotants. Natural branded programs like Montana Natural Beef and Great Northern Cattle Co. have all had success in the natural beef market.

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61 Institutional markets include any food service accounts i.e. schools, hospitals, universities, corporate cafeterias, nursing homes, etc.
62 http://farmtocafeteria.ncat.org
Grass-fed: We heard from several producers that there is a strong market for grass-fed beef and bison in Montana and beyond. Montana-based, branded programs like Yellowstone Grassfed Beef and White Park Beef currently sell Montana-raised grass-fed beef direct to customers and to local restaurants, retailers and institutions. As these brands expand, or new grass-fed brands come online, it is possible that they could drive demand for a new processing facility.

International Markets: Based on what we learned during this initial research, and the proposed specifications from the plant design team involved in this study, the Asian market is a good potential market for Montana-branded beef. If a processing plant was created that offered best-in-class traceability – from ear tag to shelf – it could become a premier, medium-sized plant focused on serving the growing demand for animal proteins abroad. Alternatively, while existing Montana processing facilities do not currently meet the more stringent export requirements necessary to access Asian markets, it might be possible to upgrade these plants to meet the requirements. Several people interviewed for this project believed that Montana-branded meat products would be able to leverage the existing mystique of the West and the Montana name in the Asian markets.

Key Components

All four of the opportunities noted above come with their own unique sets of challenges and opportunities. As the market for Montana-branded products grows, so will the demand for high quality cattle and bison, processing services, and a strong team of Montana leaders to guide these branded programs to success.

Regardless of whether or not a new processing plant is built or an existing one is expanded and whether or not a new Montana brand is created or existing ones continue to thrive, the following key components will be necessary for achieving the overall goal of expanding marketing opportunities for Montana producers:

- **Leadership:** The efforts involved will require a team approach and the commitment of one or more dedicated leaders, including, but not limited to, champions, investors and others who are committed to making this project the primary focus of their efforts and energies.
- **Collaboration and New Partnerships:** Continued teamwork is essential for these opportunities to become a reality; each of the marketing channels will require collaboration among all of those involved – as well as an emphasis on exploring new partnerships – at each step of the process.
- **Investment:** Significant up-front investments are fundamental to the program’s success, allowing it time to get up and running and eventually operating at a profit.
- **Time:** Whether it’s building a new processing plant or expanding an existing one, creating a new Montana brand or supporting an existing one, these initial steps will take time to be done well.
As noted throughout this report, these four key components will be instrumental in taking this idea from concept to reality.
KEY TAKEAWAYS FOR EACH RESEARCH TOPIC

RESEARCH TOPIC 1: Research the previous feasibility studies completed on this subject within the State of Montana. Document the studies found and present analysis of the studies.

Key Takeaways:
- Both studies predicted that processing plants in the respective counties could be feasible.
- Both proposed projects were much smaller in scale than the One Montana project. This is not a value judgment, but rather simply an appraisal of scope.
- Both plants were primarily aimed at the Montana market.

RESEARCH TOPIC 2: Research any previous feasibility studies completed on this subject in other states to review their findings and results. Document the studies found and present analysis of the studies.

Key Takeaways:
- A study from Mendocino County in California was found for comparison.
- Proposed building an facility that could process 80 head of beef and 50 head of lamb or goats per day.
- Projected cost of $18 million.
- Target market was the Bay Area and Sacramento Region.
- Influenced the One Montana Study.

RESEARCH TOPIC 3: Research history of branded meat ventures in Montana and the associated marketing challenges they faced.

Key Takeaways:
- Bad timing, poor product differentiation and undercapitalization were the likely downfalls of former branded meat ventures in Montana.
- There are multiple entities that use and/or have used Montana-themed names in their branding.
- There has been success in identifying meat products as being from Montana.
- Building a new brand will take time.

RESEARCH TOPIC 4: Research history of meat processing in Montana and factors that contributed to its decline.

Key Takeaways:
- Of the major meatpacking interests that were started in Montana, only one remains in operation today.
- Accidents in the plants were partially responsible for closure of two of the largest plants in the state.
RESEARCH TOPIC 5: Research potential unique qualities and opportunities of a Montana meat product that could add value.

Key Takeaways from Producer Interviews:
- Those with existing branded programs are unlikely to participate in a new Montana brand.
- Those already involved in marketing meats felt that the grass-fed market was strongest due to consumer confusion over what “natural” means.
- Producers believe that the Montana name alone won’t be successful.
- Many producers are able to send animals to slaughter year-round: seasonality shouldn’t be that big of a problem.
- Most producers interviewed are satisfied with the existing processing facilities.

Key Takeaways: from Consumer Interviews:
- Consumers have an increased awareness of how their food is being raised and have an increased desire to have a closer connection to it.
- Consumers typically are committed to their retailer or have a relationship with their butcher, and they aren’t thinking about specific meat brands.
- Purchasing meat is a very visual experience for these consumers.
- “USDA certified” and “natural” labeling doesn’t always mean something significant to them.
- They aren’t paying attention to “source verified.”
- However, they like the idea of knowing where their meat is from, even if the term “source verified” doesn’t resonate; and Montana holds appeal to them.
- Even though they may not be familiar with the specific industry definitions of these terms, here are the words they used to describe what they would expect from Montana meats:
  - “Grass-fed”
  - “Free-range”
  - Better flavor
  - More tender
  - Not from “factory farms”
  - Not from “huge slaughterhouses”
  - Environmental concerns are taken into consideration

RESEARCH TOPIC 6: Research the demand for Montana-branded meat products at the state, regional, national, and international level.

Key Takeaways from Expert Interviews:
- Retailers, especially large national chains are not interested in participating in surveys.
- Regional chains on the East Coast are not a good target market because higher-end meat products are too competitively priced for smaller stores to sell profitably and these stores seek to carry more private label products rather than a Montana-branded program.
• Institutional food service is a good market, especially among Montana institutions, such as k-12 schools, hospitals, etc. as Farm-to-School and Farm-to-Hospital programs grow in popularity.
• Restaurants, especially local restaurants, are also a good market but do not purchase large quantities.

**RESEARCH TOPIC 7:** Research market potential for Montana-branded meats in Japan and Taiwan and suggest marketing strategies for those products.

*Key Takeaways from Trade Expert Interviews:*
• Awareness of Montana as a travel destination exists in the Asian markets, but there is no current demand for Montana-specific beef.
• Montana’s current processing plants don’t meet export standards for Asia.
• Food safety is very important in Japan as well as China, and traceable products would be able to command a premium.
• Beef is being shipped chilled, not frozen.
• The preference in Asia is for grain-fed beef, and the specific cuts desired often differ from U.S. preferences.

**RESEARCH TOPIC 8:** Determine the competitiveness of Montana-branded meat products in the value-added market.

*Key Takeaways:*
• The target markets will need to be clearly defined.
• Adequate capital is a must.
• Enough time to be successful is essential.

**RESEARCH TOPIC 9:** Determine price premiums for Montana-branded meats.

*Key Takeaways:*
• Price premiums of 10 – 30% are common for niche meats.
• There isn’t a huge difference in prices in the markets that were evaluated.

**RESEARCH TOPIC 10:** Research the supply of beef, lamb, and bison in Montana.

*Key Takeaways:*
BEEF
• There were 2.6 million head of cattle in Montana in 2013. The cattle inventory in Montana has remained relatively stable but the national inventory is decreasing annually and has reached historic lows.
• Demand for beef is strong and prices are high so a new processing plant would face strong competition for the Montana cattle supply.
LAMB

- There were 235,000 head of sheep in Montana in 2013. 90% of the national market for lamb is on the East Coast and transportation costs would negate any profit on Montana lamb.
- It could be possible to process a small number of lambs for regional supply.

BISON

- There is little regional or national data on bison but estimates place the state bison inventory at between 9,000 and 15,000 head.
- Many of these animals are breeding stock so a conservative estimate of the number of bison available for slaughter in Montana is less than 9,000 annually.

RESEARCH TOPIC 11: Provide projections of potential growth in supply assuming a functioning processing plant.

Key Takeaways:

- At 250 head of animals/day and 251 working days in 2014, the plant (if operating at full capacity) would process 62,500 head of beef and bison in 2014.
  - 200 of the working days would be used to process beef for a total of 50,000 head of cattle.
  - If the 50 remaining days were used to process bison for a total of 12,500 head of bison, the processing plant would have to source from surrounding states because there are currently approximately 9,000 head of bison in Montana.
  - A second and more plausible projection allocates 225 working days to beef and 25 to bison.
- Assume that 20% of the annual volume would be custom beef processing and 80%, or 45,000 head, would be sourced, processed and marketed under the plant's own labels.
  - It is unlikely that a new processing plant would cause an increase in the supply of bison or cattle in the state and the plant would have to purchase cattle and bison from producers at a competitive price.
  - Approximately 10% of the plant’s own meat would be grass-fed beef, meaning that 4,500 head of grass-fed cattle would need to be sourced from the state.
  - The plant would either need to a) compete for purchase of grass-fed beef with other brands, or b) develop its own supply by partnering with producers who would convert their operations to grass-fed.
RESEARCH TOPIC 12: Provide analysis of marketing strategies used by value-added meat ventures on the state, regional, national, and international level in order to determine the best method of marketing Montana-branded products.

Key Takeaways:

- Determine your best target audiences.
- Determine your best story.
- Tell that story well.
- Repeat that story in ways that are meaningful to your target audiences.

RESEARCH TOPIC 13: Conduct sales research to determine best potential distribution channels of Montana-branded meat products.

Key Takeaways:

- Within each market segment, there are three primary wholesale distribution channels:
  - Retail
  - Food service
  - Restaurants
- Promising domestic market segments include:
  - Montana institutions
  - Natural, grain-fed beef
  - Grass-fed beef
- While the Japanese and Taiwanese markets look promising, an international export option would come later once a processing plant had been built or an existing one had been modified to meet export standards.
- Direct-to-consumer is also an option, but it is hard to move a lot of volume in this distribution channel, especially without using an established brand.

RESEARCH TOPIC 14: Provide analysis of best potential sales strategies.

Key Takeaways:

- Montana Institutions:
  - Public institutions are taxpayer supported so transitioning to regional meat procurement seems like a natural choice. There are already examples of Montana institutions buying Montana-based branded products and as the institutional market expands there is potential to utilize a new facility.
- Natural, grain-fed beef:
  - There are already several successful Montana-branded natural, grain-fed beef programs and a potential to expand the finishing capacity in-state for natural, grain-fed beef cattle and increase the demand for processing services in Montana.
• Grass-fed:
  o There is currently a strong market for grass-fed beef and bison in Montana and beyond and a potential to expand existing brands or create one or more new brand(s) could drive demand for a processing facility.

• International markets:
  o Growing demand for animal proteins abroad combined with the allure of the Montana name provides an opportunity for expansion into international markets if export requirements are met.
PROJECT METHODOLOGY

Deep Dive: Evaluation of Existing Information
At the onset of the project, Maclaren Latta of MercuryCSC and Kathryn Quanbeck, an independent meat processing consultant, worked with Matt Bitz of One Montana to review existing research and other insights that were helpful in framing the project. Information included:

- One Montana’s existing knowledge.
- Any background information currently available for all topics.
- Trends in the meat industry.
- Key stakeholders’ and collaborators’ background and contact information.

Kick-Off Meeting: Initial Interviews
After this initial review of the existing knowledge and background materials, Bitz, Latta and Quanbeck organized a kick-off meeting with all project participants to discuss the overall goals for the project and better understand roles and responsibilities as well as any additional resources available. Participants included:

- Tommy Bass – Livestock Specialist for Montana State University (MSU) Extension
- Eric Belasco – Agriculture Economics Professor at MSU
- Matt Bitz – Program Manager, One Montana
- Rod Bowling – Principal, AgriFood Solutions
- Bill Bryan – President, One Montana
- Maclaren Latta – VP of Consumer Insights, MercuryCSC
- Cole Mannix – Director of Operations, Rancher’s Original
- Jim Peterson – Montana State Senator; Rancher
- Kathryn Quanbeck – Meat Processing Consultant
- Jeff Welch – CEO, MercuryCSC

Research Topics: Secondary Research, Primary Research
Bitz, Latta and Quanbeck used a combination of secondary research and primary research to gain insights into each of the research topics.

Secondary research included existing research that was relevant to this project and allowed us to obtain information without duplicating previous studies.

The primary research that we conducted was qualitative; we spoke to a smaller set of people to gain a deeper understanding of why they were doing what they do. We used this type of research to uncover their underlying motivations, needs, and beliefs.

Our approaches included finding and reviewing existing research; analyzing existing branded programs, conducting one-on-one interviews by phone, email and in-person; and offering an online survey tool for ranchers. Specific methodologies used are clearly outlined at the beginning of each topic throughout this document.
SURVEY PARTICIPANTS PROFILE

Producers
During the months of Jan., Feb. and March 2014, we heard from 20 ranchers in Montana who fit the following criteria:
- Currently raising cattle, lamb and/or bison
- Fit a variety of production styles: traditional cow-calf (7), natural, grain-fed (7), grass-fed (4) or organic (2)
- Had their own brand or were interested in selling to a new brand

Producers were contacted by phone, email and through an online survey distributed by our research team and by the Montana Stockgrowers Association.

(See Appendix A for a copy of the survey used to interview these producers.)

Buyers
During the months of Jan., Feb. and March 2014, we contacted 19 retail meat buyers by phone who fit the following criteria:
- Identified as shopping locations by our consumer survey participants
- Located in the eastern part of the United States
- Fit a variety of retail categories: either large national chains, regional chains or local, independent butcher stores.

Participation by buyers was limited due to the hyper-competitive and proprietary nature of the retail grocer sector. We also reviewed existing research for more information.

(See Appendix B for a copy of the survey used to interview these buyers.)

Consumers
During the months of Feb. and March 2014, we spoke with 15 consumers from MercuryCSC’s proprietary research panel of more than 750 people who were screened to ensure they fit the following criteria:
- Live in the eastern part of the United States
- Well-educated
- Affluent but not necessarily rich
- Health conscious
- Environmentally conscious
- Socially minded
- Want a greater sense of connectedness

Consumers were contacted via phone and email. Interviews were conducted by phone with some additional follow-up questions communicated via email.

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63 The Eastern Seaboard was determined to be a strong market for Montana meat products by the One Montana team and therefore the focus of this project when conducting buyer and consumer interviews.
(See Appendix C for a copy of the survey used to interview these consumers.)

**Trade Experts**
During the months of March and April 2014, we made contact with five trade experts, including representatives from the following organizations:
- U.S. Meat Export Federation
- Montana Department of Commerce
- American Institute in Taiwan

Trade experts were contacted via phone and email.

(See Appendix D for a copy of the survey used to interview these trade experts.)
RESEARCH TOPIC 1:
Research the previous feasibility studies completed on this subject within the State of Montana. Document the studies found and present analysis of the studies.

Key Takeaways:
- Both studies predicted that processing plants in the respective counties could be feasible.
- Both proposed projects were much smaller in scale than the One Montana project. This is not a value judgment, but rather simply an appraisal of scope.
- Both plants were primarily aimed at the Montana market.

Detailed Findings:

Introduction:
Research is being conducted into a multitude of issues surrounding marketing. Part of that scope of work pertains to providing background information on previous feasibility studies. One Montana felt it was necessary to investigate similar studies to know what had been done in the state prior to this effort.

Two studies were found as a result of One Montana’s research. These studies will be presented below.

Methods:
As stated in the introduction, the focus of this section was to research feasibility studies on meat processing in Montana. To find the most relevant information, the scope of research was limited to:
- Feasibility studies that had a primary focus on beef, lamb, or bison. One of the studies outlined below will deal with a multispecies plant that includes hogs. This was deemed acceptable due to the fact that the other two species examined were lamb and beef, with a primary focus on the latter.
- Studies conducted within the last 10 years. For the purposes of the project, “the last 10 years” was defined as 2003—forward, as this project began in 2013. Confining the research parameters to feasibility studies done in the last 10 years also seemed to be the most logical approach, given that the demand for specialty meats has risen sharply in the last decade. This, coupled with the large shifts in the commodity market and beef prices in recent years, suggested an investigation be confined to a 10-year period.

The Montana Department of Commerce and the Montana Department of Livestock were contacted to see if they were aware of any studies conducted in this time period. The Dept. of Commerce was aware of two studies, one conducted in Beaverhead County in 2006, and the other conducted in Pondera County in 2006. One Montana was already in possession of the Beaverhead County study, and the Dept. supplied the study from Pondera County.

Further research was conducted online to find any additional studies that had been conducted around this subject. None were found. Industry contacts were also asked if they
were aware of any other beef-focused feasibility studies. None were found. They were aware of none but those One Montana had already obtained. The possibility must be acknowledged that other feasibility studies may have been conducted within this timeframe in Montana, however, if this was the case, they would have been conducted solely with private monies and have “flown under the radar” of One Montana’s research, as well as the public entities in the state that would typically have knowledge of such projects, and likely lie beyond reach.

**Studies Found:**
Two studies were found by One Montana that fit the criteria outlined above in the methods section.

- “Feasibility of a Multiple Species Meat Processing Plant in Pondera County, Montana”

- “Feasibility of a Beef Processing Plant in Beaverhead County, Montana”

**Analysis of “Feasibility of a Multiple Species Meat Processing Plant in Pondera County, Montana”**

**Summary of the Study:**

The study was prepared by Food and Livestock Planning, Inc. of Kansas City, Missouri for the Pondera County Economic Development Corporation in May of 2006. Pondera County is located in North Central Montana, with the largest community in the county being Conrad, MT. According to the Executive Summary “Pondera County has an active Economic Development Corporation and is exploring the feasibility of a multiple species packing plant located in the county (FLPI, 2006, p.4).”

The study provided research in 7 major sections: Market Analysis, Animal Production and Supply, Processing, Distribution System Analysis, Organizational Structure, Financial Feasibility, and Testing Feasibility.

The study’s findings were as follows:

**Market Analysis:**
According to the study, 15 businesses located in the region were surveyed to gauge their interest in a Montana-branded product. There was high interest in a Montana-branded meat program amongst the survey participants. Of those businesses, 11 responded that in order for a Montana-branded product to attract business, it “must be competitively priced (FLPI, 2006, p.19).” Other important criteria were a Montana-branded product having “strong point of purchasing materials and a program aimed at educating the consumer (FLPI, 2006, p.19).”
It was the opinion of the study's writers that local production and a more local focus would allow the plant/company to avoid competing in the commodity market. In regards to the commodity market, the study said “selling a commodity when costs of processing are much greater than the large commercial packing plants, would cause an early exit from the business due to financial losses (FLPI, 2006, p.8).” It also recommended the possibility of forming a partnership with a Montana-branded meat entity that had “already spent brand development money (FLPI, 2006, p.21).”

The study provided information on the expected costs associated with marketing. Year 1 Foodservice costs were estimated at $40,850 and Year 1 Retail costs were estimated at $38,000.

The study made four general recommendations in regards to the marketing features the authors felt most essential to the project. These were:
- Locally produced and processed in Montana.
- Artisan-produced, specialty-processed meats.
- Customer-service oriented freezer meats.
- Customer-service oriented custom processing.

(FLPI, 2006, p.4)

Animal Production and Supply:
The study used data from 2005 from USDA's National Agricultural Statistics Service and found that in Pondera County there were 23,300 head of cattle and calves, 5,000 head of sheep and lambs, and 18,000 hogs and pigs. The number of cattle and calves that did not include cows and heifers was 6,700 head. However, when the study backed out and included data from the North Central region of the state, the number of available cattle was 102,000 head that were not heifers or mother cows. The study noted that only 1% of cattle and lambs are processed within Montana. This is consistent with preliminary research conducted by One Montana on the percentage of beef that are processed in the state.

The study authors also contacted five feedlots that were within close reach of Conrad that altogether had a capacity of over 25,000 head. According to the study, at the time, most of the cattle from these feedlots were going to a processing facility in Hyrum, Utah. The study reported that these feedlots were interested in “participating in a niche-oriented packing plant in NC Montana (FLPI, 2006, p24).”

The study also noted the difficulties associated with seasonality in Montana, suggesting that “fresh beef can be supplied by producers using differing production regimes such as utilization of fall and summer calving and differing feeding regimens to spread out harvest times (FLPI, 2006, p.19).”
Processing:
The study found there were two processing facilities that were inspected by USDA that were within an hour of Conrad, with the rest over three hours travel from Conrad. Apparently, both plants close to Conrad used a similar method, where they would slaughter on two days of the week and do the processing for the rest of the week. The study also listed capacities of all the USDA inspected plants operating in Montana at the time. The total daily kill capacities of all of these plants amounted to approximately 150 head of cattle per day. This is an approximate number, however, because two of those plants were not killing cattle every day, and there was no kill data listed for one of the included plants.

The costs for processing in the federally inspected plants ranged from $298-$525 and averaged $402 for a beef carcass that weighed around 750 pounds (FLPI, 2006, p.29).

The study also proposed a conceptual plant with a capacity of 6,000 head of beef and 7,000 head of hogs on a yearly basis. Assuming a 5 day work week and 260 days of work in a year, this would equate to a daily capacity of 23 head of beef and 27 hogs.

The plant was estimated to be 12,000 square feet and to cost $2.4 million with an additional $1 million needed for equipment.

Key recommendations for siting the plant were:

- Proximity to major transportation routes
- Plant distance from raw materials
- Utility availability and adequacy
- Community acceptance
- Labor force availability
- Land site suitability

(FLPI, 2006, p.31)

The study recommended that a small plant would do best to stockpile the hides from the animals it processes and try to ship hides on a weekly, rather than a daily basis. In regards to the edible offal, the study noted, “For a small plant, the wholesale value of these items are too low for the expense of cleaning and packaging them, so they are dumped into the rendering product bin (FLPI, 2006, p.32).” It was unclear whether or not a small plant in Conrad would be able to capture any value from lower value offal such as bones and fat. The study did suggest that the plant develop relationships with local agricultural producers as a means of disposing of blood and paunch in the form of fertilizer. It also suggested composting as a possible means of disposing of offal.

Finally, the study gave two options for dealing with wastewater. These were paying a municipal waste water system to treat the water or developing a lagoon system, where the lagoon water could be used as irrigation for local farmers.

Conclusion:
Ultimately, the study predicted that a meat processing plant could be profitable by the third year of business, provided that it was able to successfully market itself to the region. Profit margins were predicted to be highest for sales of live beef purchased from the producer, processed, and sold. Custom processing was predicted to be a steady earner, as well as hogs—both custom processing and marketed meat. The study noted that it was difficult to predict the margins of lamb due to the fact that the model being used predicted a low number of lamb processed annually.

Analysis of “Feasibility of a Beef Processing Plant in Beaverhead County, Montana”

The feasibility study was prepared by FLPI in 2006 for the Beaverhead Development Corporation. The introduction to the feasibility study notes that the impetus for the study was that Beaverhead County and other counties in the southwest portion of the state are high producers of cattle, and that producers there wished to add value to their cattle, and believed that that processing capacity in the region was an obstacle for those producers who wanted to add value and market their own cattle.

The study focused on two areas of beef production: custom processing for local producers and marketing entities and processing cull beef and marketing that product. Cull cattle were considered because “the high number of cull beef cows available in the region and the great distance to cow processors, which reduce the value of the animal because of freight expense, cannot be ignored (FLPI, 2006).”

Beaverhead County is located in Southwest Montana, with the largest city in the county being Dillon, with a population of around 4,100 according to the 2010 Census.

The feasibility study noted that in 2005, USDA data for Beaverhead County showed 138,000 cattle and calves and 79,000 beef cows and heifers in the county. That made Beaverhead County the largest producer of beef in Montana at the time. It is worth noting that in 2013, Beaverhead County was still the number one beef producing county in Montana, according to USDA data.

Market Analysis:
According to the study, 12 regional producers were interviewed regarding their interest in a custom processing facility in Beaverhead County, six of which were branded beef programs. According to the study, these programs felt that a lack of processing capacity was “limiting their growth (FLPI, 2006).”

Despite interest from local producers and branded beef programs, the study noted that in order for a processing plant to be successful in marketing custom processing, it would be necessary to accommodate the needs of multiple customers, who want different products. The upside of custom processing was that it would not require “financing inventory and receivables” and that “there is no margin risk with buying live animals and selling meat.”

The study noted that there was not a “major cow packing plant within 1,000 miles” of the region and that because cull cattle were being considered as a potential source of volume
for the plant, it would be necessary to look at how best to market this meat, and that small producers would likely find it difficult to market some cuts, so a “corporate marketing strategy” should be explored, that would market both the beef from the cull cattle and difficult-to-sell meat from small producers.

The study suggested that the best way to market tough-to-sell beef items was in the form of further processed meats, and that small plants have an advantage in this market in that they have great control over this process because it is all in one location. This would allow a small plant that does further processing to “have great control over the quality and age of raw materials” and that “small processors are usually artisans...manufacturing high quality processed items (FLPI, 2006).”

For the meat from cull cattle, the study noted that “over 50 percent of the carcass is sold as lean beef and beef trimmings” and that because this “manufacturing meat” is a commodity product with a global market, it would be difficult for a small plant to sell it, and that it would need to add value to this meat to “overcome high processing costs and low meat value (FLPI, 2006).” It suggested a list of further processed items that could be made from trim such as ground beef patties, breaded products, and sausage products. Whole muscle meats could have value added in the form of marinating, making beef jerky, or pre-cooking.

The study suggested that products which were further processed could be sold directly to local customers, local retail and restaurant markets, food service companies, retail chains, and convenience stores. The study did note that in the context of “small beef plants in remote locations” there would be “extreme difficulties achieving USDA grading.” Beef grading is used to predict how well the meat is likely to eat. It is voluntary, but according to the study, “most of the younger, market beef sold in interstate commerce carries the USDA quality grade stamp.” It was suggested that a small plant might overcome this by developing its own grading system based on the USDA one, but that meat graded in this manner would be “seldom accepted in larger, national, markets (FLPI, 2006).”

Finally, the study noted that “the success of a project is dependent on enough capital to be allocated to marketing activities” and that the investments in marketing costs would be “high in the first year.” The study estimated that if a new plant built a marketing entity of its own, that in the first year, marketing expenses “are estimated at $40,000 (FPLI, 2006).”

Production and Supply:
As noted above, Beaverhead County is a major producer of cattle in Montana, as is the southwest region of the state. According to the study, there were 296,000 head of cattle in Southwest Montana. Only 0.9% of cattle raised in Montana were slaughtered in the state. According to those producers interviewed in the study, initial estimates of steers and heifers were 2,880 and 1,640 cull cows per year.

The study noted that the seasonality of beef supply would have to be taken into account, with there being a “lapse in supply” during the end of winter through the beginning of summer for both cattle and buffalo born in the spring. Also, most cull cows are sold in fall and early winter so that they will not need to be fed and this reduces the price for these
animals, however this might be overcome by feeding some cull cattle and then marketing
them at a time when there is more demand. It was suggested that producers could calve in
the fall and summer to make up for times when there would be low production.

The study suggested that cattle could be purchased from producers on the basis of live
weight, a formulated price that used boxed beef as a basis, or a formulated price based on
the qualities of an individual carcass.

Processing Plant:
At the time the study was written, there were eight USDA inspected plants in Montana. The
study suggested building a plant that was capable of processing 40 head of beef per day. It
estimated the square foot cost of construction at $230/sq. ft. and the equipment costs to be
$300,000. It was estimated that the plant would be 16,000 sq. ft. in size, for a cost of $3.68
million.

The study also made several recommendations on siting a plant. While it was planned for
the plant to be located somewhere near Dillon, there was no specific location discussed in
the study. The important criteria for site selection were given as:
- Proximity to major transportation routes
- Plant distance from raw materials
- Utility availability and adequacy
- Community acceptance
- Labor force availability
- Land site suitability

(FLPI, 2006)

Hides and offal: The study recommended that while the plant might be too small to
necessitate a mechanical hide puller, a hoist and pulley system would work well. Also, the
plant would need to be capable of salting and storing hides on pallets, and be able to
stockpile the hides until they had a sufficient volume to sell. Hides could also be stored in a
chiller, for an additional investment.

For offal the study noted that tongue, liver, hearts, and oxtail, were generally the easiest
items to sell on a local basis, and that for other trim items, it might be possible for the plant
to “develop some new further processed items and may be able to develop some new
further processed items available to be sold to larger-volume markets (FLPI, 2006).”

Bones and fat would likely need to be removed by a rendering company. Fresh blood might
be used as fertilizer, or might be put into the sewer system. Paunch, or, what is left in the
animal’s rumen, could be collected and then given to a local farmer, who could mix it with
feed and feed it to their animals. The study noted that the only rendering company that
collected in Montana was Baker Commodities from Spokane Washington. It is not known if
this is still the only company to collect in Montana. The study also listed composting as a
means to dispose of rendering material.
The plant would require 450-550 gallons of water for every beef slaughtered, and the study noted that the most “critical part of planning a new slaughter plant...is the effluent or wastewater system (FSIS, 2006).” There were two options for disposing of wastewater, either pay for a municipal system to deal with the water or treat it at the processing plant.

Lastly, those producers surveyed for a plant in Dillon were interested in dry aging beef, so the plant would need to have enough cooler space to allow for dry aging.

Distribution:
The study suggested that the plant could use two methods for distribution: either operate their own in-house delivery network or hire a company to do the distribution for them. However, the study noted that this packing plant would likely need to use a combination of both of these methods. The plant would like have paid $75-$100 per pallet to ship meat.

Financial Feasibility:
The study predicted that the meat processing company would operate at a loss for the first year and then make more over the next two years, netting over $1 million at the end of the third year.

Conclusions:
The approach in the Pondera County Study to marketing bears little resemblance to the efforts currently underway in the One Montana project. The Pondera study was aimed at filling a local market whereas the current effort at One Montana is aiming for a much broader reach. As such, both the survey of local markets and the suggested budget numbers will likely bear little resemblance to the final report from One Montana.

The study’s suggestion that the Pondera project focus its efforts in a manner that avoided direct competition with the commodity market is consistent with the anecdotal evidence that One Montana has gathered in regards to this issue. It is unlikely that a small plant the size of the Pondera plant could be competitive with plants that produce commodity products. The study has also recommended a regional approach to marketing those products it does produce.

The scale of the proposed plant in the Pondera study is much smaller than the one proposed in the One Montana study. This would have allowed it to process beef, lamb, and hogs—a more species diverse approach than what is proposed in the One Montana study. While the Pondera study does not go into great detail about the methods it would have used for slaughter and fabrication, the assumption is that as a smaller plant it would have used more hand work and less mechanization to process, and that this is what would have allowed beef, lamb, and hogs to be processed.

The Pondera project was scaled to meet local need in the county and surrounding counties. The One Montana project is scaled to meet local, state, regional, national, and international needs.
The proposed plant was too small to market the edible offal, and these items would have been sent to rendering. This is different from what is proposed in the One Montana project. The proposed lagoon system is similar to what has been proposed in the One Montana project, and once again, the difference is more a matter of scale than anything.

Regarding the study in Beaverhead County, the plant was focused on custom processing for a number of different local meat marketing entities, and would have utilized a “corporate marketing strategy” to move the meat from the cull cattle and difficult-to-market cuts from custom processed livestock. It suggested further processing as the best option to do this, and, similar to the Pondera study, suggested that a small plant focus on producing a more artisan product.

The biggest difference in the two studies detailed here is that the proposed facility for Beaverhead County was not a multispecies plant. Its focus would have been exclusively on beef. It also would have had a higher production rate, of 40 head per day vs. 23 head of beef put forth in the Pondera study.

Unlike the Pondera study, the Beaverhead study suggested that it might be possible to market some of the edible offal produced, but suggested similar methods of disposal of the inedible offal by contracting with a rendering company for removal.

Ultimately, the biggest difference in these two studies and the One Montana study is a question of scale. Both the Pondera study and the Beaverhead study were focused more on meeting local or perhaps regional needs than national or international markets. Both studies were the result of local producer interest in a processing facility and therefore the studies are focused on meeting the needs of those local producer interests. There is nothing wrong with this approach, but it is different than the One Montana project, which aims to meet the needs of producers at the state, rather than the local, level. This is perhaps the most crucial difference between previous feasibility work and the One Montana project.

Both the studies presented here can be obtained by contacting the Montana Department of Commerce.
RESEARCH TOPIC 2:
*Research any previous feasibility studies completed on this subject in other states to review their findings and results. Document the studies found and present analysis of the studies.*

**Methodology:** Primary Research

**Approach:** In a similar vein to the previous topic, it was thought that it would be useful to look at some feasibility studies done in other states for comparison to the current project. In order to make this section as relevant to the current work as possible, the following criteria were used to find studies for comparison.

5. The study must have been completed within the last 10 years.
6. The plant design studied can and should-be multispecies, but it must include the capacity to process beef.
7. No projects examining processing less than 40 head per day would be examined.
8. The states examined for other studies would be states located in the Western U.S.

To find studies, web searches were performed for each of the states in question. If no study was found, the state’s Department of Agriculture was contacted, who would often suggest another state agency to contact. In some instances a school of agriculture within the university system in a state was contacted. If no state agency, university, or web search yielded a study that met the criteria, it was assumed that the given state had no studies publicly available.

**Key Takeaways:**
- A study from Mendocino County in California was found for comparison.
- Proposed building a facility that could process 80 head of beef and 50 head of lamb or goats per day.
- Projected cost of $18 million.
- Target market was the Bay Area and Sacramento Region.
- Influenced the One Montana Study.

**Detailed Findings:**

**STUDIES FOUND**
This search yielded one study that met the above criteria. The study was from Mendocino County in California. A description and analysis of it is given below.

- “Meat Industry Capacity and Feasibility Study of the North Coast Region of California (Mendocino County Development and Financing Corporation, 2009).”

Analysis of “Meat Industry Capacity and Feasibility Study of the North Coast Region of California”

The study was developed by the Mendocino County Economic Development and Financing Corporation to “foster factual and objective consideration of locating a meat processing operation in Mendocino County.” The study was funded by the Economic Development...
Agency which is a part of the U.S. Department of Commerce. The researchers were from the University of California Cooperative Extension and a specialist from UC Davis Agricultural Economics Dept. The primary market for the study was the Bay Area and Sacramento Region.

FACILITY DESIGN
The facility was designed as a multispecies facility that could process 80 head of cattle and 50 head of lamb/goat kids on a daily basis. According to the study, the facility design was based on New Zealand plants where slower production lines and increased training have been implemented in order to produce a safer working environment and a lower presence of pathogens. The plant was designed to have two lines for killing and evisceration, one for beef and one for lamb and goats. It would have covered 44,000 square feet and cost just under $18 million.

LIVESTOCK SUPPLY
The study identified two different areas for supply of livestock. The first area was made up of five counties, including Mendocino County—Mendocino, Lake, Sonoma, Marin, and Napa. These counties were identified as the most “local” in relation to a plant to be located in Mendocino County. The second area was an outer group of counties—Yolo, Solano, Glenn, Colusa and Contra Costa.

A survey was used to determine the potential supply of livestock for the plant. Four personnel from UC Cooperative Extension conducted four meetings where 220 livestock producers completed the survey. The survey revealed that the supply available from the 10 counties included in the study was 6% higher for cattle and 13% higher for sheep and goats than the actual processing capacity of the plant. Because this was believed to be a slim supply margin, the authors stated that “utilization of the Facility needs to extend beyond the ranchers who responded to our survey (MCD&F Corp., 2009).”

Most of the producers were marketing their livestock through conventional channels, but were willing to change that. The study also showed that while producers were willing to change the manner in which they marketed their cattle, they would need to get a premium price to do so.

One of the major concerns regarding supply was the availability of finishing capacity among those producers who were interested in supplying livestock. The study projected that only 20% of the volume for the plant could be filled with finished cattle. 60% of the producers who responded to the survey said that they had “little or no finishing capacity (MCD&F Corp., 2009).” The study noted that “In addition to the small-scale feedlot planned for the Facility, similar feedlots scattered throughout the region will be needed (MCD&F Corp., 2009).”
DEMAND
The study examined demand for meat products in the San Francisco and Sacramento area for products such as organic, grass-fed, natural grain-fed, local, kosher, and Halal. The authors interviewed 42 buyers in three market sectors: restaurants and institutions, retailers, and distributors.

According to the buyer interviews, most respondents expected the demand for niche meats to expand in the future. Demand for fresh meats was higher than demand for frozen meats, and the most popular meats were beef, pork, and lamb, and the most popular types of product were natural grain-fed meat and grass-fed.

For restaurants, the most desired attributes were local attributes. For distributors, the most desired quality was organic. For retailers, the most in demand quality was kosher meats. The most common premium the buyers paid for niche meats was 10-30%, depending on the type of product. One retailer noted that “his customers were far less willing to pay a premium for less desirable cuts of the more expensive niche meats (MCD&F Corp., 2009).”

The biggest challenge for buyers when purchasing niche meat products was being able to purchase sufficient and consistent products at the volume they needed, followed by quality of the product.

Distributors were identified as potential partners for the processing plant because distributors typically have infrastructure in place that would be advantageous to a processing plant, such as a customer base and brick and mortar investments such as trucks or aging facilities. Distributors would also account for a majority of the meat produced in a small processing facility.

ECONOMIC ANALYSIS
The direct economic impacts of the project were estimated at $7 million dollars for the budgeted $18 million project. A software system called IMPLAN, used to examine economic ripple effects, was used to estimate less direct economic impacts. The result of those calculations was that the facility would produce $58.2 million worth of meat annually. It would generate 682 full time jobs (not just at the facility) and the value of the regional economy would increase in value by 47%, or $23 million.

The study also included many potential risks that the project might have faced. Internal risks were changes in vital personnel or making big changes in administrative strategies, processing risk such as employee shortages, and external risks like drop in the demand for the product, disruption in the supply of animals or something happening to the plant itself. The study did not provide a solution to each of these, but instead noted that all risks “need to be addressed in depth prior to developing financing proposals for the Facility (MCD&F Corp., 2009).”
CONCLUSION
The Mendocino study and the One Montana study share some similarities. This is deliberate. The One Montana study includes elements that reference the approach taken in New Zealand processing plants and that was a result of finding this study. The Mendocino study includes an article published in Meat Processing Magazine in 2007 that detailed the differences in the New Zealand meat industry and that influenced the approach One Montana used in their study. The article explained that plants in New Zealand run slower and employ new technologies to reduce pathogen loads, while also boasting competitive wages and maintaining an emphasis on workplace safety. These plants also run clean enough that they are able to give tours to the public. The idea of a plant that was safer, cleaner, slower and put an emphasis on workplace safety to the extent that it could be toured by the public was appealing, and it formed to a certain extent the core of the initial concept of what a new plant in Montana might look like.

The two studies share other similarities. Both have been conducted for the purpose of “support of the regional family farmer (MCD&F Corp., 2009).” Both are based on the premise of processing multiple species from within a given locale. The One Montana study does not define local as strictly as the Mendocino study, however. The most crucial differences between the two studies are scale and access to markets. The facility proposed in the One Montana study is capable of processing 250 head of beef/bison per day, a significantly larger number than the plant proposed in the Mendocino study. The costs of the plant are correspondingly larger. The second crucial difference is the location of the plants. The plant proposed in the Mendocino study would be able to take advantage of immediate access to a large affluent urban market that may be more willing to pay a premium for niche meat products than the average Montana consumer. Any meat products from Montana must incur additional costs in order to arrive in a large, affluent, urban market. In addition, because the meat is from Montana, those markets will likely not view it as a “local” product.
RESEARCH TOPIC 3:
Research history of branded meat ventures in Montana and the associated marketing challenges they faced.

Methodology: Secondary Research, Expert Interviews

Approach: To gain an understanding of the opportunities and the challenges of creating Montana-branded meats, we evaluated existing information, including conducting an extensive online search of Montana associated brands, during the months of Jan., Feb., and March 2014. We also included questions about the history of branded meat ventures and the associated marketing challenges they faced in our producer interviews and online survey (see Appendix A for a copy of the survey).

Key Takeaways:
• Bad timing, poor product differentiation and undercapitalization were the likely downfalls of former branded meat ventures in Montana.
• There are multiple entities that use and/or have used Montana-themed names in their branding.
• There has been success in identifying meat products as being from Montana.
• Building a new brand will take time.

Key Challenges:
The key challenges faced by former branded meat ventures in Montana were mostly that they did not have a competitive product and were not able to differentiate themselves in the marketplace. Production costs were higher, but these brands were unable to command a premium in the marketplace. Most were also under-capitalized and weren’t able to cover all the costs of production, processing, marketing, distribution and inventory while they waited for payments from customers. It is also possible that some were simply too early to market: they were an idea before their time, in the markets they were in. The market for natural, grain-fed meat and grass-fed, organic, sustainable, etc. meats is much stronger now than it was 10 years ago.

Overall, these challenges are not a branding issue: it is not as if the previous market entries suffered from bad branding and therefore were unsuccessful. Bad timing, poor product differentiation in a highly competitive market and undercapitalization was the likely downfall.

Detailed Findings:
We found several articles that spoke to previous ventures, including a story that appeared in The Montana Standard in February 2004, “Montana Branded Beef – New cooperative hopes to sell Montana beef in the retail marketplace.”64 The article spoke about the effort to create a new beef supply cooperative called the Montana Branded Beef Association.

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64 http://www.matr.net/article-9745.html
More recently published, an article appearing in the *Missoulian* in January 2011 featured a small rancher in Belgrade, Mont., who had received a grant from the USDA’s Value-Added Producer program, and then sold 16,000 Montana Waygu beef burgers in less than four minutes on the QVC network. By 2011, the rancher had tripled his sales since starting the Montana Waygu beef company in 2008.65

Searching online for other Montana-based brands led us to several websites, leveraging the Montana brand, including the following:

- Big Sky Montana Beef – Malek Family, Highwood, Montana; 
  http://www.bigsymontanabeef.com
- Montana Beef – Terry, Montana, Harding Land & Cattle (a source-verified producer) – “Our Montana Beef, USDA inspected Ranchstar™, is available for purchase by discriminating restaurants, purveyors of fine meats, institutions and individuals. Our Montana Beef is raised hormone-free, and is free-ranging grazing on our lush Montana pastures. We only supplement the herd’s diet with healthy, natural feeds that promote robust cattle and lean, rich Montana Beef: fresh, protein-rich alfalfa and corn that we grow ourselves.”
  http://montanabeef.com/
- Meat Montana – http://meatmt.com/ - Does butchering, small scale
- Montana Range Beef – Leachman Cattle Co. – no longer operational

We spoke at length with several producers for a history lesson on branded beef in Montana:

- Cole Mannix – Fifth generation Montana rancher, Director of Operations for Rancher’s Original.
- Wally Congdon – Founder of Big Sky Natural, wrote the “certified natural” and “certified grass-fed” production standards and has 20+ years of experience in the industry.
- Steve Christiansen – Founder of the Montana Branded Beef Association, current meat marketer and has 20+ years of experience in the industry.

Mannix, Congdon and Christiansen provided extensive first-hand knowledge of the branded beef industry in Montana and a combined 50-plus years of experience.

Through our interviews, we heard that “it will take at least five years to find the right producers, develop the production protocol, develop the knowledge and practices to provide a consistent supply of finished animals, establish relationships with processors, distributors, etc. and reach a certain level of success in the marketplace.”66 Consistency cannot be overstated here: “your customers will not tolerate an inconsistent product.”67 Without a successful brand, there aren’t enough animals to process to keep a new packer

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65 http://missoulian.com/business/local/belgrade-rancher-sells-special-wagyu-beef-directly-thanks-to-grant/article_f908b1b2-2123-11e0-ac2d-001cc4c002e0.html
66 Interview with Wally Congdon, February 2014.
67 Interview with Steve Christiansen, February 2014.
busy. This same sentiment was also expressed in an interview with Cole Mannix of Rancher's Original. “To justify a new facility that would process even 25 head/day, without taking business away from the other small processors, would require we add another 6,250 head of livestock to Montana niche meat programs. That is triple the size of where we currently are.” Getting to that point requires a tolerance for some pretty low returns. Steve shared a cautionary tale of how little money his venture (Montana Branded Beef Association) made and how thin the margins were: on 1 million pounds of ground beef sold, they realized their take-home profit was $450. They made less than half-a-cent per pound, “after all that work.”
RESEARCH TOPIC 4:
Research history of meat processing in Montana and factors that contributed to its decline.

Methodology: Primary Research, Secondary Research

Approach: The history of the meat processing industry is one of consolidation. According to Dr. Eric Belasco of Montana State University, currently, four packers are responsible for over 80% of beef slaughtered in the U.S. These firms are Tyson, JBS, Cargill, and National Beef. Furthermore, according to Dr. Belasco, “Almost 80% of U.S. fed cattle volumes and 83% of all packing volumes reside in 4 states (CO, NE, KS, TX) (Belasco, 2014).”

Currently, in Montana, there are 9 federally inspected plants that are slaughter and processing plants. Less than 1% of the beef raised in Montana is processed here.

Was this always the case? To provide some context to this feasibility study, One Montana thought it would be helpful to provide some information about the meat processing industry in Montana. Web searches were used and historical societies in Montana were contacted for the relevant information, as many records on Montana meat processing are not available elsewhere.

Key Takeaways:
• Of the major meatpacking interests that were started in Montana, only one remains in operation today.
• Accidents in the plants were partially responsible for closure of two of the largest plants in the state.

Detailed Findings:

BILLINGS
In the book “Billings,” by James M. Reich, he states, “By the 1920s and 1930s, Billings was importing more cattle than exporting. There were two major meatpacking plants, Pierce Packing Company and Midland Empire Packing Company. Billings was believed to be the largest packing center between Fargo and Spokane (Reich, 2009).”

Pierce Packing Company:
Pierce Packing Co. was founded in Billings in 1930. Following the Second World War, the company expanded and by 1957 was “the largest independent packing plant in the region.” In 1973, sales were over $62 million dollars annually and Pierce was slaughtering 250,000 hogs and 60,000 head of cattle per year. By March of 1974, Pierce Packing Co. was the largest meat processor in Montana: they had eliminated their beef slaughter line and doubled hog slaughter to 500,000 head/year as “much of Pierce’s cattle was bought outside the Billings area.” At that time, Pierce was marketing its products in 22 states, Canada, Japan, and Korea.

The success only lasted so long: by December of 1974 Pierce Packing was “on the verge of financial collapse” due to pricing competition between Pierce Packing and John Morrell & Co, which Pierce had filed an antitrust suit against. Pierce said in the affidavit that there was “an immediate and present danger (that Pierce Co.) will become totally insolvent and unable to continue business…with a result being a loss of 370 jobs for employees.” Pierce would go on to lose this lawsuit.

It was the beginning of the end for Pierce: in 1979, an “accidental spill of PCB-laced coolant contaminated poultry feed made at the plant” and as a result the company was hit with lawsuits and fines. Pierce filed for bankruptcy in 1983 and closed for good in 1984.

BUTTE
The Hansen Packing Company was established in Butte in 1912. According to the book *Butte* by Ellen Crain and Lee Whitney, by 1929 it employed 350 people, and “the Hansen Packing Plant sent beef to Britain during WWII and shipped 400 to 500 railcars of beef and pork every month.” In 1959, the plant was sold to the Sigman Meat Company based in Denver, CO, who retained the name and planned for the plant to be a “Montana project for Montana people.” But in November of 1960 plant operations were suspended following a fire in the plant. According to a researcher at the Butte-Silver Bow Public Archives, 1960 was the last year that the plant was listed in the city directory. It is presumed that the fire prompted the closure of the plant.

GREAT FALLS
According to information found on Archivegrid.com, the Great Falls Meat Company was incorporated in 1897 and closed in 1974. Little else is known about this company.

MISSOULA
According to www.dailysmeats.com, the largest meat processing business in Missoula was the John R. Daily Company, which was founded in 1893 as the Union Market. The name was changed in 1910 and the company grew to 6 local markets, supplied from a nearby slaughterhouse. In the 1920s, the company began to “focus more on wholesale markets” and by 1967 closed all of the retail locations. In 1992 the company opened a second slaughter location in Salt Lake City, Utah.

In 2005, Daily’s Premium Meats was purchased by Seaboard Foods, one of the largest pork producers and processors in the country. Seaboard Foods continues to operate in Missoula. It makes bacon, ham, and sausage products.

*Conclusion:*

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71 Billings Gazette, 1974.
It appears that the meat industry in Montana, at least in the sense of the larger packing houses, died away due to accidents as much as anything else. For both Pierce Packing and the Hansen Meat Co., it appears that closure of the businesses followed accidents at these plants. What is less clear however, is whether the accidents were sufficient in their own right to cause the closure or merely the final straw in a series of misfortunes. Out of all the meatpacking companies described here, only Daily’s Meats continues to operate, and this company is focused on pork, not beef.
RESEARCH TOPIC 5:
*Research potential unique qualities and opportunities of a Montana meat product that could add value. (what is the product?)*

*Methodology:* Producer Interviews and Consumer Interviews

*Approach for Producer Interviews:* To determine the unique qualities and opportunities of a Montana meat product, we went to the ranchers. We held in-depth interviews with those who had long been involved in producing and selling branded meat products in Montana, and we also surveyed ranchers on their interests in and ability to sell to a new branded program.

Our approach here was twofold: first, we focused on those involved in the “meat business,” those currently selling branded beef, bison or lamb as they have real life experience in developing and promoting a brand. Since a processing facility sells meat, not livestock, we wanted to hear directly from those in the meat business what it might take to expand an existing brand or build a new one.

Next, we interviewed those involved in the “livestock business,” those selling cattle and calves, as they represent the greatest potential for expansion of branded meat programs in Montana. The vast majority of livestock producers in Montana export their animals for out-of-state finishing, processing, marketing and distribution. Reaching out to these producers helped us better understand their motivations and interests in finishing and processing their livestock in-state and marketing and distributing the resulting branded meat products.

We heard from 20 ranchers in Montana who fit the following criteria:
- Currently raising cattle, lamb and/or bison
- Fit a variety of production styles: traditional cow-calf (7), natural, grain-fed (7), grass-fed (4) or organic (2)
- Had their own brand or were interested in selling to a new brand

Producers were contacted by phone, email and through an online survey distributed by our research team and the Montana Stockgrowers Association.

The survey questions are attached in Appendix A.

Our producer interviews and surveys helped us get better sense of 1) what Montana ranchers are currently producing, 2) what they might be able to produce in the future and 3) if they would be interested in selling to a new, Montana brand.

*Key Takeaways from Producer Interviews:*
- Those with an existing branded program are unlikely to participate in a new Montana brand.
Those already involved in marketing meats felt that the grass-fed market was strongest due to consumer confusion over what “natural” means.

Producers believe that the Montana name alone won’t be successful.

Many producers are able to send animals to slaughter year-round: seasonality shouldn’t be that big of a problem.

Most producers interviewed are satisfied with the existing processing facilities.

**Approach for Consumer Interviews:** For consumers, we needed to understand their awareness of high-quality meats and potential interest in Montana-branded meat products. We talked with 15 individual consumers, up and down the East Coast, who met our target profile:

- Living in the eastern part of the United States
- Well-educated
- Affluent but not necessarily rich
- Health conscious
- Environmentally conscious
- Socially minded
- Want a greater sense of connectedness

**Key Takeaways from Consumer Interviews:**

- Consumers have an increased awareness of how their food is being raised and have an increased desire to have a closer connection to it.
- Consumers typically are committed to their retailer or have a relationship with their butcher, and they aren’t thinking about specific meat brands.
- Purchasing meat is a very visual experience for these consumers.
- “USDA certified” and “natural” labeling doesn’t always mean something significant to them.
- They aren’t paying attention to “source verified.”
- However, they like the idea of knowing where their meat is from, even if the term “source verified” doesn’t resonate; and Montana holds appeal to them.
- Even though they may not be familiar with the specific industry definitions of these terms, here are the words they used to describe what they would expect from Montana meats:
  - “Grass-fed”
  - “Free-range”
  - Better flavor
  - More tender
  - Not from “factory farms”
  - Not from “huge slaughterhouses”
  - Environmental concerns are taken into consideration

**Detailed Findings from Producer Interviews:**

Our findings gave us an informative cross-section of what a new, branded meat company in Montana might look like. There were, of course, as many opinions as there were ranchers surveyed, but a few common threads came out of discussions:
• *Those with an existing branded program are unlikely to participate in a new Montana brand*

Ranchers that have worked hard to establish their own ranch brands intend to channel as many animals as possible towards their programs: directing finished animals towards another brand would undercut these efforts. As one rancher said, "Why would I sell to another brand and circumvent what I’ve spent the last six years building?" Another stated “What are you offering me that I can’t do for myself? I already sell directly to consumers, grocery stores and restaurants.”

There were, of course, ranchers who would be interested in selling finished animals to a new branded program, but at this point they were unable to commit to specific numbers without knowing more about the production protocols and premiums offered: “it would have to cover that opportunity cost of selling the calf when it is a weanling, plus the risk of death loss, plus the cost of feed to reach market weight. I’d need a significant incentive: at least 15% if not more” per one rancher. There was, however, stronger interest in a branded program that would buy cull animals. One producer stated “for cull cows and bulls, I could see running a few hundred head [a year] through a program like that, between all the ranches I work with.” As brand specifics and financials are developed, these ranchers could be contacted again to gauge the seriousness of their initial interest.

• *Those already involved in marketing meats felt that the grass-fed market was strongest due to consumer confusion over what “natural” means. The “Montana” name alone is not enough.*

Prior to our surveys, we thought that most ranchers would be interested in participating in a natural, grain-fed beef-branded program (as opposed to organic and/or grass-fed), but we found out that wasn’t really the case. Many felt that the natural label was rather meaningless in the marketplace because the big packers can label their product as “natural.” Consumers don’t really understand the difference between “natural meat” (a processing standard) and “naturally raised” (a production standard) and the big packers can beat a branded program on price any day of the week. Several producers also felt the real growth in demand was for a grass-fed product, so why create a natural brand? All said that felt simply marketing a product as “Montana” beef with no other product differentiation would not work.

• *Many producers are able to send animals to slaughter year-round: seasonality shouldn’t be that big of a problem.*

Going into our interviews, we had thought that seasonality would be a big issue for any new brand (and the processing facility as well) but many producers said that they already send animals to slaughter year-round and wouldn’t need to adjust calving dates to do so.

• *Most are satisfied with the existing processing facilities.*
A large part of the impetus for this project was a recurring sentiment that there simply aren’t enough packing plants in Montana, or the existing packing plants do not meet producers’ needs. While that still may be true (we weren’t able to survey every rancher in Montana), by and large the producers we spoke with were generally happy with the processing facilities they use. For example, one rancher said, “You know, I’m pretty happy with the three packing plants that I work with. There are no scheduling issues, all are certified organic and all are able to do value-added processing.” For those selling product in-state only, the 20 state-inspected facilities work just fine. For those selling across state lines, they haven’t maxed out capacity at the USDA inspected facilities they use. Some ranchers mentioned that they would like more value-added processing options, but that could be incorporated into an existing plant and wouldn’t necessarily justify a new plant. One rancher did point to a lack of satisfactory distribution options when trying to reach out-of-state markets: “There isn’t a trucking company worth its salt that works this state.” So that is something to consider for a new plant: in-house distribution services might be necessary.

**USDA-inspected packing plants in Montana**

- Ranchland Packing – Butte, MT
- Little Rockies Meat Packing – Malta, MT
- Stratton’s Butcher Block – Roundup, MT
- White’s Wholesale Meats – Ronan, MT
- Stillwater Packing – Columbus, MT
- Quality Meats of Montana – Miles City, MT

**State-inspected packing plants in Montana**

- Vaughn Meat Packing Inc. – Vaughn, MT
- A-S Processing – Scobey, MT
- Lolo Locker – Lolo, MT
- Big Timber Meats – Big Timber, MT
- West Valley Bison & Elk – Kalispell, MT
- Lower Valley Processing – Kalispell, MT
- Meat Montana, LLC – McAllister, MT
- Hamilton Packing Company, Inc. – Hamilton, MT
- Vandevanter Meats – Columbia Falls, MT
- Superior Meats, Inc. – Superior, MT
- M3 Meats – Sidney, MT
- Farm-To-Market Pork, Inc. – Kalispell, MT
- S & T Project Meats – Billings, MT
- Thompson Falls Meats – Thompson Falls, MT
- Pioneer Meats – Big Timber, MT
- Clark Fork Custom Meats – Plains, MT

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• C & K Meats – Forsyth, MT
• Bear Paw Meats – Chinook, MT
• Beeman’s Home Town Butcher Shop – Eureka, MT
• 4J Meats – Sheridan, MT

**Detailed Findings from Consumer Interviews:**
Our consumer interviews provided insightful information, giving us a clear idea of what was most important to the consumers as well as a closer look at their shopping behaviors, their purchase criteria, their awareness of high-end meat brands and their thoughts about Montana-branded meats, as well as processing.

**KEY CONSUMER QUOTES**
“I’d like to see more about where things are from.” Nolden, Marblehead, MA

“We don’t raise our food as we should.” Tracey, Darien, CT

“I love to support the farmer’s market, but it’s hard to rationalize spending 4X as much. It has to be practical.” Dan, Somerville, MA

**TARGET AUDIENCE SHOPPING BEHAVIORS**
• These consumers tend to be multi-stop shoppers – not just going to one place; they enjoy going to specialty stores.
• What they purchase is inspired by healthy eating, recipes that they often find online, going to the store with a recipe or an idea in mind, except with a steak; that’s more of a specific purchase.
• Looking for packaged foods that have minimal processing.
• More focused on organic fruits and vegetables.

“Pesticides have always been known to be a danger.” Denise, Laurel Hollow, NY

• More in tune to dairy and eggs.
  o Awareness of hormones in milk
  o Awareness of free-range chickens
• More in tune to chicken and brand aware when it comes to chicken – i.e., Bell and Evans Chicken was often mentioned.

“Chicken has to be cage-free, antibiotic free.” Tracey, Darien, CT

**PURCHASE CRITERIA FOR MEAT**
When consumers purchase meat, here is what’s top of mind:
• The look of it, very visual experience
• Looking for less packaging, less Styrofoam
• Want to be able to see the meat
• Leanness
• Packaging dates
• The quantity – buying the right amount for the situation
• Better quality but less quantity
• Price is a consideration but not always the dominant one

“I specifically look for the quality of the cut, the graining, the marbling. I don’t take the first thing. I will pick through what’s there and pick what I visually like.” Nolden, Marblehead, MA

“I like to see it fresh and presented in a manner that is appealing.” Doug, Sandy Springs, GA

“Ground beef that comes in the tube turns me off, I want to be able to see it.” Laura, Leesburg, VA

“Yes, I want things priced competitively but I will spend extra money for a better cut of meat without hesitation. If something is 98% fat free, then I will buy that even if it’s double the price.” Jill, Astoria, NY

“I like my meat, and I don’t think I could ever give up. But I also want to respect it and acknowledge the animals that I’m eating. Let’s think more about where our food is coming from. If something is from a local farm, then I choose that over factory farm meat.” Jen, Portland, ME

Interviews with consumers also called out key learnings about what was not important:
• “USDA” doesn’t always register or isn’t always trusted.
• “Natural” doesn’t always mean something significant to them.

“I appreciate the USDA standards, but I think it’s overhyped.” Ted, Woodbine, MD

“I’m not sure how much I trust USDA necessarily.” Jen, Portland, ME

They have a clearer image of what it means for meat to be from a “factory farm” and/or a “feed lot” versus what it means for an animal to have been “grass-fed.”
• It’s easier for them to understand what the media has portrayed negatively.

They typically have a relationship with the butcher.
• Desire the expertise.
• Know and trust the butcher.

“I make an assumption that if it’s being sold at my local store, then it’s good.” Katie, Atlanta, GA

“The guy has been there forever, he puts out quality stuff. There is no particular objective standard, but he’s local, trustworthy, well-handled product. Personal, local.” Ted, Woodbine, MD

“There’s something about getting it where they wrapped it themselves.” Dan, Somerville, MA
“The butcher is the butcher. The butcher is the brand. The guy has been in business for 40 years, we trust [him] to the end of the world.” Daphne, Alexandria, VA

Consumers don't have any major challenges in finding their desired cuts:
- Relationship with butcher
- Special cuts are for special occasions
- Also willingness to try new things
- Ground beef and lean cuts are for every day
- Would like to see more bison options
- Hangar steaks aren’t always found in stores
- Not thinking about specific brands

“Bison would be really appealing. We love bison and we never see it the grocery store.” Laura, Leesburg, VA

“Hangar steak never seems to make it to market. Becomes popular in restaurants and harder to find in stores.” Nolden, Marblehead, MA

“Uncooked meat is ubiquitous.” Doug, Sandy Springs, GA

AWARENESS OF HIGH-END MEAT BRANDS
- Not very aware of specific, high-end meat brands.
- Most aware of chicken and processed meat brand names.
- Aware of New Zealand lamb, Argentinian beef, Kobe and Waygu.
- Those who know of Omaha Steaks are not impressed.

AWARENESS OF “SOURCE VERIFIED”
- They are not paying attention to the term “source verified,” as those words have no real meaning to them, but that doesn’t mean they don’t care where their meat is from.

“Yeah, I notice it (‘source verified’), but it’s not in the forefront of my decision making. I don’t seek it out.” Nolden, Marblehead, MA

THOUGHTS ABOUT MONTANA MEAT
- Even though they aren’t paying attention to source verified, they do like the idea of knowing where their meat is from and Montana holds appeal.

“Montana sounds like a nice place to be a cow until it’s time.” Shannon, Alexandria, VA

“Having no knowledge of Montana meat, my gut feeling is that it’s probably very good. It seems to be the right environment for cows. Beautiful, open, healthy state. I would equate the wide openness of Montana to raising the animals well.” Jill, Astoria, NY
Even though they may not be familiar with the specific industry definitions of these terms, here are the words they used to describe what they would expect from Montana meats:

- “Grass-fed”
- “Free-range”
- Better flavor
- More tender
- Not from “factory farms”
- Not from “huge slaughterhouses”
- Environmental concerns are taken into consideration

“I would think that it would probably be good, and I would try it – wild, natural. All other things considered. Less likely to be from a big farm, slaughterhouse.” Dan, Somerville, MA

They would want to know specific standards, education, establish code of ethics, code of standards to create value.

They would want an explanation of what differentiates it from every other meat.

“Yes, I’m willing to pay more if it’s grass-fed and uses a process that’s worth the extra cost.” Nolden, Marblehead, MA

They would be willing to pay more for the first time, but to become a repeat buyer then it needs to be compelling.

“If I know where it comes from, and I would rather know where it’s coming from, I’m willing to spend an extra dollar or two.” Shannon, Alexandria, VA

“If all things being the same, just the Montana location, then I would go with the generic.” Denice, Laurel Hollow, NY

They have some concerns about shipping costs and environmental impact of shipping meat from Montana, as well as the freshness.

“Local for somebody. Small as opposed to big. Less industrial. Transporting across the country, I would just as soon avoid that. When I think local, somebody’s local. Somebody’s homemade.” Dan, Somerville, MA

“If you stressed the fact that it’s federally inspected, fresh, rushed to market. Don’t want to think about it being a long way away. Gets there fast. Fresh, inspected. Those would be the points I’d emphasized.” Katie, New York, NY

THOUGHTS ABOUT PROCESSING

They tend to not think about processing, but they’d want it processed in Montana, if it’s labeled as Montana.
“I would expect that if something is coming from Montana, that the cows are from Montana, butchered in Montana, coming from Montana. Expect everything to be done in Montana, and a distributor from Montana that dealt with the grocery store.” Laura, Leesburg, VA
**RESEARCH TOPIC 6:**
*Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)*

**Methodology:** Expert Interviews

**Approach for Expert Interviews:** During this stage of the research, we reached out to 19 retailers identified by consumers in our Consumer Survey as places they shop for niche meats on the East Coast. This included large, national chains like Whole Foods and Costco, regional chains like Harris Teeter and Food Lion and independent stores like McKinnon’s Meat Market in Somerville, Mass. The purpose of these interviews was to better understand the demand for a Montana-branded product in terms of product attributes, prices, delivery and payment terms, etc. from the buyer’s perspective.

**Key Takeaways from Expert Interviews:**
- Retailers don’t participate in surveys.
- Regional chains on the East Coast are not a good target market.
- Institutional food service is a good market.
- So are restaurants, but they don’t buy very much.

**Detailed Findings from Expert Interviews:**
By and large, retailers were not interested in participating in our survey: only 3 of the 19 contacted were willing to participate. Their decision-making process as to what they put on their shelves is largely a proprietary process. The grocery business is incredibly competitive and most retailers do not want their competition to know about their inner workings.

The few that were willing to participate asked to remain anonymous so we will summarize responses by “store type”: large national chains, regional chains and independent. The large national chains were not willing to participate in our survey. But, we can tell a little bit about their product attribute requirements by looking at Whole Foods Animal Welfare Standards, for example. The largest natural foods retailer in the country, Whole Foods in many ways sets the standards for that industry. Their “5-Step Animal Welfare Rating Standards” starts at a baseline Step 1 which is more or less industry standards in the natural beef industry. Feedlot-finishing is allowed, but no antibiotics or growth-hormones may be administered. From there, the standards move up the animal welfare scale to the elusive Step 5: animals must be born, live their entire life on one farm and slaughtered on that farm. Very few producers in the U.S. have a Step 5 rating. Overall, we know that large retailers like Whole Foods are interested in a natural beef product (for example, they carry a significant volume of Country Natural Beef, a natural, grain-fed beef brand) as well as a grass-fed beef product (like Rain Crow Ranch). With the right size, scale, product attributes, price point and distribution, a Montana-branded product could anticipate selling to Whole Foods.

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78 The Eastern Seaboard was determined to be a strong market for Montana meat products by the One Montana team and therefore the focus of this project when conducting buyer and consumer interviews.
Smaller, regional chains on the East Coast like Harris Teeter and Food Lion, might be a harder market for a new Montana brand to target. From our survey questions and research we found that these chains, in general, sell a larger portion of conventional products. They are very price-conscious, as they have to compete with “the big guys” yet lack the economies of scale that chains like Safeway and Kroger enjoy. Often, regional chains seek to carry more private label products making it difficult for a Montana-branded program to really make a name for itself in the marketplace. Anecdotally, a regional chain retailer wondered how much a Montana brand would really resonate with East Coast consumers: he felt that a branded program led by producers closer to home might be more successful.

Independent retailers and butcher shops could be a great market for a Montana-branded product but it will take a significant number of them to absorb the volume of production coming out of a processing plant of the size proposed in this study. In general, the independent retailers were interested in a Montana product as it gave them an edge, something special to offer their customers. Depending on the retailer, they were either very price conscious or not particularly price conscious: some catered to a value shopper, while others serve a niche market (i.e. consumers shopping at a natural and organic meats specialty butcher shop).

Given the difficulty we had in getting retailers to participate in our survey we turned to secondary research to learn more about market demand for niche meats. The Northern California Niche Meat Market Demand Study\(^\text{79}\) found that most distributors surveyed carried grass-fed and naturally-raised, with only a handful carrying certified organic. Retailers were roughly the same: nearly 70% carried grass-fed and 100% carried naturally-raised. Restaurants skewed more towards carrying naturally-raised over grass-fed. The study explained that retailers “can carry even minimal amounts of naturally-raised meats, in order to satisfy a potentially small segment of their customer base, while restaurants do not put something on their menu unless they are committed to it.”

On the other side of the country, the New England Beef to Institution Marketing Study\(^\text{80}\) found that “there are opportunities for growth in the use of local beef in institutional markets in all six New England States” with “the bulk of the need (86%) is for raw, bulk ground beef, with no additional processing (pasteurizing, cooking, spicing, shaping, or scoring) required.” Focusing just on institutional food service markets, they found that there were two types of buyers: buyers who have more autonomy and decision-making control (like hospitals and universities) and buyers who are price sensitive and driven by routine (like k-12 schools and food service management companies). They found that the maximum price threshold for locally sourced ground beef was about $4-5/lb. for the buyers with more autonomy and about $2-3/lb. for price-sensitive buyers.


At the local level, rancher Wally Congdon said he sees real demand among Montana institutions (k-12 schools, hospitals, etc.) for Montana meat products. “There are 828 public schools in MT and 45 counties have a local hospital: the demand for local meat from institutions is spread out fairly evenly across the state.” Farm to School programs and Farm to Hospital programs are growing in popularity every year as food service directors look to source more local products.\textsuperscript{81} Currently, many institutions source their beef from large-scale distributors like Sysco and Food Services of America, not known for their vast array of local meats.\textsuperscript{82} Why not serve more Montana beef and bison in Montana institutions?

\textsuperscript{81} National Farm to School Network, http://www.farmtoschool.org.
\textsuperscript{82} Farm to School Programs, 2013 Survey. http://farmtocafeteria.ncat.org/overlay/k12_schools.htm
RESEARCH TOPIC 7:
Research market potential for Montana meat products in Japan and Taiwan and suggest marketing strategies for those products.

Methodology: Trade Expert Interviews

Approach: We worked with One Montana’s existing relationships and conducted interviews with those who have extensive knowledge and understanding of the Japanese and Taiwanese markets – including trade experts and their contacts. We also created a discussion guide that was used for these interviews to develop a very preliminary understanding of the opportunities and challenges of tapping these markets. (See Appendix A)

Key Takeaways from Trade Expert Interviews:
- Awareness of Montana as a travel destination exists in the Asian markets, but there is no current demand for Montana-specific beef.
- Montana’s current processing plants don’t meet export standards for Asia.
- Food safety is very important in Japan as well as China, and traceable products would be able to command a premium.
- Beef is being shipped chilled, not frozen.
- The preference in Asia is for grain-fed beef, and there are specific cuts desired in Asian markets that often differ from U.S. preferences.

Detailed Findings from Trade Expert Interviews:
The interviews conducted with the trade experts provided a first glimpse into what might be explored with the Japanese and Taiwanese markets.

Without Montana-branded meat products available in Japan or Asia, awareness of any kind of Montana-brand meat is expected to be non-existent. However, Montana does have awareness of “its nature and clean environment which help deliver good quality and ‘romance,’” attached to the current products being offered overseas – such as organic foods, grains and natural pork.

The biggest challenge is that Montana doesn’t currently have an approved processing facility for its beef. As noted by one of the trade experts, “When Montana cattle are shipped to other places with packing plants, it’s difficult to have Montana-identified beef when it’s mixed up with other cattle.”

Food safety is critical, and as explained by one trade expert, “Traceability can demand a premium.” In his opinion, safety and traceability were more important than whether or not the cattle would be processed in Montana.

When exporting, there are specific regulations that must be considered. For example, all beef products exported to Taiwan must be derived from cattle under 30 months of age and
processed in approved establishments. One Taiwanese trade expert provided the following background information:

“In 2010, the United States surpassed Australia as Taiwan’s largest beef supplier on both volume and value basis. However, U.S. beef exports to Taiwan in 2011 and 2012 tumbled after Taiwan began rejecting some shipments of U.S. beef that tested positive for ractopamine, a feed ingredient approved for use in the United States and many other countries but not approved in Taiwan. Following Taiwan’s decision to implement a maximum residue level (MRL) for ractopamine in September 2012, U.S. beef exports to Taiwan surged during the October 2012-March 2013 period. Industry forecasts now suggest that Taiwan’s import volume of U.S. beef in 2013 is poised to surpass the 2010 record.

The recovery of public confidence in U.S. beef continues to grow steadily, and consumer demand for U.S. beef has been strong, particularly in the hotel and restaurant sector. Most retailers have already restocked U.S. beef in their stores and have reported strong sales. However, U.S. retail giant Costco has been somewhat more cautious, and Australian beef still occupies more chiller space at Costco stores. Prior to 2011, Costco accounted for more than 50 percent of Taiwan’s total imports of chilled U.S. beef.”

As noted in the above source, the Taiwanese – as well as the Japanese – have a preference for chilled beef. The trade expert from the USMEF explained that U.S. beef is being shipped chilled to Asia, as it is believed that “chilled beef is a superior eating product versus frozen beef.” To meet this demand, the packers are bringing chilled containers directly to the plants, filling the chilled containers at the plants, and then not opening them again until they have reached their final Asian destination.

Several trade experts spoke to the preference of the Japanese and Taiwanese desiring grain-fed beef. In addition, packers have been creating demand for short ribs among multiple Asian markets, and China continues to be an opportunity. As explained by the USMEF expert, “In the old days, Japan and Korea would argue over the short ribs, and China was a non-factor. Now, Korea is complaining about China taking all of the short ribs.”

The demand is often for the cuts on “the ends of the animal.” Specific cuts mentioned included: beef tongue, tripe, intestines and muscle meats. In Taiwan, rib fingers, heel muscles and chuck items were noted.

Asia, in particular, has experienced rapid economic growth in recent years and an ensuing rise in meat consumption. Despite high tariffs, restrictive quotas, and stricter limits on residue levels, U.S. beef exports to Asia continue to grow. Because Asian market preferences differ from domestic market preferences, exports to Asian markets represent an opportunity to generate higher revenues from traditionally undesirable cuts of meat, such as the market for tongue in Japan or intestines in Southeast Asia. Products that are less desirable in the U.S. are in great demand in other regions of the world and growing market access would trigger increases in the value of the entire animal and generate premium prices for offal.
RESEARCH TOPIC 8:
Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)

Methodology: Expert Interviews and Consumer Interviews

Approach: We conducted one-on-one interviews with producers, retail buyers and consumers to gain a better understanding of the competitiveness of Montana-branded meat products in the value-added market – i.e., the market for non-commodity meats. For the industry experts, we wanted to better understand the competitive marketplace and the value that the Montana brand brings to the value-added market. For consumers, we wanted to understand their awareness of high quality meats, potential interest in Montana-branded meat products as well as their behaviors and attitudes in purchasing these products.

Key Takeaways:
- The target markets will need to be clearly defined.
- Adequate capital is a must.
- Enough time to be successful is essential.

Detailed Findings: From our interviews and surveys with producers, buyers, and consumers, we believe that a Montana-brand could be successful, but it will take a very strategic focus on a clearly defined market, capital and time.

1. Define the target markets: There are several opportunities for expanding the market for Montana-based meat products: natural grain-fed beef, grass-fed beef, bison, international markets, etc. Each market has its own competitive landscape. To conduct a true competitive analysis, a specific market channel will have to be selected.

2. "Make sure you have adequate capital"83: Many of the now-defunct branded programs didn’t fail because they had a bad idea, they failed because they were not adequately capitalized and could not make it through the lean start-up years. This was the case with several Montana programs, as well as others in the region, like Northern Beef Packers in Aberdeen, S.D. One rancher we interviewed said “a branded program starting up today would need 7 or 8 times their monthly operating costs in reserves to operate, with what cattle cost today.”

3. Make sure you give yourself enough time to be successful: Those with experience in the natural grain-fed beef industry told us that building a new brand will take time: producer Wally Congdon said it will take “at least 5 years to find the right producers, develop the production protocol, develop the knowledge and practices to provide a consistent supply of finished animals, establish relationships

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83 Interview with Steve Christiansen, February 2014.
with processors, distributors, etc. and reach a certain level of success in the marketplace.” Consistency cannot be overstated here: “Your customers will not tolerate an inconsistent product,” per producer Steve Christiansen.
RESEARCH TOPIC 9:  

*Determine price premiums for Montana-branded meat products.*

**Methodology:** Analysis of primary research and secondary research.

**Approach:** To determine possible price premiums for Montana-branded meat products, we used findings from producer and retail buyer interviews as well as secondary research to develop an economic analysis tool for producers to use in examining value-added marketing opportunities. We also compared current retail pricing of several key beef cuts in the Missoula, MT, Boston, MA and Seattle, WA markets.

**Key Takeaways:**
- Price premiums of 10 – 30% are common for niche meats
- There isn’t a huge difference in prices in the markets that were evaluated

**Detailed Findings:** It was difficult to get a sense of the price premium for Montana-branded products as a result of our research.

Producers were hesitant to commit to a set premium given that the production protocols for a new branded program have yet to be finalized. Producers who participated in our online survey said they’d need a premium at least 5%, if not more like 10 or 15%. In a strong cattle market, such as today’s, the commodity markets are an attractive alternative to the difficult process of building a brand. Same for retailers: they were unwilling to say what kind of premium they pay for various products. We do know, from our research review, that on average, price premiums of “10 – 30% were common”\(^8^4\) for niche meats, with certified organic meats commanding even higher premiums.

We can, however, help producers determine the pros and cons of pursuing various market channels when they are ready.

Included in Appendix E is an economic analysis tool for producers to use in examining value-added marketing opportunities, developed by the University of California Cooperative Extension (UCCE).

Included in Appendix F is a beef cutting test template (also from UCCE) to help producers better understand what they are getting out of each carcass.

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\(^8^4\) Gwin and Hardesty, 2008.
Our findings from comparing retail prices for several key beef cuts are as follows:

<table>
<thead>
<tr>
<th></th>
<th>gf. ribeye</th>
<th>n. ribeye</th>
<th>gf. bnls chuck</th>
<th>n. bnls chuck</th>
<th>gf. ground beef</th>
<th>n. ground beef</th>
<th>source</th>
</tr>
</thead>
</table>

gf: grass-fed  
n: natural, grain-fed

The Missoula prices are from local and regional brands including B Bar Ranch and Mannix Beef and were collected in April 2014. The Boston and Seattle prices (collected in March 2014) are from well-established brands with national distribution, e.g., Panorama, Country Natural Beef and Meyer Natural. A new Montana-branded product would have to enter the marketplace at a price point that is competitive with what is described above. Given the distribution costs to and within various markets, among other factors, a local, regional, East Coast or West Coast market may or may not be attractive.
RESEARCH TOPIC 10:
Research the supply of beef, lamb, and bison in Montana.

Methodology: Expert Interviews and Secondary Research

Approach: In researching the feasibility of this project, it was important to know the supply of each of the species in question—beef, lamb, and bison.

One Montana contacted the Montana Department of Livestock, the Montana Department of Agriculture, the National Agricultural Statistics Service, the Montana Department of Environmental Quality, and the Montana Bison Association to compile this section. They also used web searches and the National Agricultural Statistics Service Ag Census search tools to find relevant data.

Key Takeaways:
- Montana beef inventory in 2013 was 2.6 million head of all cattle and calves.
- Montana lamb inventory in 2013 was 235,000 head of all sheep and lambs.
- Montana bison inventory is less clear. The best data available suggests that the bison herd in Montana is around 9,000 head.

Detailed Findings:
BEEF: Beef cattle are the most prolific of the above three types of livestock in Montana. According to data from the National Agricultural Statistics Service (NASS), in 2013, there were 2.6 million head of cattle in Montana. The number of beef cows and heifers that have calved was 1,506,000. These numbers are up slightly from 2011 and 2012, during which the number of beef cows and heifers that have calved were 1,476,000 and 1,456,000 respectively. The overall cattle herd grew from 2011 to 2013 as well, expanding by 100,000 head from 250,000 in 2011-12 to 2.6 million in 2013. However, the 2013 calf crop fell 2 percent from 2012’s crop to 1.47 million head in 2013.

According to the most recent NASS data, Montana’s cattle herd has experienced a small amount of contraction in 2014, with the overall inventory of all cattle and calves falling to 2,550,000 head, which is a 2 percent drop from January of 2013. However, the number of cattle and calves on feed in January was 45,000 head, an increase of 18 percent from 2013.

The following is the NASS summary of class estimates for Montana:
- Beef replacement heifers 500 lbs and over: down 1 percent to 430,000 head
- Milk replacement heifers 500 lbs and over: up 1,000 head to 9,000 head
- Other heifers 500 lbs and over: up 13 percent to 211,000 head
- Steers 500 lbs and over: down 4 percent to 220,000 head
- Bulls 500 pounds and over: No change at 100,000 head
- Calves under 500 lbs: Down 25 percent to 90,000 head

(USDA NASS cattle inventory January 1, 2014)
While the Montana inventory of cattle has experienced little fall-off from recent years, it is worth noting that in the larger context, the United States cattle herd continues to shrink. As of January 1, 2014, the total cattle inventory of all cattle and calves in the U.S. was 87.7 million head, the lowest since 1951. There were 38.3 million of all cattle and calves that have calved, the lowest since 1941. Finally, the 2013 calf crop was 33.9 million head, the smallest calf crop since 1949.

It is useful to place the Montana inventory within the larger context of the U.S. cattle herd to illustrate that while Montana continues to produce cattle on track with past years, as a state, it is doing so within an inventory that is shrinking nationally. This means that demand for cattle is likely to remain strong in the next few years, which will continue to produce high prices for cattle. According to an article on industry website AgWeb.com, written by Chris Hurt, Extension Economist, Purdue University, “In 2013, retail beef prices averaged $5.29 per pound but moved to a record $5.55 in the first quarter of 2014. Retail beef prices in 2014 are now expected to average $5.67 per pound, an increase of seven percent over last year.”

In this discussion of supply of beef in Montana it is important to note these high prices for beef, and tight national supply of beef. This suggests that while Montana has a large supply of cattle that could supply a processing plant in Montana that slaughters 250 head/day, a Montana processing plant would face competition for the Montana supply due to high prices and strong demand for a tight supply of cattle.

**LAMB:** Lamb was the second most prolific category of livestock examined. In 2013 the inventory of all sheep and lambs in Montana was 235,000. This was up slightly from 2012, when the inventory was 225,000. In 2014, the total inventory of all sheep and lambs was 220,000 head, a six percent drop from 2013.

The inventory of sheep and lambs splits into just that, sheep and lambs. The inventory of breeding sheep in 2014 is 200,000, a five percent drop from 2013, while the number of market sheep and lambs fell 20 percent to 20,000 head. Of this 20,000 head, 19,000 of them were market lambs.

It is too early to have any data on the 2014 lamb crop, but the 2013 lamb crop was 200,000 lambs. This was a 5 percent drop from 2012.

The following is the NASS summary of class estimates for Montana:
- Lambs weighing less than 65 lbs: 2,000
- Lambs weighing 65-84 lbs: 6,000
- Lambs weighing 85-105 lbs: 4,000
- Lambs weighing over 105 lbs: 7,000

(USDA NASS sheep/lamb inventory January 1, 2014)

According to Mr. Bowling, 90% of the market for lamb in the U.S. is on the Eastern Seaboard, between Washington D.C. and Boston. Mr. Bowling believes that to transport
lamb from Montana to this market would negate any profit that might be made on Montana lamb, and has therefore not designed the processing facility to accommodate the mechanized processing of lamb. He believes that it would be possible to process a small number of lamb on a daily basis. If the facility were to process 10 head per day of lamb, the current Montana supply could easily meet this need.

**BISON:** The third type of livestock examined was bison. Bison is a difficult species to find data on. Because it is primarily a specialty species, it is not given the same level of data collection as beef and lamb. There is little USDA data available on bison. What data was available is summarized below.

Perhaps it is easier to start with national data. According to NASS survey data, the total number of bison slaughtered in the U.S. in 2013 was 57,000. This is an increase from 2012, when 51,500 bison were slaughtered, but overall, the number of bison slaughtered is down from the 8-year high of 70,100 in 2008, a 19 percent drop.

The 2012 census data for Montana lists the inventory of bison in Montana at 14,671 animals on 80 ranches. There was no other data available for Montana on the national level. Unlike lamb and beef, USDA does not collect detailed data on bison. Without USDA data, it is difficult to collect solid information on bison on a national level.

In Montana bison is regulated by the Department of Livestock (DoL). Steve Merritt is the public information contact at DoL and was asked about the inventory of bison in Montana. According to Mr. Merritt, the inventory of bison in Montana is closer to 9,000. The DoL uses per capita fees to assess the number of bison in Montana, and it is the opinion of Mr. Merritt that these numbers are more accurate than those in the survey, which are voluntary, and could lead to error. Given that bison are at times politically sensitive in Montana, it is probable that the state agency is likely to have an accurate count on the number of bison in Montana.

One Montana also contacted the Montana Bison Association’s president, Andrew Bardwell, about the total number of bison in Montana. Mr. Bardwell told One Montana that the MBA did not keep a total number of bison its members had, but that the association did have around 80 active members. The MBA website lists 38 bison ranches in Montana among its members.

The point of listing these conflicting estimates of bison data is that there is a wide range of data on the inventory of bison in Montana. It is safe to assume that at a minimum, there are 9,000 head of bison in Montana and that on the upper end there are perhaps close to 15,000 head. But, whatever the inventory of bison, not all of those animals are available for slaughter. Some of those animals, perhaps a majority of them, are breeding stock. Therefore, as a conservative estimate, it should be assumed that the number of bison available for slaughter in Montana is less than 9,000 head annually.

The proposed plant has been designed to process 250 head of beef or bison per day. Since it can slaughter bison in the same manner as beef, it could slaughter 250 head of bison per
day. It is inefficient to run a plant at less than full capacity, so the assumption could be made that the proposed plant will need to slaughter 250 head of bison per day, when it does slaughter bison. Given the low number of bison in Montana, it is probable that, if the plant were to slaughter bison on a regular basis, it will need to source bison from outside Montana, as well as in state.
RESEARCH TOPIC 11:
Provide projections of potential growth in supply assuming a functioning processing plant.

Key Takeaways:
- At 250 head of animals/day and 251 working days in 2014, the plant (if operating at full capacity) would process 62,500 head of beef and bison in 2014.
  - 200 of the working days would be used to process beef for a total of 50,000 head of cattle.
  - If the 50 remaining days were used to process bison for a total of 12,500 head of bison, the processing plant would have to source from surrounding states because there are currently approximately 9,000 head of bison in Montana.
  - A second and more plausible projection allocates 225 working days to beef and 25 to bison.
- Assume that 20% of the annual volume would be custom beef processing and 80%, or 45,000 head, would be sourced, processed and marketed under the plant’s own labels.
  - It is unlikely that a new processing plant would cause an increase in the supply of bison or cattle in the state and the plant would have to purchase cattle and bison from producers at a competitive price.
  - Approximately 10% of the plant’s own meat would be grass-fed beef, meaning that 4,500 head of grass-fed cattle would need to be sourced from the state.
  - The plant would either need to a) compete for purchase of grass-fed beef with other brands, or b) develop its own supply by partnering with producers who would convert their operations to grass-fed.

Detailed Findings:

Assumptions about annual plant output:
In order to provide projections about the growth potential of supply, some assumptions about plant volume must be made.

First, the proposed plant is designed to process 250 head of animals per day. These could be beef or bison. There are 251 working days in 2014. This equates to approximately 50 five-day work weeks. Using this as a basis, if the plant were currently in operation and operating at full capacity, in 2014 it would process 62,500 head of beef and bison.

Second, as noted in Section 10, the supply of Montana beef is much greater than the supply of Montana bison. Therefore the assumption will be made that of the 50 five-day work weeks the plant would have in 2014, it will process beef four out of five days, leaving the fifth day for either a full day of bison processing or a half day.

So, using 200 working days at a capacity of 250 head gives an annual processing total of 50,000 head of cattle.

If the remaining 50 days of the working year were devoted solely to processing bison, at full capacity, this plant would need to source approximately 12,500 head of bison. As noted
in Section 10, the most accurate estimate of bison in Montana puts the entire state herd at 9,000 head. This makes it clear that in order to process bison one day a week at full capacity, the proposed plant would need to source bison from the surrounding states, and not just Montana.

However, if the remaining 50 days of the working year were split evenly between beef and bison processing, this would equate to 6,250 head of bison processed annually. It would however, increase the beef total to 56,250 annually.

This second projection seems a more likely scenario, especially in the first years of the proposed plant’s operation. Given that the USDA estimates for the entire USA put the number of processed bison at 57,000 in 2013, as a proportion of this slaughter, 6,250 head of bison would represent 11% of the entire U.S. bison market. In contrast, in 2013, 2.56 million head of cattle were slaughtered in the U.S., according to NASS. The hypothetical 56,250 head slaughtered in Montana would represent 2.2% of the U.S. cattle market.

There has been interest from beef producers in Montana in the proposed plant. In fact it was this interest from producers that led to the current feasibility study. There has also been interest from bison producers both in and out of Montana in the proposed plant.

Supply Trends:
As shown in the graph on the following page from Farmpolicy.com, after peaking in the 1970s, the U.S. beef inventory has been trending downwards.

As noted in Section 10, as of January 1, 2014, the total cattle inventory of all cattle and calves in the U.S. was 87.7 million head, the lowest since 1951. There were 38.3 million of all cattle and calves that have calved, the lowest since 1941. Finally, the 2013 calf crop was 33.9 million head, the smallest calf crop since 1949.
The number of cattle operations in the U.S. has also been on the downward trend for the past 10 years, as shown in this graph from the Environmental Protection Agency.

![Number of All Cattle and Beef Cow Operations, United States, 1992-2012](chart)

The Montana cattle inventory has held relatively steady over the last 3 years, falling only 2 percent from January of 2013 to January of 2014. However, as noted in Section 10, it is necessary to place Montana within the larger context of the U.S. cattle inventory. As stated in Section 10, demand for cattle is likely to remain high in the next few years, as the supply stays tight. Cattle prices are primarily influenced by market demand, and currently demand is high. However, as some cattle producers restock to meet this stronger demand, beef prices may start to fall. Weather is also another factor that influences the cattle inventory, and in the event of drought, cattle producers decrease their inventory by selling cattle for slaughter. While this increases the short-term supply of cattle on the market, it decreases the inventory in the longer term.

**Supply Growth:**
So, what does this mean in terms of “growth in supply” for the proposed Montana processing plant? The most probable answer is that building a processing plant in Montana will not cause a measurable increase in the supply of either cattle or bison in Montana, and that the proposed plant will have to purchase cattle and bison at a price that is competitive against prices paid by other packers.

As noted elsewhere in the study, the proposed plant will likely do some custom processing for established niche Montana brands, as well as develop its own product lines. The most probable scenario for an increase in supply is that these niche brands (some of which have cited a lack of processing capacity as a barrier to growth) would expand their herds to reach a larger market.

It is also likely that the proposed plant will produce different product lines of its own. For example, developing its own grass-fed beef program. Consider for a moment the projection
that the plant would process 56,250 head of cattle annually. What percentage of this number would be grass-fed? In order to reach this percentage it is necessary to once again make some assumptions about supply, this time about custom processing. Assuming that 20% of the annual volume would be custom beef processing, for both Montana niche brands and regional niche brands, custom processing would amount to 11,250 head. This would leave 45,000 head for the plant to source, process, and market under its own labels. Continuing to use the example of grass-fed beef, what percentage of that 45,000 head would then be grass-fed? Assuming that 10% of the plant's volume would be Montana grass-fed beef, that would amount to 4,500 head of grass-fed beef annually that would need to be sourced from the state.

There is no known inventory of grass-fed beef for the state of Montana. This makes it difficult to accept or reject the hypothesis that 4,500 head of grass-fed beef could be sourced from Montana annually. However, it is probably reasonable to assume that grass-fed beef currently being raised in Montana is already associated with a niche meat brand, whether that be in-state or a regional brand. Therefore, were the proposed plant to market 4,500 grass-fed beef under its own label, it would need to either a) compete for purchase of grass-fed beef with other brands, or b) develop its own supply by partnering with producers who would convert their operations to grass-fed.
**RESEARCH TOPIC 12:**

*Provide analysis of marketing strategies used by value-added meat ventures on the state, regional, national, and international level in order to determine the best method of marketing Montana-branded products.*

*Methodology:* Analysis of primary research and secondary research.

*Approach:* We looked to other successful branded programs for strategies and tactics that a Montana-branded program could replicate, including conducting primary research as well as tapping secondary research, evaluating existing case studies and researching available information.

*Key Takeaways:*
- Determine your best target audiences.
- Determine your best story.
- Tell that story well.
- Repeat that story in ways that are meaningful to your target audiences.

*Detailed Findings:*

**STATE LEVEL: Yellowstone Grassfed Beef**

*Background*

Yellowstone Grassfed Beef (YGB) actually started as two individual companies: Double T Beef (from Two Dot Land and Livestock Co. in Harlowton) and Centennial Natural Beef (from J Bar L Ranch in Twin Bridges). The two were essentially direct competitors, selling a similar product and targeting the same retailers and restaurants when they realized they’d be stronger together and paired up in 2010 to form YGB.\(^{85}\)

YGB focuses on local and regional markets, selling primarily to Montana retailers, restaurants and institutions like the University of Montana, with a handful of restaurant accounts in the Seattle area. YGB was founded in 2010 and has grown significantly since then, selling about “125,000 lbs. of grass-fed beef [in 2013], roughly twice the amount sold in its first year.”\(^{86}\) They use Stillwater Packing, a USDA inspected processing facility in Columbus, MT for all their slaughter, fabrication and value-added processing. Operations Manager Terry Hollingsworth says that this partnership with their processor is important to their business model now and in the future: “We’re planning to grow and our processor is planning to grow with us.” Using in-state processing allows YGB to market their product as “born, raised and processed”\(^{87}\) in Montana, which is important to their marketing strategy even though it costs more than out of state processing options.

*Marketing Strategy*

YGB’s marketing strategy focuses on three key points in selling their product:

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87 Ricker, 2014.
• environmentally sustainable
• comes from a family farm
• maintaining a good mix of market channels

Environmentally Sustainable
A core tenet of YGB’s marketing strategy is telling the story of their environmentally-friendly production model and how it differs from industrialized beef production: they are actively trying to combat the image of beef as having a negative environmental impact.

“All the beef sold by Yellowstone Grassfed Beef is raised following strict standards of both land stewardship and quality of beef. This part of southwestern Montana offers some of the most pristine grasslands in the world, and many of the folks that have been ranching here are fourth and fifth generation—which for Montana is practically ancient history. Our ranches know how to raise beef, but also know the value of healthy land, and that the two are closely tied together.”

yellowstonegrassfedbeef.com

This strategy has been successful in reaching consumers who are interested in eating beef that has a lighter ecological footprint, is higher in omega fatty acids and raised with higher animal welfare standards.

Comes from a Family Farm
This marketing strategy is a very personalized one. Many in Montana feel a strong connection to the state’s ranching heritage and aren’t as far removed from the family farm as people in other more urbanized states. Twodot Land and Livestock, one of the YGB ranches, has been in Zach Jones’ family since 1908.

“A partnership of real ranches where rural people grow really good all-natural, grass-fed beef. It’s that simple.”

yellowstonegrassfedbeef.com

By sharing their story and highlighting that Yellowstone Grassfed Beef comes from family-owned and operated ranches, YGB is able to set themselves apart from more anonymous, commodity beef.

Maintaining a Good Mix of Market Channels
Balancing the carcass is critical to the success of any branded beef program: you need a home for every part of the animal. Operations Manager Terry Hollingsworth shared how having the right mix of customers has allowed them to grow: “We sell cuts like top round and bottom round to our institutional customers and then restaurants and grocery stores take more of the steaks and higher-end cuts. Everyone wants ground beef.” Overall, Hollingsworth sees opportunities to grow across all in-state market channels and even expand their regional markets further as demand in Seattle and other metro markets grows for high-quality, grass-fed beef.

REGIONAL LEVEL: Country Natural Beef
Background

“Country Natural Beef started with 14 ranching families marketing 200 head of natural beef cattle in 1987. In recent years, the cooperative has nearly 100 member ranches in multiple states that raise more than 100,000 brood cows, manage more than 6 million acres of land and sell almost $50 million of products. This rancher cooperative is consumer-driven, producer-controlled, helps ranching families retain “every possible bit of independence,” keeps administrative costs to a bare minimum, pays operating costs from a percentage of producers’ revenue instead of borrowing operating funds and sets stable prices based on production costs, a return on investment and a reasonable profit.”88

Marketing Strategy

Country Natural Beef’s (CNB) marketing strategy has focused on:

- product differentiation
- quality
- finding the right mix of market segments

CNB sets themselves apart from their competition by telling the story of their ranchers, their land stewardship and their co-op. They focus on their ranching families, human handling practices and environmentally sustainable production practices in their marketing and branding. The integrity of these principles is documented and verified by their own in-house GrazeWell program and their third-party Food Alliance certification. Customers even get a chance to meet the ranchers in person: each CNB rancher is required to participate in three customer outreach events per year. In an age where consumers have become increasingly concerned about GMOs and feedlot-finishing (yet still want marbled, flavorful, fresh beef 365 days a year!), CNB has walked that thin line by continuing to feedlot finish so they can meet market demand for fresh, consistent product but feeding only non-GMO feedstuffs (barley, wheat, cooked potatoes, alfalfa hay, and a mineral vitamin supplement). Their relationship with Beef Northwest, a Pacific Northwest feedlot, allows them to maintain consistent quality, as does their relationship with AB Foods, the processing facility utilized by CNB in Toppenish, WA. In addition, CNB cattle must be raised from birth on CNB ranches, controlling the quality of calves going into the program. Finally, CNB has been thoughtful in finding the right mix of customers that works for their business: high-end cuts to Whole Foods, ground beef and lower end cuts to other retailers, Burgerville, and food service. Balancing the carcass allows for sustainable growth.

In addition to their marketing strategies, CNB has employed some very smart business strategies. They have stayed lean: the co-op has no capital assets or financial liabilities. They do not own any processing facilities, trucks, warehouses, etc. Some producer groups, like CNB and Organic Valley, instead chose to “contract with a third party to custom process its product on a cost-plus basis... this approach can be prudent where only razor-thin margins can be derived from processing, and where there are processors with extra capacity looking to maximize their plant operations.”89

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NATIONAL LEVEL: Applegate

Background
Stephen McDonnell, Applegate founder and CEO, shared what has been critical to their success, how to expand the market for antibiotic-free meat products and some common misconceptions about the niche meat market. Finally, he offered tips for others looking to enter this sector.

When Applegate Farms started over 25 years ago, there was no such thing as “no antibiotics” meat in the marketplace. Their very first product was nitrate-free bacon and from day one they sought to differentiate themselves from the conventional market. Applegate expanded their natural products line by offering antibiotic-free meats starting in the 1990s and adding organic meats shortly after that. As of right now, they only sell processed meat and dairy products (lunch meat, bacon, hot dogs, cheese, etc.) but plan to move into fresh meats in the next couple of years. Their mission is to “change the way America eats meat” and they do this by focusing on “Taste, Truth and Trust: our guiding principles.”

Applegate currently works with about 1,000 farms, utilizing 12 slaughterhouses and 14 co-packers to produce about $200 million (approximately 30 million lbs.) of processed meat products, cheese and frozen foods.

Applegate’s Success
At the core of Applegate’s success is their dedication to the ethos of their brand. Taste, Truth and Trust. Applegate has focused on building a branded product that allows them to establish a relationship with the customer. McDonnell stresses that you must have no conflict of interest and always, always be honest with your customer. Applegate starts with what the customer wants to buy, not with what the producer, processor or retailer wants to sell. This may sound obvious, but it is a nuance that is lost on many in the conventional meat world (e.g. “Pink Slime,” a product that was created to sell a processing by-product, not because customers were eager to buy “lean finely textured beef”). McDonnell stressed the importance of the brand in the niche meat market and outlined his reasoning for selling the mix of products offered by Applegate:

- **Why processed products instead of fresh?** The “processed product sector is much easier to establish a brand in” than the fresh meat sector: you can command a premium if your product tastes better or has brand attributes like organic, humanely raised, etc.

- **Why not only one type of meat?** Applegate is a multi-species company, which allows them the greatest degree of flexibility. Otherwise, “the customer is trained to only expect to see your products in one section of the store.” By offering a variety of products from the beginning, Applegate has been able to more easily expand into new product categories.

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90 Phone interview, 2012.
91 www.applegatefarms.com/our_mission.aspx
• **Why sell into such a tiny market? Couldn’t you make more money selling to a large market?** “There is no ‘big’ market in the food sector - everything is a fractional niche.” Natural meats is one of the few niche markets with any growth.

McDonnell felt that this was an exciting time to be in the niche meat market. “There is so much interest in where our food comes from, how it was raised, how the animals were treated, better health and nutrition and protecting the environment” that he felt all signs pointed towards an ever-increasing demand for niche meat products.

**How to Expand the Market**

**“We must utilize the whole animal”:** For the niche meat market to expand, we must increase utilization. For those buying whole carcasses, utilization is not a problem. But many processors, retailers, restaurants and institutions want specific cuts and not the whole carcass. The producer or processor must find a home for the rest of the animal (again, this is why products like “Pink Slime” exist). Without a specialty or niche market for all parts of the animal, cuts are dumped on the conventional market, at a loss. Full utilization generates more revenue per carcass for the producer and processor, lowers the price of primal cuts and makes niche and specialty meats more affordable for all.

**“We must change the way we eat”:** The niche meat market will expand as consumers change their buying habits. With the current health trends, Americans simply must change: “We are eating ourselves to death.” This transition starts with eating less meat and being more conscious about the meat we eat. The average American eats 185 lbs. of meat per year. As they reduce the quantity of meat they eat, they have room in their budget for higher quality meats.

**“We must break down the consumer barrier”:** One of the most significant constraints to growth is the consumer barrier — consumers don’t trust meat in this country. They do, however, trust brands. The consumer (typically female) is driving this movement and she doesn’t trust the meat in the package. “She trusts the label on the package.” The meat industry as a whole has, for the most part, stubbornly refused to brand their products. “They have remained a commodity market by choice.” If consumers are going to pay more, they need to get value out of the increased cost.

**Common Misconceptions**

**“You have to own your processing”:** Applegate hasn’t found this to be true. While there are regional pockets that lack processing infrastructure, Applegate utilizes outside processors and co-packers and has had few problems finding companies willing to work with them. The dominant, large-scale industry is highly developed — there are lots of physical assets in terms of plants and equipment in the marketplace. In the current economy, few of these assets are being used at full capacity. “Focus on developing your brand and let someone else do the processing.”

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“Fresh beef is the way to go”: Beef and fresh meats are the last entry point to this market. Beef is too difficult (due to utilization, noted above) and fresh meats lack the taste difference that is necessary to establish a strong brand. Start with processed chicken products, then pork, then beef. Move into fresh meats once you have established a brand in the processed meat sector and you have the consumers’ trust.

How might others enter the natural meat market? “Work regionally.” Develop a network of farms that all connect to one slaughterhouse. The slaughterhouse manages the genetics, production protocols, scheduling, carcass utilization and product consistency. From there, the slaughterhouse connects to a couple of retailers (these must be customers of scale) to create a multi-species line of branded natural meat products. Start with poultry and move into hogs, then beef.

INTERNATIONAL LEVEL: Snake River Farms and Agri Beef Co.

Background
Snake River Farms (a source-verified brand) is one of several brands marketed by Agri Beef Co., of Boise, Idaho. Agri Beef offers processing, grinding, value-added packaging and packing, employing more than 1,200 people. In addition to its employees, Agri Beef develops extensive relationships with its producers. According to Wade Small, president of Agri Beef’s livestock division, “We work with more than 70 feeding operations and hundreds of cow-calf operations in the Northwest.”

Agri Beef looks to set standards for environmental stewardship and to create a sustainable beef supply chain. Supporting its commitment to sustainability, Agri Beef also ships animal hides to Asia. According to the company, the hides are “converted into such things as baseballs, automobile seats and shoes.”

Marketing Strategy:
Agri Beef sells products in more than 28 countries, telling its story of “real families, great people, exceptional beef.” Among more traditional distribution channels, Agri Beef also uses e-commerce and has recently begun selling direct-to-consumers through its specialty brands, including its Snake River Farms brand, producer of American Waygu beef.

International Approach:
The Snake River Farms brand has seen tremendous growth in the Asian market, endearing itself to the food service industry and highly regarded chefs. According to one trade expert from Taiwan: “Snake River Farms is a famous beef brand in Taiwan. Obviously, it’s not as famous as Coca Cola. (But) most of the people in the food service should have heard of this brand, especially in high-end restaurants and retail stores.”

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93 Agri Beef Co. Business Collateral.
94 Agri Beef Co. Business Collateral.
95 Agri Beef Co. Business Collateral.
Snake River Farms has participated in trade shows and other special events in Asia to build its brand awareness. For example, Snake River Farms was featured in “Tastes of America” dinners in 2008, partnering with Idaho potato producers at the Grand Hyatt Taipei, in cooperation with the Western United States Agricultural Trade Association (WUSATA).\footnote{http://www.culture.tw/index.php?option=com_content&task=view&id=957&Itemid=235}

Also of note, Snake River Farms has become well represented in Asian markets by tapping exporters such as Natural Econometric Incorporated, based in San Mateo, Calif. and Hong Kong.
RESEARCH TOPIC 13:
Conduct sales research to determine best potential distribution channels of Montana-branded meat products.

Methodology: Analysis of primary research and secondary research.

Approach: To determine best potential distribution channels of Montana-based meat products, including those that are more immediate options, we used insights obtained throughout this project.

Key Takeaways:
- Within each market segment, there are three primary wholesale distribution channels:
  - Retail
  - Food service
  - Restaurants
- Initial promising domestic market segments include:
  - Montana institutions
  - Natural, grain-fed beef
  - Grass-fed beef
- While the Japanese and Taiwanese markets look promising, an international export option would come later once a processing plant had been built or an existing one had been modified to meet export standards.
- Direct-to-consumer is also an option, but it is hard to move a lot of volume in this distribution channel, especially without using an established brand.

Detailed Findings:
The three primary wholesale distribution channels include retail, food service and restaurants. We have provided a brief summary of key characteristics for each channel here:

Retail: There are all types of retailers: large national chains, discount stores, natural foods co-ops, independent butcher shops, etc. The most common type is the retail grocery chain. To service retail grocery chains you must provide a wide array of products. Retailers are looking for a “one-stop shop” where they can get steaks, roasts and ground beef. You need to be competitively priced as the retailer has to be able to add on his margin (usually double what they paid for it) and still sell the product. You also need to have adequate cash flow: retailers generally don’t pay their vendors for about 60 days. You may have to use an outside distributor: many retailers like to purchase from a primary distributor who can supply a majority of the products for a certain department.

Food Service: Institutional food service programs (at places like k-12 schools, hospitals, universities, etc.) are quite varied. Some are very price conscious and extremely limited in what they will purchase – i.e., k-12 schools buying pre-formed hamburger patties. Others have a little bit more flexibility in their budget and can take a wider variety of products, like universities or hospitals. It is important to reach out to the individual food service director,
get a sense of what he or she needs and then go forward from there. In almost every region, there is likely to be a food service program that can work with the unique needs and characteristics of a branded meat program. Food service accounts within the state of Montana could be a very strong market channel for a new Montana brand. The demand for local is growing quickly among food service directors.

**Restaurants:** Similar to retail and food service, there are all kinds of restaurants, from fine dining to fast food. Restaurants, in general, purchase smaller quantities and need more frequent deliveries as they lack storage space. They usually purchase a narrower range of cuts: fine dining restaurants wanting almost exclusively middle meats and fast, casual places sourcing mostly ground beef. Restaurants can go out of business quickly and/or change suppliers from one week to the next so these can sometimes be difficult accounts to rely on.

**Direct-to-Consumer:** In addition, a direct-to-consumer option was also explored. This distribution channel may be of interest, as there have been other branded meat companies that have created considerable awareness through this option, but it will need to be further researched to determine the viability and the expense of creating such a program as part of establishing Montana-branded meats.

Appendix G offers an analysis of mail/online beef providers from December 2013.
RESEARCH TOPIC 14:
Provide analysis of best potential sales strategies.

Methodology: Analysis of primary research and secondary research.

Approach: We used insights obtained from throughout this project, including our interviews, surveys and continual analysis during the last several months, to recommend the best potential sales strategies, as noted below.

In our analysis of Montana-branded meat marketing opportunities, several options came to light. In terms of a sales strategy, each of these marketing channels can be targeted by either expanding existing brands or creating one or more new brand(s). Where appropriate, we have provided examples of existing Montana brands that currently sell into these market channels. These are only examples: we by no means have included every Montana-based meat brand here and there are many successful programs not listed in this report.

Montana institutions: It seems only natural that Montana institutions (schools, hospitals, etc.) would serve Montana beef and bison. Public institutions are taxpayer supported and thus it would make sense that they would use their food purchasing dollars to support Montana farmers and ranchers whenever possible. Montana-based branded programs like Big Sky Natural Beef and Rancher’s Original successfully sell to Montana institutional markets (among other market channels). These brands are currently able to use existing processing facilities, but as the institutional market expands it is possible that some processing could take place at a new facility.

Natural, grain-fed beef: Montana is home to several branded natural, grain-fed beef programs and even more producers who raise and sell calves to out-of-state natural programs. Expanding the finishing capacity in-state for natural, grain-fed beef cattle could increase the demand for processing services in Montana. Such a program is likely to require that animals are raised to meet specific production protocols. Most commonly, these programs incorporate grain-finished feeding and require that animals are not administered hormones, antibiotics or growth promotants. Natural branded programs like Montana Natural Beef and Great Northern Cattle Co. have all had success in the natural beef market.

Grass-fed: We heard from several producers that there is a strong market for grass-fed beef and bison in Montana and beyond. Montana-based branded programs like Yellowstone Grassfed Beef and White Park Beef currently sell Montana-raised grass-fed beef direct to customers and to local restaurants, retailers and institutions. As these brands expand, or new grass-fed brands come online, it is possible that they could drive demand for a new processing facility.

International Markets: There is growing demand for animal proteins abroad and the Montana name carries a special mystique, particularly in Asian markets. An
existing Montana processing facility could be upgraded or a new facility could be built to meet the more stringent export requirements necessary to access these markets.

All four of these market segments come with their own unique sets of challenges and opportunities.

While building a new facility might seem like an attractive option to get started, it also takes significant capital, time and resources.

By starting with the first two steps outlined below, the focus can be on establishing a consistent supply and demand for Montana-branded meats.

As stated in the May 2006 Feasibility of Multi-Species Meat Processing Plant in Pondera County, Montana: “Building a new plant for a new marketing company is often discouraged because it is very hard to start-up two new companies at the same time.”

Below is a diagram and a very basic, step-by-step framework for targeting each market segment and beginning to increase demand and thus create supply for a potential new meat processing facility.

**Step 1: Montana Meat in Montana Institutions**

Start with selling natural, grain-fed and/or grass-fed Montana beef to local institutions. Focus on ground beef and some middle meats. Sell primarily to institutional food service accounts with middle meats going to select restaurant accounts. Use existing state and federally inspected plants for processing.

This is not a new idea: the Western Sustainability Exchange (WSE) in Livingston, MT has a pilot program processing cull cows for hamburger and a few cuts, selling to food service accounts. In addition, one could partner with The National Center for Appropriate Technology (NCAT) based in Butte, MT which recently received a grant to increase the availability of Montana beef in Montana institutions.98

Starting with Montana institutional markets is a good first step for expanding existing brand(s) or laying the foundation for new, Montana-based brand(s). While price sensitive, institutions are often long-term, steady customers able to forecast demand well in advance and stick to a set quantity ordered. These accounts are fairly well spread out across the

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98 http://farmtocafeteria.ncat.org
state, creating opportunities for producers all across Montana. There is a natural marketing strategy built in, particularly for k-12 schools: what rancher wouldn’t want to see their beef on the menu at their son’s or daughter’s school?

Many institutions will have strong demand for ground beef chubs and pre-formed patties: focusing on ground beef allows the brand to smooth out inconsistencies in production. Middle meats from higher quality carcasses could be marketed to select restaurant accounts. A program like this could be expanded fairly quickly, marketing either grass-fed or natural, grain-fed ground beef and using existing state and federally inspected plants for processing.

Step 1 is an opportunity for One Montana to work with interested producers and organizations like WSE or NCAT to expand a “Montana Meat in Montana Institutions” program.

**Step 2: Montana Meat in Local/Regional Retail Stores and Restaurants**

Upon a successful entry into institutional markets, move out to local and regional retail and restaurant markets, again with either natural, grain-fed and/or grass-fed beef; again by either expanding existing brands or establishing new ones. Focus on in-state accounts first (where the Montana name will carry the most meaning) and then move outwards into regional markets.

With a more established production protocol in place, along with committed leadership, Step 2 would also include establishing and developing new brand(s) for a natural, grain-fed and/or a grass-fed product, especially if existing brands weren’t interested in participating and/or there was room in the marketplace for creating one or more new brands.

Step 2 is an opportunity for the Montana Department of Livestock to participate in FSIS’s Cooperative Interstate Shipment Program (CIS) to expand opportunities for Montana producers. CIS, which was authorized by the 2008 Farm Bill and launched by USDA-FSIS in 2012, allows state-inspected meats from qualifying plants to be shipped across state lines. The goal of the program is to expand market opportunities for small meat and poultry processors. It is currently in operation in Wisconsin, Ohio and North Dakota and Indiana just joined in April 2014. The Montana Department of Livestock would have to agree to participate and go through the approval process with USDA-FSIS, before interested plants could sign up. This is a lower-cost option for selling into regional markets using existing infrastructure.

*Note: Steps 1 and 2 can be accomplished with existing facilities. Starting on these steps now will help to ensure a ready-made customer for a new facility if one is to be built.*

**Step 3 (or 4): National Demand for Montana Meat**

With an effective local and regional program, a strong brand identity and best-in-class traceability from the processing plant, the opportunity exists to expand to national retail and restaurant markets. One could also consider direct-to-consumer distribution with a
now-established brand in place at this time. Again, the product offering at the national level could be either natural, grain-fed meats and/or grass-fed meats.

**Step 4 (or 3): Montana Meat with Best-in-Class Traceability Offered to International Markets**

Work with trade experts and Montana brand ambassadors to expand to international markets, utilizing a new production facility or an existing one that has been upgraded. With experience gained in selling to local and regional wholesale markets, as well as national markets, the organization will now be ready to move into international markets, provided that export requirements have been addressed.

Food safety and traceability will be of the utmost importance selling into these markets, and the proposed facility is designed to offer source verification and best-in-class traceability that would be ideal for this market.

There is an opportunity to capitalize on the awareness of Montana as a travel destination in Asian markets selling the “clean environment” and “romance” of Montana abroad in the form of high-quality, branded beef. Chilled (not frozen) beef is in demand, with a preference for grain-fed products. Selling to an international market provides an opportunity to move cuts not popular in the U.S. in Asian markets: “the ends of the animal,” including beef tongue, tripe and intestines.
ABOUT ONE MONTANA

One Montana is a 501(c)(3) nonprofit organization based in Bozeman, Montana. The goal of One Montana is to change the way we think and act about rural and urban communities from “divide” to “connect.” It can serve as a national model for collaboration and community development.

Rural-urban relationships are critical as Montana begins to address important opportunities and challenges, from the boom town activity in the oil rich eastern part of the state, to an increasingly aging population (Montana is expected to have one of the oldest populations in the union) to questions surrounding the use of land or the education of our children. Ensuring strong connections will not only allow for the civil discourse required to tackle these issues responsibly, but will also create a just atmosphere in which all voices are heard.

Because of the state’s demographics and the existing and growing support for this initiative, a statewide rural-urban partnership in Montana – One Montana – is uniquely poised to be a model for rural-urban collaboration and a more inclusive level of civil discourse, both at home and throughout the country.
Appendix S: Agrifoods International Solutions Final Report to One Montana
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Design Scope from RFP

Scope

1. Conduct a charrette process with appropriate experts on facility design to identify program, infrastructure needs, and site requirements. See pages 42-48.
3. Research meat processing technologies that provide optimal food safety, maximize profit, maintain workplace safety, and allow for complete pasture to plate traceability. See pages 16, 22-28, 28-36.
4. Examine the potential for multispecies processing. See pages 22, 25.
5. Visit at least one meat processing plant in the U.S. to understand workflow and plant design. REVISED—Send Future Beef CD.
6. Conduct interviews with experts to provide information on meat processing industries in New Zealand and Uruguay. Conduct an analysis of how Montana can benefit from similar methodologies. See page 43.
7. Identify methods of capturing value from byproducts—rendering, hides, offal, and pet food. See pages 18, 23-25, 33, 37.
8. Conduct research into potential plant locations for a meat processing plant in MT. Identify and analyze 3 potential sites. REVISED—Matt Bitz will identify potential sites.
9. Reconvene appropriate experts in a charrette to produce conceptual designs for a meat processing facility. See pages 42-48.
10. Provide preliminary cost estimates for a facility to include: the 16 divisions of construction, as defined by the Construction Specifications Institute. See pages 49-52.
11. Research food safety requirements for Asian markets and how this might impact facility design. See pages 24, 25, 28-36.
12. Research technologies used to process meat for long shipping times such as Asian markets. See pages 24-25.
13. Determine the appropriate guidelines for producers selling to a Montana-branded meat processing venture. See pages 16-17.
14. Determine the practices a meat processing facility would set in place for processing meat. These might include traceability, humane slaughter, producer relations, etc. See pages 15-17, 22-28.
15. Examine relevant state, federal, and product-related regulatory processes to determine what steps would need to be taken for a meat processing facility in Montana to be able to sell, in-state, out of state, and internationally. See page 36.
Labor Scope from RFP

**Scope**

1. Examine Montana’s labor market in relation to the needs and employment training necessary for a meat processing facility. See page 17.
3. Compile a list of personnel-related issues for meat packers with potential solutions. See page 16.
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FOREWORD

BIRTH OF THE BEEF PARADIGM AND WHY IT HAS CHANGED

- In the first half of the last century, cattle were grown on the range and slaughtered during the fall and early winter. Beef supply was limited and seasonal, at best.

- After WWII, tractors replaced horses and mules, and farm production grew rapidly.

- Cattle-feeding was created of economic necessity—“feeding worthless cattle worthless corn” (Warren Monfort, 1979) to extend the market window for both overly abundant commodities from a one-season supply to a year-round supply. Thus, cattle-feeding was born. In the late 1950s and the 1960s, the beef packing industry moved from the terminal markets in hub cities to take advantage of the new cattle-feeding concept, close to corn production.

- Mild weather and abundant irrigation water for grain production encouraged the development of large commercial feed lots in the High Plains that were not feasible in the northern Corn Belt because of environmental limitations.

- New super-plants entered the beef slaughter business near the feed lots and corn. New technology and innovations were spawned to create on-site fabrication and vacuum packaging of the carcasses in the same large plants in the central Corn Belt, several days’ transportation away from where the meat would ultimately be consumed. Small, regional plants like Gooch Packing Company in Abilene, Texas became less competitive and were eventually closed.

- The super-plants gave way to mega-plants. As competition grew, so did their appetite for fed cattle. Then mega-plants were double-shifted, slashing fixed costs again. No single region could sustain the increased demand for cattle, but cheap energy promoted hauling cattle from more remote locations.

- The super-plants, already in human resource trouble, then found themselves in a real crisis, attempting to compete with plants twice their size. Turnover and training became monumental problems that “more money” would not eliminate. These companies had created beef-eating machines that could never be staffed from the small agricultural communities from which they grew.
Largest mega-plant (pictured above), constructed in 1980 in Kansas, near large commercial feed lots.

First mid-sized, regional plant, constructed in 2002 in Kansas. Note that this entire plant is smaller than the single hide plant building to the right side of the mega-plant pictured above.
• Fewer plants, located further from the population centers, created the demand for much longer and more viable shelf life from vacuum-packaged beef products. Sanitary beef production eliminated spoilage bacteria, and in their absence a minutely small number of truly mean pathogens crept onto the scene—“E. coli” and “Listeria monocytogenes” became familiar names in the industry. Large, high-volume plants struggled to innovate and incorporate new technology rapidly enough to defeat the pathogen problem. Food safety was then added to the growing list of mega-packer concerns.

• Ground water has been significantly depleted in Texas, Oklahoma, and Kansas (Cargill, Incorporated recently closed its Plainview, Texas, beef plant because of water shortage in the area), and corn is supplied increasingly by truck and rail. Feed lots daily consume the competitive advantage of most beef companies as local, cheap corn succumbs to the high cost of transporting the amount of corn essential to finish steers. Additionally, the push to identify and produce a sustainable bio-fuel has focused on corn and has created an increasingly competitive corn market, raising corn prices independent of rising transportation costs.

• Terrorism has created a border security emphasis, and the already troublesome personnel crisis has widened, with little or no end in sight. Once the least-cost producer, the mega-plant cost structure has increased dramatically.

• At best, the mega-plants are well suited for high-volume, generic / commodity beef production. In order to fight the rising cost battle, successive rounds of concentration have resulted in fewer companies’ owning / operating this same small group of plants (26 total mega-plants now slaughter 85 percent to 90 percent of the fed-beef supply); however, the interest and goodwill cost involved in these acquisitions has left the emerging companies to compete utilizing fifty-year-old plants financed at new construction costs. As long as no new-concept plants were built to conquer these problems, the old beef paradigm camp was safe.

• Unfortunately, the water, corn, people, and process innovations that created these High Plains giants are the same factors that intense concentration has now defeated, creating a series of irreversible, game-ending business and production scenarios. Ironically, the change that made the mega-plants industry stalwarts now consumes them.

• Simultaneously, the same forces that drove concentration on the fed side of the beef business were also silently at work on the cow slaughter segment of the business. Cow slaughter / fabrication facilities also increased capacity, and, again, trucks were the answer. Most recent acquisition / concentration transactions have grossly exacerbated the business flow and profitability woes of all but a few cow plants. For example, JBS Swift and Co., based in Brazil, is the largest meat packing enterprise in the world. This company has, within the last few years, become the largest feeder in the world and the third-largest fed-beef packer, the largest cow-beef packer, and the second-largest poultry producer / packer in the U.S. Even well-established, large feeding and packing commodity enterprises find it difficult to compete with the economies of scale available to this international mega-company. Energy, labor, corn, and a globalized economy will
reshape the harvest-to-market concept of salvage animals (cows and sows) just as inevitably as these factors are recasting the landscape of fed-beef businesses.

- Cow slaughter / fabrication plants currently face a diminished supply base because the strong U.S. dollar has made importation of beef from South America, New Zealand, and Australia cost effective for lean beef importers (into the U.S.). The import / export balance favors importation of lean beef into the U.S.; accordingly, the cow plants will face hyper-competition for raw material supply and meat customers.

**BOVINE SPONGIFORM ENCEPHALOPATHY (BSE) CREATES BEEF EXPORT CRISIS**

- BSE was first diagnosed in the United Kingdom in 1985 and was identified in the U.S. on Christmas day, 2003. Beef exports at that time were 24 percent of carcass weight, primarily to Asia and Mexico.

- Although the first U.S. BSE-positive was quickly traced and found to be of Canadian origin, the international community, nonetheless, immediately banned all beef imports from the U.S. The economic impact was immediate and devastating to U.S. packers and Canadian ranchers and feeders.

- Beef drop credits (value for hide and offal products) fell from $156.00 per head to less than $50.00 per head (actual market low was not officially established). For example, beef tongues decreased from $8.78 per pound USD to less than $0.50 per pound, or a drop of $8.30 X 3.2 pounds per head, which calculates to a value loss of $26.56 per head on this one offal product.

- When beef export markets evaporated overnight, the export products now had to be consumed within the domestic market. U.S. beef packer pricing models became transparent to U.S. domestic buyers; consequently, as commodity beef prices fell, beef retailers saw the packers’ vulnerability and took the pricing advantage. Consumer prices rose to an all-time high. **Segmented beef EBITDA shifted from 70 percent retailer / 30 percent commodity beef producer segments (rancher, feeder, slaughter / fab packer) to 97 percent / 3 percent in favor of beef retailers. The commodity price of beef fell 39 percent, and the consumer price of beef increased 28 percent.** (See “Figure 1. Monthly Retail Choice Beef Prices,” above right.) **Until recently, the commodity beef system has not reversed these market challenges, placing the mega-plants at further market peril.**

- The extent of BSE in the U.S. cattle herd was found to be negligible. Three head were diagnosed as positive—one BSE from Canada and two others with an encephalopathy
that was not found to be transmissible and, thus, was not the BSE found in the U.K.; however, the damage was done. Eleven years later, BSE import bans linger in Japan and Korea as a partial barrier to trade. The bottom line is that, until the last two years, beef exports have struggled to regain their pre-BSE earning capacity in the large beef companies.

- Access to foreign markets had become a significant advantage to the mega-plants; however, BSE refocused importing country partners onto development of their own domestic beef resources. An additional consequence of the inability of the mega-companies to manage pathogens and, now, disease / trade issues with our international customers is the creation of credibility questions with domestic consumers.

**ENTER THE NEW BREED: THE MID-SIZED, PREMIUM BRANDED, REGIONAL SLAUGHTER / FABRICATION / VALUE-ADDED COMPANIES**

- These companies, regardless of product focus, will share several characteristics: (1) they will be located much closer to their supply; (2) they will be less dependent upon a single livestock type or species for volume; and (3) they will be re-engineered to eliminate waste, using technology that was nonexistent when the existing generation of packing plants was built.

- In the food industry’s on-going saga of self-consumption, Shuanghui International Holdings purchased Smithfield Foods: the largest pork company in the world is now Chinese-owned. JBS of Brazil has purchased the beef division of Smithfield Foods, which was the largest U.S. cattle feeder, and Swift Packing division of beef, pork, and lamb, making JBS the world’s largest beef feeder and the third-largest fed beef packer in the U.S. JBS has also purchased Pilgrim’s Pride Poultry, the second largest poultry company in the United States.

- JBS’s Brazilian competitor, Marfrig Alimentos, acquired West Conshohocken, Pennsylvania-based Keystone Foods (McDonalds’ largest beef and poultry supplier), and Mexican conglomerate Sigma Alimentos picked up Phoenix, Arizona-based Bar-S Foods, a packaged meats processor. By the end of 2011, another Mexican protein giant, Industrias Bachoco, acquired Fort Smith, Arkansas-based poultry processor, OK Foods (for an undisclosed amount); Korea’s Harim USA scooped up Seaford, Delaware-based poultry processor, Allen Family Foods, in a $48M bankruptcy deal; and Ukraine’s Omtron bought a $25M chunk of Georgetown, Delaware-based poultry company, Townsends Inc., also in bankruptcy proceedings.

- Ultimately, all the protein company buy-outs will transform the U.S. meat slaughter / fabrication companies into global food companies that will process multiple species and sell trim and other carcass pieces to value-added processors.
• Foot and Mouth Disease Virus (FMDV) in Brazil and China would make the sale of beef and pork from plants in the United States a one-way door—export from these companies but NO import from those countries back to the U.S. market.

• As cost of production escalates, quality, food safety, and American standards will gradually be diluted, paving the way for smaller, local food companies like Montana Beef that focus on quality over quantity.

• The mega-plants have never had the inclination to focus on value-added products, though ground beef is well developed in some of the more modern plants. The reality, however, is that few green-field fed-beef slaughter / fabrication start-up companies have the staying power and working capital to attain sustainability in a production scheme with no value-added production capability.

• Currently, due largely to widespread drought conditions in historically agricultural sections of the country, the U.S. beef industry has the fewest head of cattle since 1951. Cattle numbers have dwindled from approximately 100 million head to 87.73 million head.

• As the industry begins to rebuild cow numbers, heifer retention will take another big slice of the very tight slaughter supply, as many females are diverted to the breeding end of the supply chain.

• The ugly reality is that fed-beef numbers will be critically low for the next 10 years. Some mega-plants will be forced to close before the beef industry regains sufficient numerical strength to feed their double-shift slaughter appetite.

• In summary, the Montana Beef concept is right from the standpoint of miles to agricultural markets and energy cost. Montana does not currently have a destination market for locally produced fed animals or for salvage animals. From a timing standpoint, however, the Montana Beef concept is questionable for three reasons: (1) in a state in which fed cattle are not over-abundant, cattle numbers have been further reduced as a result of widespread drought and resultant elevated corn prices; (2) the essential supply chain is limited, and the unit cost is unusually elevated; (3) potential investors (such as cattle producers) lack financial incentive to invest in the venture at this time because their cattle are demanding very high prices in the current business model.
CRITICAL MANAGEMENT FUNCTIONS

- In “Table 1. Summary of Critical Management Functions” (included below), plant management functions are listed down the left side, and critical management functions are listed across the top of the matrix. Thorough management requires careful attention to detail across the multiple functions of the plant.

### Table 1. Summary of Critical Management Functions

<table>
<thead>
<tr>
<th>SYSTEM SEGMENT</th>
<th>PRODUCTION MANAGEMENT</th>
<th>FOOD SAFETY MANAGEMENT</th>
<th>HUMANE HANDLING</th>
<th>ANIMAL HEALTH MANAGEMENT</th>
<th>ENVIRONMENTAL MANAGEMENT</th>
<th>VALUE-ADDED MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCUREMENT</td>
<td>Brand Accountability</td>
<td>Anti-Mortem Interface</td>
<td>Supply Chain Audits</td>
<td>Feed Back on Injection Sites</td>
<td>Manure from Cattle Trucks on Hwy.</td>
<td>Trace Back Quality / Yield</td>
</tr>
<tr>
<td></td>
<td>Certified Angus®</td>
<td>Residues Control</td>
<td>Crew Training</td>
<td>Trace Back to Producers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Certified Programs</td>
<td>Trace Back</td>
<td>Truck Mgmt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLAUGHTER</td>
<td>Prevent Contamination</td>
<td>HACCP / Pathogens</td>
<td>Anti-Mortem Inspect.</td>
<td>Trace Back to Supply Chain</td>
<td>Waste Water Treatment</td>
<td>Case-Ready Offal Carcass Grading</td>
</tr>
<tr>
<td></td>
<td>Meat Production Shelf Life</td>
<td>Exclusion Bacteria</td>
<td>Truck Unloading</td>
<td>Condemn Records to Supply Chain</td>
<td>Manure Composting</td>
<td>Solid Waste Disposal</td>
</tr>
<tr>
<td></td>
<td>Meat Quality / Tenderness</td>
<td>Shelf Life</td>
<td>Knock Supersision</td>
<td>Stick Supersision</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cold Chain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FABRICATION</td>
<td>Red Meat Yield</td>
<td>Cold Chain</td>
<td>Bruse Feedback / Mapping</td>
<td>Feed Back on Injection Sites</td>
<td>Dry Clean-Up</td>
<td>Trace Back</td>
</tr>
<tr>
<td></td>
<td>Product Identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALUE-ADDED</td>
<td>Meat Quality</td>
<td>Cold Chain</td>
<td>Injection Site Feedback</td>
<td>Dry Clean-Up</td>
<td>Trace Back</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARKETING</td>
<td>Inventory Management</td>
<td>Customer Training</td>
<td>Customer Training</td>
<td></td>
<td>Customer Training</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consumer Convenience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISTRIBUTION</td>
<td>Inventory Management</td>
<td>Cold Chain</td>
<td>Meat Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receivables Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSUMER</td>
<td>Cold Chain</td>
<td>Cold Chain</td>
<td>Consumer Feedback</td>
<td>Trace Back</td>
<td>Consumer Feedback</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cooking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trace Back</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cross-Contamination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pathogens</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The consumer only has input to the plant distribution customer; consequently, communication about an issue seldom reaches the person responsible for solving the problem and may never reach the person who created the situation—unless the management team learns to research, dissect, and correlate corrective actions. Team work and cross-functional communication are essential for corrective actions and sustainable quality; otherwise, the company will face the same consumer problems over and over again. Cross-functional management is a skill acquired through team training.

- In this management scheme, the person with the best knowledge of the function must be accountable for all the critical functions in that area. For example, brand accountability must begin with cattle procurement. What other person in the system would see the livestock more frequently or make it his business to know how the cattle are fed and treated? What other person in the system would be more likely to determine if a specific supplier truly follows protocols in the written plant certification programs?

- The Food Safety Manager writes and administers the Hazard Analysis Critical Control Point (HACCP) system. The Slaughter Manager must train and monitor people on the high bench to be certain that pathogens are not transferred from their habitat in the hair or on the skin of the cattle to the carcass surface, which will eventually be consumed. Extended shelf-life is created and maintained in the same process-management scenario because pathogens and spoilage bacteria cannot be seen and must be killed using chemicals or a hot-water intervention. Once the carcass is clean, it must be kept clean as
it travels from work station to work station through the plant: everyone is involved and must be trained.

- **Food Safety** requires an attitude of 100 percent commitment that must be expressed and lived by every company employee, from the Company president and each member of the management team to plant maintenance and sanitation crews. **Failure is not an option!**

- **Humane Handling**, like Food Safety, demands an attitude that accepts no compromise. Humane Handling first requires training for all employees. Within the company operational structure, Humane Handling is best managed using a third-party, continuous (24/7) video camera monitoring system, such as that available from Arrowsight (Adam Aronson, President [adam.aronson@arrowsight.com]). When / if the trained auditor notes problems or discrepancies, the footage is e-mailed to the designated manager and the appropriate team members so that the incident can be properly managed and the history, documented. In working with USDA compliance officers, how an incident is handled and the video record of the corrected action is often more important than the incident, itself.

- The Arrowsight system also works for Hygiene and other Food Safety audits.

- The critical management functions usually require matrix systems management to cover all scenarios. Any issue then quickly becomes a question of **trust** between several layers of the management team and the hourly associates.

- Company **chaplains** help to develop trust between management and hourly employees, thus reducing tension between layers of management.

- Careful attention to training across all employee levels clearly defines roles and actions and reduces noncompliance incidents.

- The following list includes some of the critical areas in which all employees need to receive training:
  
  - Food Safety
  - Personal Hygiene
  - Disease / Food Handling Issues
  - Cultural / Language / Immigration Issues
  - Religious Issues
  - Animal Welfare / Humane Handling
  - Employee Turnover
  - Work Place Safety
  - Green Labor Training
  - Promotion Mechanism
  - Child Care
  - Producer Relationships
- Montana Beef will have the video monitoring, traceability, and tracking infrastructure to create several USDA-Certified programs to align with producers within the state, i.e. organic, forage-finished, natural, source- and age-verified, Angus or other breeds.
- Producer guidelines and training will be part of the USDA Certification process; consequently, producers should have input into the development of the certificate to insure their buy-in early in the process. Data-driven feedback helps to assure positive relationships between the company and its suppliers.

**PEOPLE REQUIREMENTS**

- According to the Bureau of U.S. Labor Statistics, productivity decreased 1.7 percent in the nonfarm business sector in the first quarter of 2014; unit labor costs increased 4.2 percent (seasonally adjusted annual rates). In manufacturing, productivity increased 3.3 percent, and unit labor costs increased 0.1 percent. “Table 2. Montana Labor Data” (included below) shows that the Montana workforce exceeds these expectations and are below the U.S. average for unemployment and underemployment percentages.

**Table 2. Montana Labor Data**

<table>
<thead>
<tr>
<th>AREA\ COUNTY</th>
<th>2010 EMP</th>
<th>2009 EMP</th>
<th>% CHANGE</th>
<th>2010 WAGE</th>
<th>2009 WAGE</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE TOTAL</td>
<td>419365</td>
<td>421570</td>
<td>-0.52%</td>
<td>$34,602</td>
<td>$33,762</td>
<td>2.49%</td>
</tr>
<tr>
<td>STATE PRIVATE</td>
<td>334983</td>
<td>338858</td>
<td>-1.14%</td>
<td>$33,236</td>
<td>$32,247</td>
<td>2.07%</td>
</tr>
<tr>
<td>YELLOWSTONE TOTAL</td>
<td>75354</td>
<td>76082</td>
<td>-0.96%</td>
<td>$37,936</td>
<td>$37,023</td>
<td>2.47%</td>
</tr>
<tr>
<td>YELLOWSTONE PRIVATE</td>
<td>66722</td>
<td>67486</td>
<td>-1.13%</td>
<td>$36,857</td>
<td>$35,922</td>
<td>1.60%</td>
</tr>
<tr>
<td>MISSOULA TOTAL</td>
<td>54042</td>
<td>54318</td>
<td>-0.51%</td>
<td>$33,915</td>
<td>$33,782</td>
<td>0.13%</td>
</tr>
<tr>
<td>MISSOULA PRIVATE</td>
<td>44807</td>
<td>45759</td>
<td>-2.08%</td>
<td>$32,375</td>
<td>$31,880</td>
<td>1.55%</td>
</tr>
<tr>
<td>GALLATIN TOTAL</td>
<td>42471</td>
<td>42692</td>
<td>-0.52%</td>
<td>$34,103</td>
<td>$33,253</td>
<td>2.56%</td>
</tr>
<tr>
<td>GALLATIN PRIVATE</td>
<td>34863</td>
<td>35178</td>
<td>-0.90%</td>
<td>$32,742</td>
<td>$31,798</td>
<td>1.27%</td>
</tr>
<tr>
<td>FLATHEAD TOTAL</td>
<td>37041</td>
<td>37386</td>
<td>-0.92%</td>
<td>$32,975</td>
<td>$32,205</td>
<td>2.39%</td>
</tr>
<tr>
<td>FLATHEAD PRIVATE</td>
<td>32043</td>
<td>32491</td>
<td>-1.38%</td>
<td>$31,846</td>
<td>$31,074</td>
<td>2.48%</td>
</tr>
<tr>
<td>CASCADE TOTAL</td>
<td>35323</td>
<td>35503</td>
<td>-0.51%</td>
<td>$33,982</td>
<td>$32,751</td>
<td>3.79%</td>
</tr>
<tr>
<td>CASCADE PRIVATE</td>
<td>29411</td>
<td>29742</td>
<td>-1.11%</td>
<td>$32,339</td>
<td>$31,071</td>
<td>3.08%</td>
</tr>
<tr>
<td>LEWIS &amp; CLARK TOTAL</td>
<td>34397</td>
<td>34643</td>
<td>-0.19%</td>
<td>$38,244</td>
<td>$37,799</td>
<td>1.38%</td>
</tr>
<tr>
<td>LEWIS &amp; CLARK PRIVATE</td>
<td>23611</td>
<td>23680</td>
<td>-2.9%</td>
<td>$33,208</td>
<td>$32,450</td>
<td>2.34%</td>
</tr>
<tr>
<td>SILVER BOW TOTAL</td>
<td>15279</td>
<td>14955</td>
<td>2.17%</td>
<td>$35,723</td>
<td>$35,569</td>
<td>0.43%</td>
</tr>
<tr>
<td>SILVER BOW PRIVATE</td>
<td>12817</td>
<td>12606</td>
<td>1.67%</td>
<td>$34,302</td>
<td>$34,035</td>
<td>0.78%</td>
</tr>
<tr>
<td>Balance of state total</td>
<td>125458</td>
<td>126171</td>
<td>-0.57%</td>
<td>$32,561</td>
<td>$31,349</td>
<td>3.87%</td>
</tr>
<tr>
<td>Balance of state private</td>
<td>90709</td>
<td>91917</td>
<td>-1.31%</td>
<td>$31,792</td>
<td>$30,399</td>
<td>4.58%</td>
</tr>
</tbody>
</table>

Source: Montana Department of Labor and Industry, R & A Bureau Quarterly Census of Employment and Wages

- Montana Beef will hire 147 to 155 people at an average wage of $34,919 per year, placing the average for hourly and salaried wage earners just above the 2010 state QCEW comparison. The average wage rate also compares favorably with counties potentially
selected for plant construction. This comparison verifies that the wage rates in the labor analyses (pages 17-20) and in the plant operational costs (see “Table. 7. Summary of Cost of Goods Sold,” page 21) are neither too high nor too low in comparison with the existing state wage structure.

- Mega-plants that slaughter 5,000 to 6,000 head per day process 400 to 450 per hour and require 300 to 350 people in the kill end of the facility. Much of their efficiency is created when each job has a single or very narrow focus; consequently, great skill and efficiency are developed by task repetition.

**Table 3. Slaughter Operations Manning**

- In a plant where the operational plan is to harvest 250 head per day, job functions are shared among many fewer people. In this scenario, the slaughter line is moving at a much slower rate (30 to 35 head per hour); as a result, job functions must be combined, and one person will complete several tasks on the same carcass.

- “Table 3. Slaughter Operations Manning” (right) describes the responsibilities of the 21 people required to man the operation from cattle receiving to final USDA Inspection. The brackets illustrate the job combinations among groups of people.

- “Table 4. By-Product and Offal Operations Manning” (lower right) documents the manning requirement for the by-product and offal operations within the slaughter operation. Offal and by-product harvest will require 27 people. Montana Beef will have a full line of beef and buffalo products for domestic and export markets. Minor

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Hourly Rate</th>
<th>Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle Buyers</td>
<td></td>
<td>45,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Cattle Receiving</td>
<td></td>
<td>14,000</td>
<td>29,120</td>
</tr>
<tr>
<td>Cattle Movement in Pens</td>
<td></td>
<td>12,000</td>
<td>24,960</td>
</tr>
<tr>
<td>Pen Cleaning</td>
<td></td>
<td>12,000</td>
<td>24,960</td>
</tr>
<tr>
<td>Cattle Drive</td>
<td></td>
<td>14,000</td>
<td>29,120</td>
</tr>
<tr>
<td>Cattle Knock</td>
<td></td>
<td>14,000</td>
<td>29,120</td>
</tr>
<tr>
<td>Shackle</td>
<td></td>
<td>14,000</td>
<td>29,120</td>
</tr>
<tr>
<td>Stick</td>
<td></td>
<td>12,000</td>
<td>24,960</td>
</tr>
<tr>
<td>Open Neck-Rod/Clip Wasand</td>
<td></td>
<td>12,000</td>
<td>24,960</td>
</tr>
<tr>
<td>Blood Pushers</td>
<td></td>
<td>10,000</td>
<td>20,800</td>
</tr>
<tr>
<td>Hind Leg Pattern-Open</td>
<td></td>
<td>14,000</td>
<td>29,120</td>
</tr>
<tr>
<td>Bung and Tie</td>
<td></td>
<td>12,000</td>
<td>24,960</td>
</tr>
<tr>
<td>Remove Udder</td>
<td></td>
<td>12,000</td>
<td>24,960</td>
</tr>
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offal products, such as spleen, tendons, aorta, and pizzle, could be harvested if the markets warrant; however, additional people would be required.

- The HACCP Monitor from the slaughter floor will also monitor the offal products.

- In addition to the 48 people listed in Tables 3 and 4, the slaughter operations work force will include 1 manager, 4 supervisors, and 1 information technology (IT) specialist, for a total of 54 people required to manage the operation between cattle receiving and the beef grading and sorting coolers (just prior to fabrication).

- “Table 5. Fabrication Operations Manning” (right) shows that direct fabrication requires 30 people, and an additional 11 employees are required to handle trim sampling and pack-off operations for the primals.

- HACCP monitors will be directly involved in collection of pathogen samples.

- IT and HACCP monitors will interface as the products are weighed, labeled, and USDA-Graded and product designations are applied, i.e. Natural, Organic, or a grade designation—Choice. The Technical Services Officer or Chief Science Officer will be responsible for writing Product Description Programs, such as grade and other USDA-Certified Programs, including “Humane Handling.”

- Plant Sanitation is frequently outsourced to a private company that specializes in plant clean-up

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<th>Description</th>
<th>Hourly Rate</th>
<th>Annual Salary</th>
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**TOTAL PLANT EMPLOYMENT** 147 $34,919 $5,133,040
operations; however, people and chemicals are the main cost associated with plant sanitation. Either in-house or out-sourced is covered in this feasibility study.

- Plant sanitation will require between 16 and 20 people, depending on how much value-added is included in the final plant design.

- Supervisors, managers, and officers are included in the lower half of “Table 6. Value-Added Operations Manning” (included above). These salaries are represented in the S, G, & A column of “Table 7. Summary of Cost of Goods Sold” (page 21). This management group includes 10 sales and marketing professionals to merchandize and sell the value-added products.

- As noted above, Montana Beef should employ 147 to 155 people and boast a beginning annual payroll of $5.13M dollars.

- Increasing the employee pay rate $1.00 per hour (from $15.00 to $16.00) increases the Cost of Goods Sold by $3.86 per head (from $174.50 to $178.36). (See total of Cost of Goods Sold, first column in “Table 7. Summary of Cost of Goods Sold,” page 21.) The optimum average starting wage would be $12.00 to $14.00 per hour, to leave room from promotion and advancement.

**COST OF GOODS SOLD**

- “Table 7. Summary of Cost of Goods Sold” (COGS) (included on the following page) is the central financial document in the meat packing world; accordingly, all financial information flows to and from this table.

- The COGS table is divided into two major halves: the top half is itemized COGS of variable costs; the bottom half is Sales, General, and Administrative (S, G, & A) Costs, or fixed costs per head. The three columns on the right side of the table document annual costs for the 65,000 head in the slaughter plan, cost per pound of meat, assuming standard weights for livestock and dressing percentages, and, finally, percent Cost combining fixed and variable costs.

- From the total variable costs of $174.50 (43.22 percent of fixed cost total), two major costs are evident: (1) Wages and Benefits are $57.98 per head, or 14.36 percent; and (2) Packaging Costs (boxes and vacuum bags) are $50.00 per head, or 12.38 percent. Combined Utility costs (gas, electric, water, and sewer) are $23.00 per head, or 6.99 percent.

- Plant depreciation is calculated using a Total Plant Cost of $43.98M (see “Table 16. Preliminary Cost Estimates for Sixteen Divisions of Construction, as Defined by the Construction Specifications Institute,” included as pages 49-52) and accelerated amortization for 10 years (to be negotiated), or $439,830 annual depreciation. Plant and equipment amortization cost in this range would be $6.77 per head processed, or 1.68 percent of the total.
In the S, G, & A (56.78 percent of total fixed cost) portion of the table, three entries comprise 48.73 percent of the total: Promotion and Marketing are budgeted at $152.00 per head (37.65 percent), and Salaried Wages and Benefits make up the remaining 11.08 percent, or $44.76 per head. The $9.88M Promotion and Marketing budget is clearly essential to the success of Montana Beef because the company is not viable without the value-added beef and bison consumer products, i.e. jerky and ground products.
### Table 7. Summary of Cost of Goods Sold

<table>
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<th>MONTANA BEEF PACKERS</th>
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</table>

#### Cost of Goods Sold

- **Cattle Freight Cost**: $31.20 / 65,000 = $0.4762 / lb., 4.28% of Cost of Goods and SG&A Expense (Cattle)
- **Direct Labor Wages**: $15.00 / 65,000 = $0.0231 / lb., 0.14% of Cost of Goods and SG&A Expense (Cattle)
- **Fixed Payroll Taxes**: $0.75% / 65,000 = $0.00012 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Workers Comp**: $4.23 / 65,000 = $0.00065 / lb., 0.01% of Cost of Goods and SG&A Expense (Cattle)
- **Health Insurance**: $15.52 / 65,000 = $0.00024 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Social Security--Company Portion**: $4.94 / 65,000 = $0.00008 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **401K Company Portion**: $2.82 / 65,000 = $0.00004 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Total Wages and Benefits / Person**: $98.61 / 65,000 = $0.00152 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Total Wages & Benefits / Head**: $57.98 / 1.7 cattle / man hr. = $33.99 / head / lb., 2.13% of Cost of Goods and SG&A Expense (Cattle)
- **Supplies Plant**: $1.00 / 65,000 = $0.00001 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Laundry and Uniforms**: $97.50 / 65,000 = $0.00015 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Gas and Electric**: $18.00 / 65,000 = $0.00028 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Water and Sewer**: $5.00 / 65,000 = $0.00008 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Equipment Repair/Maintenance**: $4.00 / 65,000 = $0.00006 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Outside Services/Pest Control**: $35.00 / 65,000 = $0.00005 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Depreciation**: $6.77 / 65,000 = $0.00011 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Garbage Removal**: $1.00 / 65,000 = $0.00002 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Micro Testing / Residue Analysis**: $227.50 / 65,000 = $0.00035 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Equipment Rental / Forklifts**: $130.00 / 65,000 = $0.00020 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Safety Training**: $325.00 / 65,000 = $0.00050 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Licensing and Fees**: $16.25 / 65,000 = $0.00003 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Plant Sanitation; Cleaning Supplies**: $650,000 / 65,000 = $10.00 / lb., 0.63% of Cost of Goods and SG&A Expense (Cattle)
- **Packaging Cost (Boxes and Bags)**: $3,250,000 / 65,000 = $50.00 / lb., 3.08% of Cost of Goods and SG&A Expense (Cattle)
- **Miscellaneous Expense**: $520,000 / 65,000 = $8.00 / lb., 0.49% of Cost of Goods and SG&A Expense (Cattle)

#### Cost of Goods Sold Total

- **Cost of Goods Sold**: $174.50 / 65,000 = $2.68 / lb., 1.68% of Cost of Goods and SG&A Expense (Cattle)

#### Sales, General, Administration

- **Salary Employee Wages**: $32.15 / 65,000 = $0.00050 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Fixed Payroll Taxes**: $0.24 / 65,000 = $0.00000 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Workers Comp**: $1.93 / 65,000 = $0.00003 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Health Insurance**: $6.05 / 65,000 = $0.00010 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Social Security--Company Portion**: $2.25 / 65,000 = $0.00004 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **401K Company Portion**: $2.13 / 65,000 = $0.00003 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)

#### Salaried Wages and Benefits Subtotal

- **Salaried Wages and Benefits Subtotal**: $48.76 / 65,000 = $0.00075 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)

#### Promotional and Branding Costs

- **Consulting IT and Other**: $975,000 / 65,000 = $15.00 / lb., 9.15% of Cost of Goods and SG&A Expense (Cattle)
- **Property Taxes**: $325,000 / 65,000 = $5.00 / lb., 3.24% of Cost of Goods and SG&A Expense (Cattle)
- **Business Insurance**: $390,000 / 65,000 = $6.00 / lb., 3.77% of Cost of Goods and SG&A Expense (Cattle)
- **Engineering Fees**: $65,000 / 65,000 = $1.00 / lb., 0.63% of Cost of Goods and SG&A Expense (Cattle)
- **Auto Expense**: $16.25 / 65,000 = $0.00025 / lb., 0.00% of Cost of Goods and SG&A Expense (Cattle)
- **Telephone/Internet**: $325,000 / 65,000 = $5.00 / lb., 3.24% of Cost of Goods and SG&A Expense (Cattle)
- **Postage/Fed-Ex/UPS**: $65,000 / 65,000 = $1.00 / lb., 0.63% of Cost of Goods and SG&A Expense (Cattle)

#### Total SG & A

- **Total SG & A**: $239.26 / 65,000 = $3.74 / lb., 2.31% of Cost of Goods and SG&A Expense (Cattle)

#### Cost of Goods and SG&A Expense

- **Cost of Goods and SG&A Expense**: $403.75 / 65,000 = $6.21 / lb., 3.84% of Cost of Goods and SG&A Expense (Cattle)

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• With the $152 per head promotional cost, the total plant COGS and S, G, & A expense is $403.75. Without the $152 per head promotional cost, the total plant COGS and S, G, & A expense would still be $251.75 per head, clearly, higher than the $200 to $225 per head operating costs of the major meat packers in the U.S. The success of this plant is dependent upon its ability to produce and merchandise consumer-ready / value-added products. Of the total combined budgets, 37.65 percent is promotion and marketing. My question is not, “Can the company afford $9.88M to advertise its products?” Rather, my question is, “Is $9.88M enough to assure market penetration and sustainability?”

• Realize that by spending $152 per head on product promotion, Montana Beef will be taking sales operations to new levels in the industry. Commodity meat companies do not promote or produce branded products; by incorporating value-added jerky and fermented sausage, Montana Beef is not operating by established commodity rules.

VALUE-ADDED PRODUCTION

• “Table 8. Value-Added Product Summary” (right) is divided into three segments—plant, beef, and buffalo.

• Lamb slaughter was considered for inclusion into this plant; however, lamb slaughter requires equipment that is very specialized to each work station. Lamb slaughter plants in Australia and New Zealand process 6,000 to 10,000 head per day and are extremely efficient and low cost. Montana does not produce enough lambs to compete in this market. The potential for slaughtering 10 to 12 lambs per day by hand in a one-man operation has been considered to satisfy the local market in Montana. A lamb slaughter operation would not be a profitable option for Montana Beef. Furthermore, coordination of meat sales would be a complication. However, the plant will have the capability to kill and chill lambs.

• Traceability is included in the plant section because the electronic tracking, labeling, and labor are all plant functions.

• Animal identification and trace-back management become the backbone of the Food Safety residue monitoring system, the herd health management system, and the meat / carcass Yield feedback system used to manage individual cattle throughout the
production process. The entire management of the production process will revolve around the identification system. Notice the Non-Hormone Treated Cattle (NHTC) and Source and Age Verified (SAV) tags in the ears of the animal pictured.

- The traceability system begins at the mother’s side. Notice the Radio Frequency Identification (RFID) tags in the calf’s ear. This system enables trace back of the meat a consumer has purchased to the packing plant, feed lot, calf ranch, calf, and, finally, the genetics of origin.

- Montana Beef will utilize the cutting-edge calf-to-consumer traceability system created by IMI Global, with which consumers can use their cell phones to access meat traceability data from cow to the point of purchase. This system will verify “WHERE YOUR MEAT COMES FROM,” thus adding transparency and trust for the consumer.

- Connecting the traceability software to the trolley tracking software and integrating all of the plant computer system to the financial or accounting system should be contracted to Rob Streight at ProTrace Solutions (robstreight5589@comcast.net; http://www.protracesolutions.com/protrace/).

- “Table 9. Economic Viability Comparison of Rendering Operation vs. Anaerobic Digestion” (right) demonstrates that rendering for a plant this size is not profitable. Equipment cost was calculated at $6M plus $2M for installation and building; accordingly, amortization and interest are almost twice the EBITDA, creating the net loss of ($8.85) per head.

- Instead, Montana Beef should utilize an anaerobic digester, which will process the pen, truck, and paunch manure, inedible offal, bones, fat, and dead stock, as well as the spent chemical and hair from the dehairing system. The digester produces electricity and fertilizer and reclaims water that is suitable for pen flushing and for irrigation. The anaerobic digester offers an EBITDA OF $22.98 per head and a net after tax of $15.10 per head. The net comparison is a disadvantage of ($23.95) per head to rendering, or $1.56M annually. The digester will solve odor and fly
problems; conversely, rendering will create odor problems and community resistance to the plant.

- The volume of Montana Beef is not sufficient to afford pet treat manufacturing on the same basis as the rendering comparison.

- The dehairing system, shown pictorially (right) during skinning after dehairing (Future Beef Operations, 2002), removes the hair, dirt, manure, and pathogens before the animal is stuck for bleeding.

- The illustration below shows the dehairing tunnel, the dehairing spray, hair removal, and the HACCP pH critical control point and real-time verification system. The process requires two minutes between stunning and sticking and kills 99.9 percent (3 logs) of bacteria and pathogens.

- After the hide puller removes the hide, the hide is then fleshed, green-split transversely, and prepared for manufacture of collagen casings, deep fried as *chicharrones* (a high-protein snack not unlike fried pig skins), or cut and tied into rawhide bones as demonstrated above right.

- The offal chill unit depicted schematically in “Figure 2. Schematic of Rapid Chill Unit for Offal” (shown on the following page) is designed to handle 3500 pounds per cycle, or 70 head per hour, using chilled liquid glycol. Vacuum-packaged hot offal is placed on a cleated interlocks belt. The belt cleats create a form to shape the product into a cube that can be fitted into a corrugated box for storage and shipment. The -63°F glycol removes the latent heat and freezes the outer two-thirds of the product, creating a frozen shell around the offal product. The interior of the product will have reached a temperature of 32°F to 38°F. If the packaged offal product is calibrated in a freezer, the core
temperature will quickly equilibrate to that storage temperature—fresh or frozen. This freezing method has proven effective in shipping **fresh, rapid-chilled** offal to Japan and Korea. The rapid chill offal unit would interface well with the frozen storage cells designed into the plant in the offal harvest area adjacent to the slaughter floor.

- Grill-ready steaks and roasts have not been included in the total value-added numbers. These products create an opportunity that could be harvested with a plant addition; however, this detailed work requires great attention to detail and a dedicated restaurant customer or chain. It is mentioned here as a possibility for the future.

- Beef and buffalo jerky have enjoyed rapid sales growth in the last 15 years. The yielded meat cost of the beef primals listed above is $3.31 for the 118 pounds per head, or $390.41 per head. The same yielded meat costs are substantially higher for buffalo raw material at $6.80 per pound, yielding $801.70 per head. Jerky yield during the drying process is 37 percent; accordingly, trimming yields and drying procedures must be managed with critical attention to detail. The beef product will have a wholesale price of $11.00 per pound, and the buffalo product will have a wholesale price around $26.00 per pound.

- Whole-muscle jerky will utilize primals that are tough and difficult to merchandise at retail; additionally, other primals will be added to the list seasonally. Primary muscles targeted for beef and buffalo jerky include the chuck tender, knuckle, eye of round, outside round, inside round, blade / lifter meat, and the **cutaneous trunci**. Jerky primals will be stripped of fat and outside connective tissue, sliced, seasoned, and vacuum-tumbled prior to drying in a batch oven smokehouse.

- Chunked and formed jerky products undergo the same process as whole-muscle products; however, the formed jerky products are coarse-ground and seasoned prior to vacuum-tumbling. Chunked jerky products are then extruded onto a fine-meshed tray to allow more rapid drying.
- When the jerky products have cooled, the product is vacuum-packed in consumer-sized packages with the appropriate labels, including nutritional information.

- Beef and buffalo jerky are low in fat, low in calories, high in protein, and an excellent source of heme iron. Notice the ingredient statement in the lower third of the label and the declaration that the product contains “Soy, Fish (Anchovies).” Careful and clear labeling is essential to avoid product recalls caused by improper labeling of known allergens.

- Montana beef and buffalo must have a distinctive brand and trademark that the consumer can identify and trust.

- Dry-fermented sausages cover a wide range of products in quality and value, starting with “Slim Jims” at the low quality / low cost end.

- Fermented sausages are cured sausages. Sausage-making technologies must be strictly observed to produce salami of a consistent quality. Historically, this field of knowledge requires the talent of an Old World-style sausage maker. Today, with meat science technologies and commercially available starter cultures that offer the ability to measure meat pH (acidity) and Aw (water activity) and the equipment to control temperature and humidity levels in the drying chamber, production of several sausage products falls within the scope of this plant.

- There is a difference in fermented sausage technology between the United States and European countries. American methods rely on rapid acid production (lowering pH) through a fast fermentation in order to stabilize the sausage against spoilage bacteria. Fast-acting starter cultures, such as Lactobacillus plantarum and Pediococcus acidilactici, are used at high temperatures (up to 104° F). As a result, pH drops to 4.6, rendering the sausage stable, but the flavor suffers and the product is sour and tangy.
In European countries, temperatures of 72°F to 78°F are employed, and the drying, instead of the acidity (pH), is the main hurdle against spoilage bacteria. This process favors better flavor development. The final acidity of a traditionally made salami is low (high pH), and the sour taste is mitigated. (See “Figure 3. pH Decline in Fermented Sausages,” included above right.)

Some well-known European sausages include French saucisson, Spanish chorizo, and Italian salami. These are slow-fermented sausages with nitrate addition and moderate drying temperatures. Northern European sausages, such as German or Hungarian salamis, are made faster, with nitrite addition, and are usually smoked.

Making fermented sausages is a combination of the art of the sausage maker and the magic performed by bacteria. The friendly bacteria are working together with a sausage maker, but the dangerous pathogenic and spoilage bacteria struggle for dominance. The sausage maker monitors temperature and humidity to control reactions that take place inside the sausage. By controlling the meat source, seasoning, and bacteria cultures, high-quality products and substantial value are created.

Many fermented sausages can be remarkably improved in quality when made with pre-rigor meat (meat harvested while the carcass is still hot and before the muscle pH falls from 7.0 to 5.6).

Muscle tissue intended for sausage and jerky can be removed from the carcass immediately after slaughter and processed before rigor develops (generally about 18 hours post stick), thus increasing the amount of salt-soluble protein available to bind and emulsify fat. Diversity in the flavor and texture of sausage products is also enhanced with the ability to use more than one species in the meat block formulations, i.e. beef, buffalo, and pork.

Ground beef equipment should be selected with the capability to measure fat content in each component of the meat block to be utilized in the formulation. Each component of the meat block should be weighed; its fat should be measured; and the product should be coarse-ground prior to blending with other portions of the meat block. Two or three meat sources can then be successfully formulated to hit precise fat percentages and raw material costing formulas.

Retail customers will require product from trimmings where the combo bins have each been tested for E. coli O157:H7 and found negative. Most retail customers will want chubs in each of the fat blends: 73 percent; 80 percent; 85 percent; and 93 percent lean,
or primal designations such as ground, chuck, sirloin, or round in 1-, 3-, and 5-pound weights. Most will sell more 1-pound chubs than 3- and 5-pound chubs combined. Standard give away on 1-pound chubs is difficult and costly to manage. Catch-weight chubs are the most economical to produce; however, the retailer does not want to spend the money to weigh and label them in the store with his expensive personnel. Chuck, round, and sirloin trimmings must be captured and labeled as such on the fabrication floor; when these trimmings are augmented with primals from cow beef carcasses, the combination becomes a great value-added, profitable product.

- Ground beef patties and chubs must be chilled to 28°F to 27°F and maintained at that temperature for fresh product, or they must be quickly frozen if they are to be merchandized as frozen product.

- Patties should be made by a Formax patty machine that is equipped with a Tender-Form extrusion head. Tender-Form patties have a more natural texture, are less tough than conventional patties, and do not appear as frozen “hockey pucks” to consumers.

- Merchandizing ground beef to a retail or restaurant customer is a combination of having the right meat mix (primal designation or fat percentage), the right equipment to shape or form the product, and, finally, the desired packaging. The recommended equipment will encourage customers to sample the system’s products.

- The grand total at the bottom of the value-added table, $2,632.41, will not be easy to achieve; however, the plant as designed will have the capability and the meat supply. Without extensive value-added capability and the ability to successfully merchandise the product mix, the company does not have a chance of success.
“Table 10. Food Safety and Shelf-Life Treatments and Interventions” (included on page 30) presents an extensive review of chemical and bacterial / pathogen interventions for live animals, carcasses, primals, and ground product.

From this collection of pathogen interventions, the multiple-hurdle HACCP Food Safety Intervention System was developed.

Of all the hazards, chemical residues are most easily controlled because they are easily found with scientific sampling and analysis. Credible validation of production systems for natural and organic marketing identities requires a residue monitoring system. Residue failures have been among the first shots fired back at American pork after the Chinese melamine / media melt-down. Failure in the food safety arena is not an option for Montana Beef, as the commodity packers push for market share with other exporting countries and the importing countries’ indigenous cattle supplies.

Known allergens—peanuts, tree nuts, milk, wheat, soy, and eggs—will not be used in the Montana Beef slaughter / fabrication / value-added plant to avert potential labeling and recall issues.

*E. coli* O157:H7, *Salmonella*, and *Listeria monocytogenes* are the most deadly food-borne pathogens that all food plants must control.

Each of these pathogens survives, at times even thrives, in an animal / agricultural habitat. Scientists assume that pathogens are present 100 percent of the time on live cattle and in their environment. Pathogens are natural gastro-intestinal inhabitants of all creatures—man to fly!

In a very real sense, a wall or fence must be constructed between the world where cattle live and eat and the world where humans eat to live. With the exception of *Salmonella*, these pathogens are not of major health concern to the livestock and poultry in which they reside: they are ubiquitous in nature!

*E. coli* O157:H7, *Listeria monocytogenes*, and certain serotypes of *Salmonella* can be lethal to a young child or older adult with the consumption of a single cell.

*E. coli* and *Salmonella* survive up to sixty days in fresh manure on the feed lot floor; consequently, the hair and hide of cattle become the most prevalent pathogen reservoir.

Best Manufacturing Practices must be followed to maintain feed lot bedding, truck floors, and packing plant pens to prevent cross-contamination from dirty to clean cattle.
## Table 10. Food Safety and Shelf-Life Treatments and Interventions

<table>
<thead>
<tr>
<th>Product / Process Application</th>
<th>LOG CFU/cm²</th>
<th>Efficacy</th>
<th>Cost</th>
<th>Value</th>
<th>Concerns</th>
<th>Notes</th>
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<tr>
<td><strong>PRIMAL APPLICATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEROXYPEROXYACETIC ACID RINSE</td>
<td></td>
<td>0.70 LOG</td>
<td>$ 0.75</td>
<td>MARGINAL</td>
<td>EFFECTIVE</td>
<td>APLIED ON</td>
</tr>
<tr>
<td>OZONE / PEROXIDE RINSE</td>
<td></td>
<td>0.70 LOG</td>
<td>$ 0.35</td>
<td>MARGINAL</td>
<td>EFFECTIVE</td>
<td>APLIED ON</td>
</tr>
<tr>
<td>NPC LACTOBACILLUS MEAT CULTURE</td>
<td></td>
<td>2.0 LOG</td>
<td>$ 1.00</td>
<td>VERY HIGH</td>
<td>CCP FOR NEEDLE TENDERIZATION</td>
<td></td>
</tr>
<tr>
<td>ACID SODIUM CHLORITE RINSE</td>
<td></td>
<td>0.70 LOG</td>
<td>$ 1.50</td>
<td>MARGINAL</td>
<td>EFFECTIVE</td>
<td>APLIED ON</td>
</tr>
<tr>
<td>LACTIC ACID RING</td>
<td></td>
<td>0.80 LOG</td>
<td>$ 0.88</td>
<td>MARGINAL</td>
<td>EFFECTIVE</td>
<td>APLIED ON</td>
</tr>
<tr>
<td><strong>GROUND BEEF APPLICATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOW KI IRRADIATION OF CONSUMER PACKAGES</td>
<td></td>
<td>3.0 LOG</td>
<td>$ 0.10</td>
<td>VERY HIGH</td>
<td>LABELING</td>
<td>DEVELOPMENT</td>
</tr>
<tr>
<td>HIGH KI IRRADIATION OF CARTON</td>
<td></td>
<td>2.0 LOG</td>
<td>$ 0.05</td>
<td>VERY HIGH</td>
<td>FLAVOR</td>
<td>DEVELOPMENT</td>
</tr>
<tr>
<td>NPC LACTOBACILLUS MEAT CULTURE</td>
<td></td>
<td>2.0 LOG</td>
<td>$ 0.38</td>
<td>VERY HIGH</td>
<td>SHELF LIFE</td>
<td></td>
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<tr>
<td>COOKING TO 165° F--GROUND PRODUCT</td>
<td></td>
<td>4.0 LOG</td>
<td>$ 4.10</td>
<td>VERY HIGH</td>
<td>CONSUMER EDUCATION</td>
<td>MANY CONSUMER ADVOCATE GROUPS REFUSE TO ACKNOWLEDGE COOKING AS THE BEST INTERVENTION AVAILABLE.</td>
</tr>
</tbody>
</table>

**Notes:**
- $14.50 live intervention cost
- $2.80 carcass intervention total
- **EFFECTIVE**
- **MARGINAL**
- **MEDIUM**
- **VERY HIGH**
- **HIGH**
- **VISUAL**
- **HIGH PATHOGEN**
- **MARGINALLY**
- **MULTI-DOSE**
Table 11. HACCP Plan

| RESIDUE MONITORING PROGRAM--RAW MATERIAL | CCP-1 | 90% | 10% |
| RESIDUE MONITORING PROGRAM--FINISHED PRODUCT | CCP-2 | 95% | 0.5% |

**PATHOGEN INTERVENTION PROGRAM**

- **CLEAN TRUCKS**
  - BMP | 75% | 25.00%

- **CLEAN SLAUGHTER PLANT PENS**
  - BMP | 75% | 18.75%

- **SEPARATION OF CLEAN AND DIRTY JOBS AND WELFARE**
  - BMP | 50% | 9.38%

- **REMOVE HAIR FROM EXTERIOR OF CARCASS--DEHAIRING**
  - CCP-1 | 99% | 0.09%
  - CCP-2 | 90% | 0.01%
  - CCP-3 | 90% | 0.001%

- **ASEPTIC SLAUGHTER PROCESS**
  - CCP-4 | 90% | 0.0001%

- **PRE-EVISCERATION WASH / LACTIC ACID RINSE**
  - CCP-5 | 90% | 0.00001%

**OFFAL PROCESSING DEPARTS FROM CARCASS PROCESS**

- **HEAD WASH AND LACTIC ACID RINSE**
  - CCP-A | 90% | 0.000001%

- **LACTIC ACID RINSE OF OFFAL MEATS**
  - CCP-B | 90% | 0.000001%

- **OFFAL RAPID CHILL**
  - CCP-C | 90% | 0.0000001%

- **APPLICATION OF COMPETITIVE EXCLUSION BACTERIA TO THE VARIETY MEATS**
  - CCP-D | 99% | 0.000000001%

**CARCASS PROCESS CONTINUES AFTER EVISCERATION**

- **FINAL CARCASS WASH**
  - BMP | 20% | 0.00001%

- **HOT WATER PASTEURIZATION**
  - CCP-6 | 99% | 0.0000001%

- **COOK THE FINISHED PRODUCT TO 118° FOR 2 HR**
  - CCP-7 | 99% | 0.000000001%

- **APPLICATION OF COMPETITIVE EXCLUSION BACTERIA TO THE JERKY AND SAUSAGE PRIOR TO CONSUMER PACKAGING**
  - CCP-8 | 99% | 0.00000000001%

**PATHOGEN MONITORING PROGRAM / VERIFICATION**

- **RAW MATERIAL AND OFFAL TESTED DAILY PRIOR TO COOKING**
  - TESTING | 50 SAMPLES / DAY | CONFIDENCE | ANY POSITIVE TEST INDICATES THE HACCP SYSTEM IS NOT PERFORMING AS PREDICTED!!
  - INTERVAL | 95% |

BMP= BEST MANUFACTURING PRACTICE; CCP=CRITICAL CONTROL POINT
• **A recognized brand name must first be protected from known hazards:** pathogens and residues are serious consumer concerns and will be further highlighted as world trade competition between nations comes to the forefront. The Hazard Analysis Critical Control Point (HACCP) system is the current state-of-the-art management scenario accepted worldwide for food production. The Montana Beef HACCP system for the control and management of chemical residues, biological pathogens, and disease is depicted in “Table 11. HACCP Plan” (included on the previous page) and is described in the discussion that follows. **Careful and consistent adherence to the proscribed multiple-hurdle Food Safety procedures will provide Montana Beef a substantial margin of differentiation and a distinct competitive advantage over the mega-packer industry. In fact, a stellar Food Safety record can be utilized to create an incisive marketing point.**

• The single most critical manned pathogen intervention process begins with aseptic hide removal during the high bench operation (CCP-4, or the fourth action in a sequence of related events).

• The hide removal area is frequently the position at which new employees start their training; however, at Montana Beef, these positions require personnel who are highly trained and incentivized, making these jobs the most desired in the plant.

• The high bench process is further enhanced as the cattle are dehaired immediately after stunning and prior to bleeding (CCP-1). “Figure 4. Schematic of Dehairing System” (right) and its associated photograph explain the process. The steer at the right has just emerged from the dehairing process, which takes less than three minutes to complete.

• The dehairing process provides a **three log kill (99.9 percent) of pathogens.** Although the dehairing process is the most significant pathogen control intervention to date, the system has not been adopted because of the complex mechanical and chemical engineering requirements for operation in the plant and the “Who Pays Me?” commodity attitude.
• Dehairing is also an economically viable re-engineered production process for the manufacture of numerous value-added hide, leather, collagen, and snack food products.

• Hides are dehaired in the conventional tanning process with sodium sulfide (the same chemical used in the dehairing system); however, hair removal happens much more quickly when the process is performed on the hot carcass because body heat accelerates the chemical reaction, killing pathogens and allowing the fresh hide to be split and processed before chroming. Splitting the green hide allows the flesh split to be utilized as collagen casing for sausage products, as dog chews, or as chicharrones for human consumption—all with greater return than rawhide leather. An added result of green splitting is that grain splits are half as thick and require half the chemical and half the time to blue chrome.

• The dehairing process is a valuable processing tool as a pathogen intervention in the Food Safety arena, as an environmental preservation interface through salt water elimination, and as a source of value-added raw materials.

• Hide removal will be choreographed for each employee and written as a Standard Operating Procedure for each job on the high bench. From the carcass map pictured below (right), each employee’s job area is clearly delineated and defined. Prior to the pre-evisceration wash, contamination will be counted and recorded for each work station on a continuous basis by plant Food Safety monitors. The current score will be posted on the floor within view of the entire high bench team of workers. Scores for each work station will be statistically analyzed and trends, recorded (center graph). Contamination data and pathogen analysis data will then be used to generously incentivize the high bench team as a unit. They will be paid to eliminate contamination and prevent pathogens. When pathogen positives or contaminations are found, the incentives will be withheld. The aseptic dress procedure on the high bench is known as CCP-4. The aseptic procedure will kill one log of bacteria (90 percent), but in a critical prevention mode at the beginning of the process.

• The pre-evisceration wash is designed to attack the 10 percent of the bacteria that remain after the aseptic hide removal and before the fell membrane has had time to dry (two
The pre-evisceration wash procedure is accomplished with a soft, pulsating hot water (120°F) wash, followed by a 5 percent lactic acid rinse (CCP-5). The wash and acid rinse remove or kill another 90 percent, or one log, of remaining bacteria. A similar process is followed with the head and offal product with similar results.

The final carcass wash and hot water pasteurization will be combined into the same cabinet to reduce air flow and allow the reuse of the initial carcass wash water in the pasteurization unit. Hot water pasteurization (CCP-6) is a two-log kill, or 99 percent of pathogens still present on the carcass.

- The control chart shown above in “Figure 5. Hot Water Pasteurization Analysis” demonstrates that the carcass surface must reach 160°F for a duration of ten seconds in each of the carcass surface monitoring points for true pasteurization to be accomplished. Hot water pasteurization (CCP-6) will be validated on one carcass each hour, and corrective actions will be rigorously enforced.

- Application of competitive exclusion bacteria to the carcass surface (recently approved by USDA-FSIS) is the final intervention (CCP-7) before the carcass is chilled. These *Lactobacillus* bacteria prevent incidental contamination after the carcass has been sanitized during the slaughter intervention process and provide a two-log protection, or another 99 percent pathogen kill. This process will be repeated again as beef trimmings are packaged prior to storage for ground beef manufacture.
In recent years, Agrarian Marketing Corporation (AMC) has combined technologies to create a product that will lower the pathogens within live cattle, swine, and poultry. This product contains species-specific antibodies geared to various types of Salmonella, E. coli, and other gram-negative organisms. The Salmonella and E.coli bovine-specific antibodies will neutralize these types of gram-negative organisms by binding them in the animal.

AMC antibodies are incorporated with L-form bacteria to lower the pathogen loads within the intestinal tract of a beef animal. By feeding the combination of these ingredients, the pathogen load is reduced, lowering the possibility of pathogen contamination from the animal’s digestive system during the harvesting process.

Individual animal cross-contamination and cross-contamination between carcasses related to Salmonella and E.coli will be dramatically reduced using this all-natural treatment of the cattle prior to harvest. Montana Beef will produce the highest quality beef using this type of cutting-edge technology.

Beef trimmings will be tested for E. coli O157:H7 prior to release for use in ground beef products. Positive product will be removed and destroyed. The presence of positive pathogens indicates that the HACCP process is not working as planned. Pathogen testing should be validation that the HACCP intervention is working.

Potential consumers are likely concerned about Food Safety management and control issues with all the media attention to recalls from China for melamine in pet food and lead paint on toys, and with numerous recalls of U.S. beef for E. coli contamination. To build and protect a beef brand, Food Safety cannot be done in half measure; almost is not good enough when the life of a child hangs in the balance. Potential customers should demand to know that Montana Beef has designed a truly state-of-the-art Food Safety system. This section has been covered in great detail because diligent attention to Food Safety is one of the traits that will separate Montana Beef from the mega-plant culture. Only when Food Safety is achieved at the 100 percent level of commitment does it contribute to marketing or return customer patronage;
with a commitment and execution short of 100 percent, Montana Beef would become just another source of the problem! With planned education and training, each Montana Beef employee will understand and share this trust/accountability continuum!

- Montana Beef was designed to maximize Food Safety with enough multiple-hurdle, redundant interventions to stop pathogens on consumer products if properly executed. The same microbiological control mechanisms will control extended shelf life and allow export of fresh, vacuum-packaged beef products.

- Careful attention to the HACCP requirements will facilitate Federal Meat Inspection, which is the absolute requirement for commerce within Montana, across the United States, and internationally. State Meat Inspection was not considered because Federal Inspection is required for export to foreign countries.

**LIVESTOCK TRANSACTION SUMMARIES**

- The next three tables depict livestock transaction summaries, which encompass live cattle costs, revenues, weights, and yields for cull cows, fed beef, and forage-finished buffalo.

- When purchased live, cattle and buffalo are weighed in the early morning on day of shipment with a 4 percent shrink to the certified scale weight to allow for rumen contents.

- Live cattle prices are values reported from USDA/AMS/Market News.

- Carcass dressing percentage ranges from 40 percent to 65 percent and is the ratio of live weight to conventional carcass weight. Animals that are fatter and more muscular (items that remain with the carcass and add weight) have higher dressing percentages, *i.e.* 61 percent to 63.5 percent. Animals that have had limited nutrition and have poorly developed muscles and little or no carcass fat or are pregnant tend to have lower dressing percentages, *i.e.* 42 percent to 45 percent.

- “Table 12. Jerky Cow Transaction Summary” (right) shows that for jerky cow product, cull cows weighing 1,235 pounds with reasonable muscle development are purchased with an expected dressing percentage of 48 percent.

<table>
<thead>
<tr>
<th>JERKY COW ASSUMPTION</th>
<th>WEIGHT</th>
<th>$ / HEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSACTION SUMMARY</td>
<td>LB / HD</td>
<td></td>
</tr>
<tr>
<td>COW WITH SHRINK 4.0%</td>
<td>1286</td>
<td></td>
</tr>
<tr>
<td>SLAUGHTER COW / CWT.</td>
<td>$ 90.00</td>
<td>1235</td>
</tr>
<tr>
<td>SLAUGHTER COW</td>
<td>$90.00</td>
<td>$ 1,111.10</td>
</tr>
<tr>
<td>CARCASS DRESSING PERCENTAGE</td>
<td>48.0%</td>
<td>593</td>
</tr>
<tr>
<td>LIVE DROP CREDIT / CWT.</td>
<td>$ 14.91</td>
<td>1235</td>
</tr>
<tr>
<td>EDIBLE OFFAL / CWT.</td>
<td>$ 1.68</td>
<td>65</td>
</tr>
<tr>
<td>HIDE</td>
<td>10%</td>
<td>123</td>
</tr>
<tr>
<td>INEDIBLE FAT, BONE, &amp; VISCERA / CWT.</td>
<td>$ 0.120</td>
<td>328</td>
</tr>
<tr>
<td>BLOOD / CWT.</td>
<td>$ 2.00</td>
<td>50</td>
</tr>
<tr>
<td>PANCH &amp; MANURE TO SOLID WASTE</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>BY-PRODUCT VALUE / HEAD</td>
<td>$ 0.42</td>
<td>506</td>
</tr>
<tr>
<td>PREMIUM TO DROP CREDIT</td>
<td>$ 0.03</td>
<td>506</td>
</tr>
<tr>
<td>HOT FAT TRIM REMOVAL</td>
<td>5%</td>
<td>$ 0.37</td>
</tr>
<tr>
<td>BONE</td>
<td>3.6</td>
<td>19.5%</td>
</tr>
<tr>
<td>RED MEAT YIELD PERCENTAGE</td>
<td>70%</td>
<td>414.81</td>
</tr>
<tr>
<td>WHOLE MUSCLE YIELD 52%</td>
<td>214.81</td>
<td></td>
</tr>
<tr>
<td>COW TRIMMINGS TO GROUND BEEF PRODUCTION 12%</td>
<td>$ 2.70</td>
<td>69.71</td>
</tr>
<tr>
<td>COW TRIMMINGS TO OUTSIDE SALES 70%</td>
<td>$ 0.77</td>
<td>30.00</td>
</tr>
<tr>
<td>JERKY YIELD WHOLE MUSCLE 70%</td>
<td>$ 11.00</td>
<td>73.5</td>
</tr>
<tr>
<td>MEAT STICK YIELD-FORMED 70%</td>
<td>$ 10.00</td>
<td>40%</td>
</tr>
<tr>
<td>DEEP FRIED BEEF CHICHARRONES 60%</td>
<td>$ 5.00</td>
<td>85%</td>
</tr>
<tr>
<td>VALUE-ADDED PRODUCTS (MANUFACTURING COST)</td>
<td>$ 0.33</td>
<td>400</td>
</tr>
<tr>
<td>TOTAL SALES REVENUE 3.71</td>
<td>$ 1,703.55</td>
<td></td>
</tr>
<tr>
<td>COST OF GOODS SOLD 1.24</td>
<td>$ 572.60</td>
<td></td>
</tr>
<tr>
<td>TOTAL COST 3.66</td>
<td>$ 1,683.70</td>
<td></td>
</tr>
<tr>
<td>BEEF--EBIDTA $ / HEAD</td>
<td>$ 0.05</td>
<td>400</td>
</tr>
</tbody>
</table>
resulting in a carcass weight of 593 pounds. The published USDA / AMS drop credit was $14.91 per hundred-weight, for a total drop credit of ($184.07). The edible offal has a value of $109.20; the hide, $88.00; inedible offal, $39.36; blood, $1.00; for a total by-product value per head of $237.56, or a premium to the USDA drop credit of $53.49.

- In the most efficient jerky manufacturing process, carcass fat would be trimmed hot with pneumatic knives to eliminate the fat and connective tissue on the exterior of the carcass. The carcass fat and connective tissue typically weigh approximately 30 pounds, or 5 percent of total carcass weight.

- Carcass bone will range between 15 percent and 22 percent, with a normal muscle-to-bone ratio of 3.8:1.

- Best-value utilization of a jerky cow carcass has all of the available muscle utilized in a whole-muscle jerky product. The 214.81 pounds of muscle would yield 37 percent when properly dried, or 79.5 pounds of finished jerky. When the finished jerky is sold to a retail customer for $11.00 per pound, the retail margin is 30 percent.

- The cow trimmings are utilized in three ways to optimize value: (1) beef chunked and formed jerky—100 pounds raw yields 40 pounds dried and sells for $10.00 per pound, or $280.00 per head; (2) ground beef—69.71 pounds per head and sells at $2.70 per pound, or $188.22 per head; (3) trim too fat to utilize in either ground beef or jerky and sold outside (30 pounds per head) sells for $0.77 per pound, or $23.20 per head.

- Beef chicharrones are derived from the flesh split (interior portion of the hide next to the fat), after splitting the hide transversely. The raw hide is then cut into bite-sized portions, seasoned, and deep-fat fried. Of the 123-pound hide, the grain side or outside is sold for leather production, and the flesh side is sold as collagen (sausage casings) or chicharrones (67.9 pounds, or $288.58 per head).

- Value-added product accounts for 482 pounds of the 460 pounds of conventional product, or 105 percent. The value-added manufacturing cost is an additional cost to those enumerated in “Table 7. Summary of Cost of Goods Sold,” which has been discussed previously. (See page 21.) Additional people and packaging are estimated at $0.35 per pound, or $168.85 for the 482 value-added pounds.

- Total Cost (livestock plus manufacturing cost) is $1,683.70, or 98.7 percent of total Revenues of $1,705.55, leaving Earnings before Interest, Depreciation, Tax and Amortization (EBIDTA) of $21.85.
“Table 13. High-Quality Fed Beef Transaction Summary” (right) shows a cattle cost of $145.00 per hundred-weight, or $1,948.80 per head.

Although the fed-beef EBITDA is $157.17 per head, the sales revenue for the ground beef, jerky and chicharrones value-added products is projected at $1,210.40, indicating that all of the cash flow can be attributed to value-added products. In fact, the EBITDA for the value-added alone was $636.43 (5.86 percent margin), indicating that steak and roast beef sales were subsidized $479.26 per head by value-added earnings.

The sales margin of these value-added products is substantial; however, these branded products require an experienced sales force that knows the customer base. We have included 10 sales and marketing professionals in the S, G, & A cost analysis included in “Table 7. Summary of Cost of Goods Sold.” (See page 21.)

Montana Beef’s slaughter and fabrication operations provide the company access to raw material that would not be available on the commodity market.

The fed beef and cull cow live price and carcass cutout data are available on a daily basis from USDA / AMS; however, the public data base is only available on a monthly basis for live buffalo and buffalo meat.

Forage-finished buffalo do not dress as high as grain-finished beef cattle; however, their dressing percentage is better than that expected for cull beef cows.
• “Table 14. Buffalo Transaction Summary” (right) shows that only conventional steak primals ($514.37 per head [40.1 pounds per head]) were diverted from the jerky or ground beef products; nonetheless, this heavily value-added prioritization and extreme raw price produced an EBIDTA of $29.21 per head because the live cost was $1,656.00 per head.

• If the buffalo jerky were sold at $10.00 and $11.00 per pound (the beef wholesale price) rather than at the projected $20.00 and $26.00 per pound, the resulting EBITDA would be $1,150.96. The high cost of the buffalo finished jerky will limit sales when compared to beef.

Table 14. Buffalo Transaction Summary

<table>
<thead>
<tr>
<th>BUFALO</th>
<th>ASSUMPTION</th>
<th>WEIGHT</th>
<th>S / HEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSACITION SUMMARY</td>
<td>LB / HD</td>
<td>$ / HEAD</td>
<td></td>
</tr>
<tr>
<td>COW WITH SHRINK</td>
<td>4.0%</td>
<td>1150</td>
<td>$1,656.00</td>
</tr>
<tr>
<td>SLAUGHTER BUFFALO / CWT.</td>
<td>$ 150.00</td>
<td>1104</td>
<td>$1,656.00</td>
</tr>
<tr>
<td>AVERAGE COW COST</td>
<td></td>
<td>$ 1.50</td>
<td></td>
</tr>
<tr>
<td>CARCASS DRESSING PERCENTAGE</td>
<td>52.3%</td>
<td>580</td>
<td></td>
</tr>
<tr>
<td>2013 AVG LIVE DROP CREDIT / CWT.</td>
<td>$ 14.91</td>
<td>1104</td>
<td>$(164.61)</td>
</tr>
<tr>
<td>EDIBLE OFFAL / CWT.</td>
<td>$ 1.50</td>
<td>75</td>
<td>$112.50</td>
</tr>
<tr>
<td>HIDE</td>
<td>10%</td>
<td>110</td>
<td>$90.00</td>
</tr>
<tr>
<td>INEDIBLE FAT, BONE, &amp; VISCERA / CWT.</td>
<td>$ 0.12</td>
<td>328</td>
<td>$39.36</td>
</tr>
<tr>
<td>BLOOD / CWT.</td>
<td>$ 0.60</td>
<td>50</td>
<td>$30.00</td>
</tr>
<tr>
<td>PAUNCH &amp; MANURE TO SOLID WASTE</td>
<td>120</td>
<td></td>
<td></td>
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<tr>
<td>BY-PRODUCT VALUE / HEAD</td>
<td>$ 0.44</td>
<td>563</td>
<td>$250.16</td>
</tr>
<tr>
<td>PREMIUM TO DROP CREDIT</td>
<td>$ 0.15</td>
<td>563</td>
<td>$85.55</td>
</tr>
<tr>
<td>HOT FAT TRIM REMOVAL</td>
<td>5% $ 0.37</td>
<td>29.0</td>
<td>$10.72</td>
</tr>
<tr>
<td>BONE</td>
<td>3.6 20.0% $ 0.10</td>
<td>115.9</td>
<td>$11.59</td>
</tr>
<tr>
<td>RED MEAT YIELD PERCENTAGE</td>
<td>71.5%</td>
<td>414</td>
<td></td>
</tr>
<tr>
<td>STEAK MEAT YIELD</td>
<td>9.7% $ 12.04</td>
<td>40.1</td>
<td>$514.37</td>
</tr>
<tr>
<td>BUFFALO TRIMMINGS</td>
<td>65%</td>
<td>374.3</td>
<td></td>
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<tr>
<td>BUFFALO GROUND MEAT</td>
<td>33.4% $ 5.75</td>
<td>125.0</td>
<td>$718.82</td>
</tr>
<tr>
<td>JERKY YIELD--WHOLE MUSCLE</td>
<td>70% $ 26.00 37% 118.0 43.7</td>
<td>$333.21</td>
<td></td>
</tr>
<tr>
<td>JERKY YIELD--FORMED</td>
<td>70% $ 20.00 40% 131.35 52.5</td>
<td>$295.54</td>
<td></td>
</tr>
<tr>
<td>VALUE-ADDED PRODUCTS (MANUFACTURING COST)</td>
<td>$ 0.35</td>
<td>374</td>
<td>$131.02</td>
</tr>
<tr>
<td>TOTAL SALES REVENUE</td>
<td>$ 2.32</td>
<td>958</td>
<td>$2,719.08</td>
</tr>
<tr>
<td>COST OF GOODS SOLD</td>
<td>$ 0.56</td>
<td>958</td>
<td>$534.77</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td>$ 2.29</td>
<td>958</td>
<td>$2,184.77</td>
</tr>
<tr>
<td>BEEF--EBIDTA $ / HEAD</td>
<td>$ 0.03</td>
<td>958</td>
<td>$29.21</td>
</tr>
</tbody>
</table>
## Table 15. Montana Beef – Annual Income Statement

### ANNUAL INCOME STATEMENT

**MONTANA BEEF COMPANY**

### OPERATING REVENUE

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICROBEE Fed Beef</td>
<td>$200,000</td>
<td>$150,000</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$25,000</td>
</tr>
<tr>
<td>Identity Standard Cattle</td>
<td>$300,000</td>
<td>$250,000</td>
<td>$200,000</td>
<td>$150,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>Buffalo Steak Meat</td>
<td>$100,000</td>
<td>$75,000</td>
<td>$50,000</td>
<td>$30,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>Beef Offal</td>
<td>$50,000</td>
<td>$40,000</td>
<td>$30,000</td>
<td>$20,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Buffalo Hide &amp; Offal</td>
<td>$25,000</td>
<td>$20,000</td>
<td>$15,000</td>
<td>$10,000</td>
<td>$5,000</td>
</tr>
</tbody>
</table>

### OPERATING EXPENSES

#### Cost of Goods Sold

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICROBEE Fed Beef</td>
<td>$600,000</td>
<td>$450,000</td>
<td>$300,000</td>
<td>$150,000</td>
<td>$75,000</td>
</tr>
<tr>
<td>Identity Standard Cattle</td>
<td>$300,000</td>
<td>$225,000</td>
<td>$150,000</td>
<td>$100,000</td>
<td>$75,000</td>
</tr>
<tr>
<td>Beef Processing Expenses</td>
<td>$100,000</td>
<td>$75,000</td>
<td>$50,000</td>
<td>$30,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>Value-Added Processing Costs</td>
<td>$250,000</td>
<td>$150,000</td>
<td>$75,000</td>
<td>$30,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Miscellaneous Expenses</td>
<td>$50,000</td>
<td>$30,000</td>
<td>$15,000</td>
<td>$10,000</td>
<td>$5,000</td>
</tr>
<tr>
<td>Total COGS</td>
<td>$1,250,000</td>
<td>$875,000</td>
<td>$525,000</td>
<td>$255,000</td>
<td>$120,000</td>
</tr>
</tbody>
</table>

### GROSS OPERATIONAL MARGIN

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total G &amp; A</td>
<td>$250,000</td>
<td>$180,000</td>
<td>$120,000</td>
<td>$60,000</td>
<td>$30,000</td>
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</tbody>
</table>

### TOTAL COGS & G & A

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cogs &amp; G &amp; A</td>
<td>$1,500,000</td>
<td>$1,050,000</td>
<td>$845,000</td>
<td>$515,000</td>
<td>$350,000</td>
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</table>

### EBITDA

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA</td>
<td>$750,000</td>
<td>$525,000</td>
<td>$420,000</td>
<td>$260,000</td>
<td>$190,000</td>
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</table>

### INTEREST EXPENSE

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Expense</td>
<td>($100)</td>
<td>($75)</td>
<td>($50)</td>
<td>($25)</td>
<td>($10)</td>
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### DEPRECIATION EXPENSE

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation Expense</td>
<td>($100)</td>
<td>($75)</td>
<td>($50)</td>
<td>($25)</td>
<td>($10)</td>
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### GROSS MARGIN

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Margin</td>
<td>$550,000</td>
<td>$450,000</td>
<td>$370,000</td>
<td>$290,000</td>
<td>$230,000</td>
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### INCOME TAXES - 42% of Gross Income

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income Taxes</td>
<td>($230)</td>
<td>($100)</td>
<td>($70)</td>
<td>($50)</td>
<td>($30)</td>
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</table>

### NET INCOME

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income</td>
<td>$320,000</td>
<td>$350,000</td>
<td>$280,000</td>
<td>$200,000</td>
<td>$140,000</td>
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</table>

### Income Statement Statistics

<table>
<thead>
<tr>
<th>Revenue</th>
<th>$4,000,000</th>
<th>$3,500,000</th>
<th>$3,000,000</th>
<th>$2,500,000</th>
<th>$2,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Goods Sold</td>
<td>$1,500,000</td>
<td>$1,200,000</td>
<td>$1,000,000</td>
<td>$800,000</td>
<td>$600,000</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>$2,500,000</td>
<td>$2,300,000</td>
<td>$2,000,000</td>
<td>$1,700,000</td>
<td>$1,400,000</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>$2,000,000</td>
<td>$1,800,000</td>
<td>$1,600,000</td>
<td>$1,400,000</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>EBITDA Margin</td>
<td>50%</td>
<td>40%</td>
<td>33%</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Net Income Margin</td>
<td>15%</td>
<td>13%</td>
<td>11%</td>
<td>10%</td>
<td>9%</td>
</tr>
<tr>
<td>Return on Equity</td>
<td>10%</td>
<td>9%</td>
<td>8%</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Dividend Payout Ratio</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
</tr>
</tbody>
</table>

**CONFIDENTIAL**
• Total Revenue grows from $41.2M to $222.2M in years 1 through 6; simultaneously, the number of head processed increases from 11,250 in Year 1 (17 percent of annual capacity) to 51,000 in Year 6 (78 percent of annual capacity). Revenue grows rabidly in Years 1 and 2 and slows in the last four years. Revenue appreciates at 3 percent annually.

• Variable Operating Expenses include livestock (by class), slaughter and fabrication, Cost of Goods Sold, value-added processing costs, and distribution / freight costs. Operating costs are inflated 1.5 percent annually.

• The fixed major costs include brand promotion and salaried wages and benefits, which comprise 48.24 percent of the total S, G, & A. Total fixed cost is $229.26 per head, or 56.78 percent of the total operating cost of $403.75 per head. (See also “Table 7. Summary of Cost of Goods Sold,” page 21.)

• Plant cost is estimated to be $43,982,976 (see “Table 16. Preliminary Cost Estimates for Sixteen Divisions of Construction, as Defined by the Construction Specifications Institute,” pages 49-52); working capital, $20,000,000; and owners’ equity, 50 percent; with a combined capital and operating loan of $31,991,488 at 8 percent interest with payments of $2,559,319 annually, or $39.37 per head.

• State and federal taxes are calculated at 6.9 percent and 36 percent, respectively, and grow from $2.9M in Year 1 to $23.8M in Year 6.

• Net income grows from $3.8M ($342 per head) in Year 1 to 31.6M in Year 6 ($620 per head). Although the income grows reasonably, net income / equity never exceeds 2 percent to 5 percent.
Montana Beef will require 25 acres of land, which should be located on the outskirts of a medium-sized town, preferably on an Interstate highway.

Truck traffic should enter the plant grounds from the major highway. Personnel and visitor traffic should access the plant grounds from an adjacent side street or farm-to-market road.

The multi-stage waste water treatment facility is shown in the upper left corner of “Figure 6. Montana Beef – Conceptual Site Plan” (right). Waste water treatment includes an anaerobic digester, (next to the plant), DAF (diffused air filtration), covered initial anaerobic lagoons, aeration basins, pump house, chlorine contact clarifier, disinfection contact tank, and a finishing / holding lagoon. The solid waste digester next to the plant is included in the budget; however, the waste water treatment facility is not budgeted. Note: the liquid portions of this system operate in tandem for redundancy and correction capability.

Alternative treatment of the waste water could be possible, depending on the community and site selected. If the community waste water treatment facility were able to handle the plant waste, the waste water treatment cost could be lower; however, the system as designed is the most technologically advanced and environmentally friendly option.

The employee parking lot lies to the lower right of the plant.
• The dotted lines show areas where plant hot boxes and box storage could be expanded if a future second shift were to become desirable.

• The covered cattle pens are shown attached to the plant in the upper right corner. The covered cattle pens are shown in greater detail in “Figure 7. Montana Beef – Three-Level Plant Schematic” (included on page 46) and in “Figure 8. Montana Beef – Schematic of Livestock Pen Details” (included on page 47).

• The pens are designed for easy loading and driving to slaughter by a single person.

• Manure is flushed into the adjacent anaerobic digester utilizing treated waste water from the final storage lagoon. Additionally, inedible offal, bones, hair and dehairing chemical, dead stock, and manure (pen, truck, and paunch manure) will all be chopped and fed to the digester, which has a storage capacity of 21 to 23 days, or 2.3M pounds. The digester utilizes biogas to assist movement of the solid waste through the digestion process. Cellulose is not digested and exits the digester as solid waste. Genset engines are utilized to power generators and create electricity, or the gas can be used to create hot water for plant cleaning and sanitation.

• “Figure 7. Montana Beef – Three-Level Plant Schematic” (included on page 46) shows the plant design with the ground floor in the center, the basement to the left, and the mezzanine in the lower right. The basement is a single bay wide and runs beneath the slaughter floor to manage the effluent and equipment corridor. The hide chill system is shown in the upper corner of the basement, which will also house the green hide-splitting and -fleshing equipment.

• The mezzanine is designed as a box storage and make-up area for both fabrication product and jerky and sausage from the value-added area. (See “Figure 9. Montana Beef – Schematic of Mezzanine Level,” included on page 48.) The boxes are formed, glued, and ready-to-load, and they are fed through the ceiling of the appropriate production area.

• Melmeq, Ltd. of Auckland, New Zealand, an international company that specializes in capital equipment design and fabrication for food processing operations around the world, provided a typical general layout of their equipment from the knock box to the carcass chill coolers. The majority of their equipment items are incorporated in the Hide-On and Hide-Off rooms shown in the conceptual drawings.

• The cattle enter the plant through a handling system designed by Temple Grandin, Ph.D. (Professor of Animal Science, Colorado State University), where they are stunned and suspended prior to chemical dehairing (described in the “Food Safety and Extended Shelf Life” section of this report, pages 28-36). The hair, dirt, manure, and chemical are removed to the anaerobic digester. The hide is rinsed with hydrogen peroxide (to oxidize the chemical) and a mild acid to return the hide pH to a 7.5 to 8.3 range (CCP-1, -2, and -3, described in the “Food Safety and Extended Shelf Life” section of this report, pages 28-36). The carcass is then stuck and bled.
• The high bench is next in the process flow, where the hind legs are skinned and transferred to trolleys. The bung is then cut, tied, bagged, and pushed into the abdominal cavity. The udder or testicles are also removed on the high bench (CCP-4).

• The hide puller pulls the hide down the carcass and over the foreshanks (after feet are removed) and head.

• The carcass is now ready to exit the dirty area into the evisceration room through a hot pre-evisceration wash and bromine or lactic acid rinse (CCP-5).

• The head is removed and hand-washed (CCP-A). The carcass is then eviscerated on the moving-top viscera table. The edible offal enters the offal bays on the left of the evisceration room and are washed, cleaned, and /or cooked (CCP-B, -C, and -D) and chilled in the glycol chilling unit prior to frozen storage.

• The carcass is split, the spinal record is removed, and the *obterator foramen* is cleaned and scraped to remove any USDA-designated Specified Risk Material (as a guard against BSE).

• The carcass is washed with hot water and receives final trim and USDA / FSIS Inspection. Finally, the carcass is hot-water-pasteurized with surface temperatures verified at 160°F for 10 seconds (CCP-6).

• The carcass then is electrically stimulated—6 amps, 250 volts, 30 pulses / 1.5 seconds in duration. The budgeted cost of the electrical stimulation equipment is $344,080.00, installed by Jeff Kayl (*jkayl277@comcast.net*).

• The carcass sides are then rapidly chilled with high velocity chilled air prior to chilling for 36 to 40 hours in the hot boxes.

• Carcasses are then graded and sorted into specific fabrication marketing schemes.

• Montana Beef should consider purchase of a camera grading system and make the grade data available to livestock suppliers. The RMS Camera, as installed by Bob Richmond (rjrichmond@rmsusa.com), costs approximately $325K, including software. Another camera option currently in use is the E+V camera, marketed by Horst Eger (*horst.eger@eplusv.de*).

• Chilled, graded, and sorted carcasses are now ready for fabrication. The carcass is now disassembled, and the primals are cut and trimmed on the three fabrication tables—
chuck, middle meats, and round. The trim from each primal is segregated for ground beef production and labeled as ground chuck, sirloin, or round.

- Primals selected for jerky production are stripped of outside fat and silver skin (connective tissue) and placed in plastic tubs for transport to the jerky slicing / seasoning / tumbling room. Note that the raw jerky enters the oven on the dirty side of the oven and exits on the clean side, where the product is hand-packaged and vacuum-packed, weighed, and boxed for shipment. Sausage products would be made in the same room on alternate days of production.

- Ground product (chubs and patties) are formulated and packaged in the grinding room; finally, the product is frozen in the glycol chub chiller and stored in the freezer prior to shipment. Interleafed patties are stacked, bagged, and frozen in the chub chiller also.

- The boxed product is palletized as it enters the box cooler. Pallets are stored in push back racks, five layers high, with fork lifts.
Figure 8. Montana Beef – Schematic of Livestock Pen Details
<table>
<thead>
<tr>
<th>Division</th>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Item Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division 0</td>
<td>Bidding Requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance (builders risk)</td>
<td>1</td>
<td>$50,000</td>
<td>$50,000</td>
<td></td>
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<tr>
<td>Performance &amp; Payment Bond not incl.</td>
<td></td>
<td>$0</td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td>General Liability Insurance</td>
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<td>$140,000</td>
<td>$140,000</td>
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<tr>
<td>Owner Protective Insurance</td>
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<td>$15,000</td>
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<tr>
<td><strong>Subtotal</strong></td>
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<td><strong>$205,000</strong></td>
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<td></td>
</tr>
<tr>
<td>Division 1</td>
<td>General Requirements</td>
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<td></td>
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</tr>
<tr>
<td>Project General Conditions 5%</td>
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<tr>
<td>Temporary facilities incl.</td>
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<td></td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td>Temporary Power / Comm. incl.</td>
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<td></td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td>Disposal fees incl.</td>
<td></td>
<td></td>
<td>$0</td>
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<tr>
<td>Equipment Rental incl.</td>
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<tr>
<td>Testing</td>
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<tr>
<td>Building Permit / Fees excluded</td>
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<td>$0</td>
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<tr>
<td><strong>Subtotal</strong></td>
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</tr>
<tr>
<td>Division 2</td>
<td>Site Work</td>
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<td>Property Acquisition (acres)</td>
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<td>Topographical and Boundary surveys</td>
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<tr>
<td>Geotechnical</td>
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<tr>
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<tr>
<td>Grading and Erosion Control 50000</td>
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<td>Excavation &amp; Backfill incl. in Div. 3</td>
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<td>$0</td>
<td>$0</td>
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<tr>
<td>Gravel sub base bldg</td>
<td>lot</td>
<td>$40,000</td>
<td>$40,000</td>
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<tr>
<td>Soil Treatment</td>
<td>lot</td>
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<td>$10,000</td>
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<td>Earthen &amp; gravel fire lanes</td>
<td>lot</td>
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<td>$5,000</td>
<td></td>
</tr>
<tr>
<td>Guard and security</td>
<td>lot</td>
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<td>$20,000</td>
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<tr>
<td>Gravel Roadways</td>
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<td>Asphalt pavement</td>
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<td>$3</td>
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<td>Concrete pavement</td>
<td>165000</td>
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<td>Parking stripes</td>
<td>lot</td>
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<td>$5,000</td>
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<td>Curb &amp; Gutter</td>
<td>2500</td>
<td>$20</td>
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<tr>
<td>Concrete sidewalks</td>
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<td>Landscape &amp; Sprinkler allow</td>
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<td>$12,000</td>
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</tr>
<tr>
<td>Water service excluded</td>
<td></td>
<td>$0</td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td>Electrical service excluded</td>
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<tr>
<td>Natural gas service excluded</td>
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<tr>
<td>Sanitary Sewer excluded</td>
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<td>$0</td>
<td>$0</td>
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<tr>
<td>Signage and Flag</td>
<td>lot</td>
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<tr>
<td>Fencing</td>
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<td>$64,000</td>
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<tr>
<td>Maintenance Slabs</td>
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<tr>
<td><strong>Subtotal</strong></td>
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<tr>
<td>Division 3</td>
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<td>Concrete / Forms / Finish</td>
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<td>Column Foundations (yds) incl.</td>
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<td>Mech. Floor Slabs (5&quot;) incl.</td>
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<td>Small Exterior Stairs incl.</td>
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<td>SS Metal / Trim</td>
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<td>Finish carpentry &amp; millwork</td>
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<td>Freezer and cooler Doors</td>
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<tr>
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<td>Access Doors</td>
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Subtotal $7,040,000

SubTotal $37,211,110

General Contractors Fee 6.00% (does not include process equip) $1,623,367

Design & Engineering Fees 3.50% $1,302,389

A/E Site Representation Startup & Commissioning $125,000

10% Contingency $3,721,111

Grand Total $43,982,976

Cost Per S.F. $355.56

** Capital items provided by the local community
Appendix T: MercuryCSC Survey Responses and Notes

Buyer Survey Call Notes

ONE MONTANA
RESEARCH TOPIC #3
BUYER INTERVIEWS
02.06.14

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO BUYERS)
• Who is going to purchase our products in the local/regional, domestic and international markets?
• Will a Montana-branded niche product equate to a higher value?
• Does it need to be processed in Montana?

METHODOLOGY: Buyer Interviews

PURPOSE OF THESE INTERVIEWS
The purpose of these buyer interviews is to:
• Better understand the demand for Montana-branded meat products at the state, regional and national level.
• Better understand the competitiveness of Montana-branded meat products in the value-added market.

PARTICIPANTS
Based on the results of the producer and customer survey, as well as input from One Montana on target markets, Kathryn Quanbeck will contact the following buyers:

• Retailers: tbd
• Butcher Shops: tbd
• Distributors: tbd
• Hotels: tbd
• Restaurants: tbd
• Institutional Food Service: tbd


DISCUSSION GUIDE

Introductions
I'm conducting a survey on behalf of the One Montana Meat Processing Feasibility Study and would like you to answer a few questions about your niche meat buying habits and preferences.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I'm more than willing to keep your responses confidential, if you would prefer. Just let me know.

*****

[ANONYMOUS, PLEASE]
Business Name: --
Location: --
Contact Person/Position: Fred, head meat buyer
Phone: --
Email: --

1. Type of company
   retail grocer

2. Ownership status
   chain/franchise

Niche meat purchasing/sales
1. Which of the following do you currently sell or serve? Circle all that apply:
   - beef
   - bison
   - lamb

2. Which niche meats do you currently sell or serve? Circle all that apply:
   - Grass-fed
   - Certified Organic
   - Naturally raised (no hormones/no antibiotics)
   - Certified Humane
   - Locally-grown (in SC stores)
3. What are the approximate volumes of the niche meats you market? (lbs. per week/month)

55 to 58 mil. lbs. per yr. Nat/org is less than 2% of that carries 2 conventional lines (“everyday” beef and branded angus program), 1 natural, 1 organic/grassfed.

4. Do you expect the volume of niche meats you sell or serve to increase during the next year? During the next three years?

Increase, but price is always an issue

5. If so, which types of niche meats and approximately how much of an increase?

depends on price

6. What other niche meats would you like to sell if you could find a supplier?

Currently, we can get everything we need- we elect not to carry specific cuts b/c they don’t sell as well. 80 to 90% of sales in nat/org is ground beef b/c of price point

7. Niche meats often cost more than commodity meats. On average, what kind of premium do you typically pay for the niche meats you purchase?

n/a

8. RETAILERS ONLY: How do you sell meat?

- Fresh – meat case (full-service)
- Fresh – pre-packaged (self-service)

9. Do you purchase/sell frozen meats? Why or why not?

no, we pride ourselves on service and quality and that equals fresh meat.

10. Do you purchase any meats by the whole or half carcass? Why or why not?

no

11. Do you sell any meats that are only available seasonally? If not, why not?

no

12. Which cuts are most popular with your customers?
ground beef

13. Which cuts are least popular?
we don’t carry those

14. Rate these product qualities on a scale of 1 to 5, with 1 = not important, 5 = very important:
   a. Price

15. Rate these production-oriented qualities, 1 to 5, with 1 = not important; 5 = very important:
   a. No added hormones or antibiotics
   b

16. How do you define “local” for meats?

We only carry USA raised and processed product. Our organic/grassfed beef comes from Carolina Bison; some are raised in the Carolinas, some are not. We also purchase a very small amount from Palmetto Beef Co. in SC.

17. If you purchase/sell locally-grown meats:
   a. How long have you done so?
   b. Where do you purchase them? (e.g. direct from the producer, farmers market, distributor)
   c. What challenges are most difficult in purchasing locally-grown meats?

18. Do you have any thoughts or opinions on meat products from Montana? What are your associations when I say “Montana”?

Our focus is on our private label program, throughout the store. MT is a beautiful place, but will it resonate with the customer as a branding initiative? Not in our neck of the woods. We pride ourselves on our private label program and try not to carry too many branded programs. Those that we do (like Smart Chicken) we have exclusivity w/. Our “natural beef” program, is supplied thru Meyer.

19. Do your customers ever ask for specific niche meats? If so, which species and qualities?

PAGE 4
20. FOR RETAILERS. How would you describe your customers who buy niche meats? Do they have similar characteristics?

21. How many meat suppliers do you use? Who are they?

22. How do you identify your suppliers to your customers?
   - labels
   - brochures and other in-store information

For our natural beef program we use brochures and stickers on the package. All natural and organic products throughout the store are identified by color coded stickers.

23. How often do you place meat orders and receive deliveries?

Place beef orders 2 to 3 times a week and 6 days a week delivery.

24. What are your biggest challenges in purchasing niche meats?

Price, consistency

[ANONYMOUS, PLEASE]
Business Name: --
Location: --
Contact Person/Position: Jimmy
Phone: --
Email: 

1. Type of company
   retail grocer

2. Ownership status
   independent

Niche meat purchasing/sales
Niche meats are non-commodity meats with one or more of these attributes: grass-fed/finished, certified organic, no hormones/no antibiotics, free-range, certified humane, Halal, kosher, local.

I'm asking about fresh and frozen meats, plus "value added" products like sausage or jerky. For the purposes of this survey we are only focused on beef, lamb and bison.
1. Which of the following do you currently sell or serve? Circle all that apply:
   - beef
   - lamb

2. Which niche meats do you currently sell or serve? Circle all that apply:
   - Grass-fed: sell frozen, buys portioned and then freezes. From Maine (Pineland Beef)
   - Organic? Doesn’t believe that anything can be truly organic
   - Halal: some of it, doesn’t ask for it is just comes that way

3. What are the approximate volumes of the niche meats you market? (lbs. per week/month)
   Combination of beef, pork, lamb and chicken: $6 to 7 mil/yr.

4. Do you expect the volume of niche meats you sell or serve to increase during the next year? During the next three years?
   Not really. Only a certain clientele that will specifically ask for natural/organic/grassfed product. Everyday customer is looking for price more than anything else.

Grassfed doesn’t seem to have the quality as the USDA prime or choice.

5. If so, which types of niche meats and approximately how much of an increase?

6. What other niche meats would you like to sell if you could find a supplier?

   Everything is available to us.

7. Niche meats often cost more than commodity meats. On average, what kind of premium do you typically pay for the niche meats you purchase?

8. RETAILERS ONLY: How do you sell meat?
   - Fresh – meat case (full-service)
   - Fresh – pre-packaged (self-service)
   - Frozen

9. Do you purchase/sell frozen meats? Why or why not?
Yes

10. Do you purchase any meats by the whole or half carcass? Why or why not?

No

11. Do you sell any meats that are only available seasonally? If not, why not?

12. Which cuts are most popular with your customers?

A lot of hindquarter product

13. Which cuts are least popular?

14. Rate these product qualities on a scale of 1 to 5, with 1 = not important, 5 = very important:

Price

16. How do you define “local” for meats?

17. If you purchase/sell locally-grown meats:
   d. How long have you done so?
   e. Where do you purchase them? (e.g. direct from the producer, farmers market, distributor)
   f. What challenges are most difficult in purchasing locally-grown meats?

18. Do you have any thoughts or opinions on meat products from Montana? What are your associations when I say “Montana”?

Currently, have no control as to where the product comes from when I purchase from IBF for example. I’d much rather have a product from MT than Mexico. I love MT, I want to visit!

19. Do your customers ever ask for specific niche meats? If so, which species and qualities?
20. FOR RETAILERS: How would you describe your customers who buy niche meats? Do they have similar characteristics?

21. How many meat suppliers do you use? Who are they?

22. How do you identify your suppliers to your customers?
   a. labels
   b. brochures and other in-store information
   c. meet the producer days
   d. don’t identify them

23. How often do you place meat orders and receive deliveries?

Deliveries on a daily basis.

24. What are your biggest challenges in purchasing niche meats?

No challenges- I’ve been in business for 50 yrs so I know how to get what I want.
Producer Call Notes

1.23.14

Point #1: Existing niche MT programs/products (Grassfed and/or Organic beef, lamb, bison, pork raised and processed in the state) cannot currently justify even a 25/ha day new facility.

MT Producers & Programs
- Yellowstone
- La Cense
- Big Sky Natural
- B-Bar
- Mannix
- MT Meat Co
- Lifeline Farms
- 5-10 other smaller programs

Between all of them, you might have 2500 head of cattle being raised, processed, and sold in MT (or enough for a 10 head/day processing facility assuming 250 production days/year). And of course, these programs are currently already working with the various small processors around the state. If you add other species (sheep, hog), let’s say it would add another 1000 animals (4 head/day), you would have a facility that could do about 12-13 head equivalent per day. But all of this business would be taking those animals away from current small processors.

To justify a new facility that would process 25 head/day without taking business away from the other small processors would require we add another 6,250 head of livestock to MT niche programs (a tripling in size from where we currently are).

Programs Using MT Cattle:
- Great Northern Cattle Co (also formerly Montana Legend)
- US Wellness
- Panorana
- Thousand Hills Cattle Co
- Estancia
- Strauss Meats
- Jones Creek

Defunct Montana Beef Programs:
- Montana Brand Beef
- Montana Natural Beef
- Montana Legend
- Big Sky Montana Beef

Point #2: Idea of a successful MT processing facility is distinct and separate from the idea of successful MT-branded products.

Greeley CO packer thinks there is potential for a cow kill plant in MT. He runs 1200hd/day, dyed in the wool commodity guy.

Rocky Mt Natural: 100 – 150 hd/week. They could do that many in a day if need be. This is where Ted Turner processes. It does Panorama. CNB. The plant is fairly new; they used to slaughter at the Coleman plant in Colorado. Slaughter facility in Brush: fab facility in Henderson. Turner has no stake in Rocky Mt. Natural. Ted’s MT Grill is wholly separate enterprise from Turner Enterprises.
Quite a few bison producers in MT who are not selling to Rocky Mtn. Turner is not the only bison game in town.

Could this plant have one day of doing bison a week? Cows a few days a week?

producer call
3.3.14

Used to be on the XXX. Not a beef producer—raises XXX. Conservation/wildlife advocate background. Can complicate relationship w/ ranching community.

One potential opportunity to get a lot of ppl involved: seven counties around the park have to undergo more stringent testing rather than everyone else. Ranchers are concerned that there is a stigma for their animals. Nearly no problem—occasional transmission from elk, but not bison. Opportunity to market beef from area near park as bison friendly beef. Could we set up the right partnerships b/w cow-calf producers in the seven counties and those w/ ability to finish?

X and X are very much part of the mainstream cow/calf community.

Bill and Matt did a update last week – visit to plant in Henderson, CO. “I’m jealous of the differentiation the bison ppl have” – trad rancher. Beef industry has somewhat of a public relations problem. can we be true to the story of environmentally friendly beef?

Producer Survey Text (2.12.14)

(intro text)

This survey is being conducted on behalf of the One Montana Meat Processing Feasibility Study. We would like you a few questions about your ranch and your interest in possibly selling live animals to a new Montana brand.

The primary purpose of this survey is to determine the most likely product attributes (local, natural, grass-fed, etc.) for a Montana brand. To do so, we need to know what Montana ranchers are currently producing, where they are producing it, and when those animals will be ready. We believe that the consumer demand for meat products raised and processed outside the Midwest-based, commodity-driven market is increasing. Producers and brands who can access this market capture added value from their animals, value that allows them to recoup higher production
Today, we’re trying to get a sense of who might raise animals for a new Montana brand and what the attributes of that brand would be.

The secondary purpose of this survey is to gather information on existing ranch brands that might become fee-for-service processing clients for a new meat processing facility. We need to know when producers need services, what kinds of services and how many head they are likely to bring to a new facility.

There are no right or wrong answers. We appreciate your honesty and candid perspective and your responses will be kept confidential.

Thank you for participating!

This project is funded in part with support from the Montana Department of Commerce Big Sky Economic Development Trust Fund.

- Ranch Name: [REDACTED]
- Contact Person: [REDACTED]
- Phone: [REDACTED]
- Email: [REDACTED]
- Where is your ranch located? [REDACTED]
- Which species do you raise?
  - Cattle
- Do you have your own ranch brand? If yes, what is your brand? Why did you make the decision to have your own brand?
  - Yes: [REDACTED] and [REDACTED]
- Do you sell live animals to an existing brand? If yes, which brand? Have you ever sold animals to a Montana-based brand in the past? What was your
experience like with that program? Any insights on why it was or wasn’t successful?

*Worked with some branded programs in the past. The premiums paid didn’t justify the additional work.*

• When do you calve? Any interest in adjusting your calving date to accommodate processing seasonality?

  *May and June. Able to sell fresh meat year round already, so why would I change?*

• Are you interested in potentially selling live animals to a Montana brand? Why would you be interested?

  *Not really; want to sell more of my own branded product.*

• If yes, which of the following production protocol would work best for your ranch management practices?

  *Currently raises certified organic, grass-fed beef from heritage cattle. What are you offering me that I can’t do for myself? I already sell directly to consumers, grocery stores and restaurants. Most growth recently has been direct to consumer.*

  *(For Cattle Producers)*

  *Organic, grass-fed, grass-finished beef*

• How many head (by species) do you think you could allocate to a new Montana brand? Which month(s) would those animals be ready for sale?

  *Not really interested in selling to another brand; wants to expand his own brand.*

• Branded beef programs typically offer producers a more stable market. There is a tradeoff for this stability; often the highs aren’t as high but the lows aren’t as lows as the commodity market.

• Please indicate a range of premiums that would be necessary for you to contract with this entity: *n/a. not interested.*
• What would it take for you to supply a new Montana brand with cattle in the low production months of January, February, and March?

• Anything else?

  *Pretty happy with the three packing plants that I work with. No scheduling issues, all are certified organic, all are able to do value-added processing.*

---

**Ranch Name:**

**Contact Person:**

**Email:**

**Phone:**

**Where is your ranch located?**

*Family ranch is in [redacted] - other ranchers are involved as well, in several different locations.*

**Which species do you raise?**

*Bison, pork, and lamb. Buys bison trim for value-added product production.*

**Do you have your own ranch brand? If yes, what is your brand? Why did you make the decision to have your own brand?**

*[Redacted], located in [redacted].*

**Do you sell live animals to an existing brand? If yes, which brand? Have you ever sold animals to a Montana-based brand in the past? What was your experience like with that program? Any insights on why it was or wasn’t successful?**

*Buy from other brands but don’t sell to other brands.*
• When do you calve? Any interest in adjusting your calving date to accommodate processing seasonality?

_Able to send animals to slaughter year-round._

• Are you interested in potentially selling live animals to a Montana brand? Why would you be interested?

_Yes, cull cows and bulls as well as fat cattle. Could see running a few hundred head thru a program like this, between all the ranches involved._

• If yes, which of the following production protocol would work best for your ranch management practices?

_Probably natural so all ranchers could participate._

• _{For Cattle Producers}_

_natural beef: no hormones, no antibiotics_

• would you be more interested in selling feeder calves, fed cattle (steers and heifers) or cull cows and bulls?

_Yes, any and all._

• How many head (by species) do you think you could allocate to a new Montana brand? Which month(s) would those animals be ready for sale?

_Probably several hundred a year – year round._

• Branded beef programs typically offer producers a more stable market. There is a tradeoff for this stability: often the highs aren’t as high but the lows aren’t as lows as the commodity market.

• Please indicate a range of premiums that would be necessary for you to contract with this entity:
  - 0 – 5%
  - 5 – 10%
  - 10 – 15%
  - more than 15%

_Have to cover that opportunity cost of selling the calf when it is a weanling, plus the risk of death loss, plus the cost of feed to reach market weight. Need a_
significant incentive: at least 15% if not more. My price on retail or wholesale is currently 30% over commodity.

• What would it take for you to supply a new Montana brand with cattle in the low production months of January, February, and March?

  All processing is currently done in MT. State inspected and federally inspected facilities. For the size of our program, definitely not maxing out the plants they are using. Can generally get all the value-added products done that he needs. All sales are in state.

  • Ranch Name: [redacted]
  • Contact Person: [redacted]
  • Phone: [redacted]
  • Where is your ranch located?

  [redacted] Works w/ a couple of other ranchers.

  • Which species do you raise?

  Cattle.

  • Do you have your own ranch brand? If yes, what is your brand? Why did you make the decision to have your own brand?

  [redacted] In the process of launching a new brand called "Got tired of getting my clock cleaned by the big packers" - tired of the ups and the downs of the cattle market, gets to be a price maker not a price taker w/ his own brand. Has been growing quickly: went from 12 cattle in the program the first yr. to 160 last yr.

  • Do you sell live animals to an existing brand? If yes, which brand? Have you ever sold animals to a Montana-based brand in the past? What was your experience like with that program? Any insights on why it was or wasn’t successful?

  Does not sell to other brands: now or in the past.
• When do you calve? Any interest in adjusting your calving date to accommodate processing seasonality?

  *Year-round. Slaughters year-round too.*

• Are you interested in potentially selling live animals to a Montana brand? Why would you be interested?

  *No. Not much rationale for him to sell live animals to another brand and circumvent what he has spent 6 yrs building.*

• If yes, which of the following production protocol would work best for your ranch management practices?

  *n/a*

  *(For Cattle Producers)*

  *n/a*

• How many head (by species) do you think you could allocate to a new Montana brand? Which month(s) would those animals be ready for sale?

  *n/a*

• Branded beef programs typically offer producers a more stable market. There is a tradeoff for this stability: often the highs aren’t as high but the lows aren’t as lows as the commodity market.

  *n/a*

• Please indicate a range of premiums that would be necessary for you to contract with this entity: *n/a*
  
  ○ 0 – 5%
  ○ 5 – 10%
  ○ 10 – 15%
  ○ more than 15%

• What would it take for you to supply a new Montana brand with cattle in the low production months of January, February, and March?

  *n/a*

• Anything else?
Uses existing USDA processor year-round. Really pleased with the facility we have: have been working w/ them six years now. No need for another state facility. USDA yes. Location? Draw a line between Great Falls, Helena, Butte and Billings and put it somewhere within there. Once you get much beyond Butte or Billings you end up limiting access to other producers.

Make sure it has the capacity to do value-added products: smoked, cured, etc.

Single biggest problem in this state is logistics: not a trucking company that works this state that is worth its salt. At the point that they are setting up their own trucking route to Seattle because they have had such trouble w/ other truckers.

Milan City 4/2/14

Market cattle thru major packers and finish. able to finish year round, sent to feedlot. interested in new idea, able to grass-finish, July-Oct. and then supplement feed. only thing you have year-round in MT is a slaughter calf and bull plant. B/c of 30 mo. you'll need to be in the hamburger biz. nothing wrong with that. several auctions. if you were to go into the finished cattle arena, need to develop a program to feed them. take a while and get it ramped up. cost so much per lb. to move cattle to the corn or to where the processing plant is. 60 or 70 or 80 bucks a hd to transport fat cattle. so far to greeley, lexington, pasco etc. finish in the yellowstone valley. built a plant and kill 500 a day. our corn is identical to ne co or ia. they have ethanol plants and buy the DGs. that's the good side of an ethanol plant for a cattle feeder. cattle would be here by the tens of thousands if we had a plant. we have identical moisture and rainfall b/w here and greeley. and we have longer stretches of cold weather. draw cattle from williston, ND to livingston, MT. all would have about a 250 mi. haul. there were 2 packing plants in billings at one time: midland and pierce. design that plant for easy growth. if you start out at 500 hd/day. we have the feed, the water, you could see that plant become 3,000 hd/day plant. you need to be so capitalized to do it. you need 7 or 8 times the capital to operate at what the cattle cost each day. 100% export state. All of a sudden all those plants already built will be out of MT cattle. "They'll take the gloves off."

Call w/ 217-14

5 processors, find a way to make it work with them.

Prairie Star

Producer Progress
Everybody out there raises lbs., I raise beef.

Nobody knows how to finish cattle on grass in MT. I had to raise near 300 head to figure it out. If we did it better, the finished product was corn-fed, barley-finished.

natural, about 10 yrs. ago. Starting finish in OR w/ grains woven into the field.

NO one had a consistent good, finished supply. Zero consistency in the program.

What broke 4 of the 5 was no consistency. got a better product by finishing on grain. They brokered meat but you can't broker meat in MT. The minute you shoot a steer in the head in Billings, you are $106 behind IBP. They have a huge cushion on products that we do not. They are not certified natural, but it doesn't matter. The big guys can be "natural" b/c it is a processor standard not a producer standard.

Argentina has the biggest cattle herd in the world. They got the market jump b/c they banned all the implants. Also because they bought all the genetics from the US. It took us 20 yrs to develop that.

19% of the grassfed beef at conagra comes from australia.

Schools in MT want cooked roasts.

90 percent lean: is 84 percent in lean, 6 percent ice 10 percent fat. no consistent in supply.

If you are going to have a better product, you can't go to the stockyard and buy it. you have to raise the animals. You have to have the protocols and the contract. Certified natural and certified grassfed.

you have no supply and you have no trained eye for supply. There are no books. how do you kill steers that are pushing three every 10 days year around and calve your cow herd in 55 days?

let's kill 10/yr. you have to have 10 steers b/w 28 and 38 months

-12 thru 0 = 10 gestating
0 to 12 = 10 baby calves
12 to 24 = 10 yearlings
24 to death = 10 steers
don't move them based on age, move them based on size and finish.
Producer Call Notes

You are what you eat. When you graze (sheep and deer) gamay flavor in the meat is the protein in the grass. Condensed tannin dose.

Three breeds of cows that browse: Highlands, Galloways, Welsh Black

If producers can provide certified natural.

3/year to feed 66 kids at school.

12 licensed plants in MT that are state licensed.

State school system in E. MT; each needs 40/bf. a yr. 10 can producers can do 4/yr. Demand is there for schools. A lot of beef goes to Packerland (in Green Bay) and California.

Huge step towards figuring out consistency. Need at least 5 years to figure out the gene pool.

5 wk @13 plant. 65 animals yr X 30 wks. 150 /yr./plant

Employee ppl. statewide.

Green

Dosed sheep with condensed tannin trips the skofool out of meat.

NIPA Compliant

Black Welch, Dorpers browse

We have a huge gene pool that isn’t bred to browse. Browsers are ready in May, June, July, Aug., Sept.

Doing it over MT preserves local custom, heritage, history.

Kill once a week at little plants in MT. 5/wk @13 plant. 65/wk @ 50 wks 1800 hrs.

Years to build a supply.

40 cull cows by Sept.

CIS program in MT?

Local hospitals in 45 counties

USDA plant in MT: Ranchland Pkg: Butte Stillwater

White Meats: Ronan

No supply to cross state lines.

Produce crap, have a crap mkt.

1/3 biz is in hospitals in MT

1/3 is freezer

1/3 is food service and restaurants

Big Sky Natural
The others didn’t balance the carcass. Restos are seasonal in terms of cuts and volumes.

More steaks in the summer and more prime rib in the winter.

A lot of product is fresh.

Consistently good product needs to be hung. All the big coolers were pulled out. Drip coolers needed to cool and control moisture on carcasses.

There is enough capacity among the existing plants to handle. Get a drip cooler and cooler capacity. They need enough $ to separate.

Separate drip cooler, cooler and kill floor.

Find me 500 finished steers in MT next week.

Best mkt we have is for cull cows and cull bulls @ local schools. Rest homes, nursing homes and hospitals is the next mkt.

No work to be done on genetics. You can’t undo the browser/grazer conundrum.

There is no $ saved; only $ not spent.

Browser does not fit in the gene pool for feedlots. Fat had a flavor but fat is not the flavor of beef.

Shorter hair cattle have more backfat.

Change grazing management to have yr round grass-fed.
Use cull barley, canola in E. MT to finish grain fed.
Cull ows will do better on old fields.
Orange fat is beta carotene. Gluten in wheat stays in the fat of the animal. Krohns/Celiac
MT Branded Beef Association
Started 10 years ago w/ natural beef program.
125 MT ranchers, mrktg, cliemel. Never/ever program.
About 85% of ranchers couldn’t provide that.
Calve in the spring, harvest in the fall.
Aug-Feb — cattle ready
Weaned — need abx
Herefords, blacks, limousin — no consistency
Ranchers didn’t mind feeding.
7 mo/year 1500 lbs/wk — took 5 years
Once we sent the meat to the packer, the ranchers
Greeley and Grand Island (Swift plant). Fell all the cattle in NE.
Freight was too high.
Harvesting was too high.
Negotiated deal with Swift that we could pull meat from our own.
Japan and Korea want source and age verification.
Might put some pressure on the packers.
Swift fabricated the carcass. Was going to all us to sell.
Bought back burgers and steaks, of all those carcasses, only 85% qualified.
Need to find many diff. distributors to market carcass.
Packer establishes the price of the carcass
Select
Choice
Prime
Big packers harvest and distribute so cheap, you can’t really compete.
We had quite a bit of cost in it. Traceable to the ranch.
All the retailers will tell you that they want it, but when they see the price. Competition is tough.
Too costly to harvest, feed, freight in MT.
Mkt’d in NM, Mpls, MT.
Each packer was 15-20 brands themselves.
B/c of freight costs. if you process in MT, the PNW is your best mkt.
200 mil. lbs of hamburger a mo = $450 in profit.
1¢ 1 cent/lb.
On the ranching side, we could develop the supply and we had relationships with the feedlots at the packer level. Certain months it was difficult to get cattle: 3-4 mo/yr we were losing $.
Jan-Mar is too hard to deliver cattle.
MT brand is easy to sell: MT steak sells, rump roast is harder.
Almost 60% of the country eats hamburger. Limited supply of beef total.
Mkt. dynamics have changed in the last few years. Increase demand for hamburger. Used to be 80 lbs/pp/yr. Soon will be at 50 lbs/pp/yr.

Could MT ranchers provide animals? 6%
$120/commodity
$1300/1400 commodity

NHTC programs – EU
All-natural programs: retailers
Don’t like it: all graded
“Natural” no choice, no select, no prime.

We’ve developed a mkt for quality and consistency.
And now the all-natural is inconsistent.
Very small niche programs: young ppl; greenies

“Natural program” only have so many slots, so you can only sell so many cattle to the program.

Try to get a rancher, feeder, packer, distributor, together in one room?

Sysco is his distributor
WW Johnson is his distributor
Creekstone is his packer

Can’t sell MT label for more than upper 2/3 red choice.

Pull primals, go further.
Process in MT, you can label it as MT processed.

Don’t have to deal with packing plant, feeders.

Rancher
Feeder
Packer
Further processor
Sales
Distributor

Work with a packer to pull product to MT and further process.

Costco, Wal-Mart, IGA in MT would be interested.
ONE MONTANA
RESEARCH TOPICS #2, 3 AND 5
CONSUMER INTERVIEWS

Research Topic #2: Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

Research Topic #5: Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO CONSUMERS)
- Who is going to purchase our products in the local/regional, domestic and international markets?
- Will a Montana-branded niche product equate to a higher value?
- Does it need to be processed in Montana?

METHODOLOGY: Consumer Interviews

PURPOSE OF THESE INTERVIEWS

The purpose of these consumer interviews is to:
- Better understand the potential unique qualities and opportunities for a Montana meat product that could add value for consumers.
- Better understand the demand for Montana-branded meat products at the state, regional and national level.
- Better understand the competitiveness of Montana-branded meat products in the value-added market.

PARTICIPANTS

Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:
- Live in the eastern part of the United States
- Well-educated
- Affluent but may not be necessarily rich
- Health conscious
- Environmentally conscious
- Socially minded
- Want a greater sense of connectedness
DISCUSSION GUIDE

**Introduction.**
Thank you for agreeing to talk with me. I am curious about what you have to say about the types of food you purchase and how you make decisions around what you buy – specifically as it relates to meat.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

As a mom, I’m just trying to keep family unit happy, healthy, sleeping well, eating well, good relationships, etc.

It’s a really hard balance to strike. Our kids are so busy, on the go, starting at 2 p.m. going and going. Fast food is easiest. Try to be really healthy, grocery store. Starving and then scanning the horizon for healthier options.

**Monetary perspective.** How can I best use my dollars? Costco, Trader Joe’s, Whole Foods. Spend more money than I should. Trader Joe’s is the healthy balance between Costco and Whole Foods.

**Food and Its Role in Your Life.**
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

My shopping has shifted over the years. Now I do the bulk of my shopping at Trader Joe’s. Used to go to Costco more or the local grocery store. The more I shopped at Trader Joe’s, the more I enjoyed their food. Load up on fruits and vegetables – the ones that my kids will eat. Then go to the carbohydrates. Mix it up a little bit – wheat/white. Come around to the meat. Organic and non-organic meat. Organic meat is so expensive. General comment. Couldn’t tell me different price points. With chicken, it’s significant enough.

**Buy the non-organic meat at Trader Joe’s.** Make sure we have ground beef, natural hot dogs, pork, bacon, flank steak. Don’t really look at natural. See those on the labels. But it doesn’t mean a lot to me.
What do you look for when purchasing foods and why?

I’m always look for ways to get more fruits and vegetables into our lives. We love carbohydrates. With most meals, we have meat or chicken. Always buy organic milk. Because of the hormones in the milk. Remember some media – early development in girls.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

Trader Joe’s.
Sometimes Costco – haven’t been in a long time or on special occasions.

What do you look for when purchasing meat? (Probe, if needed.)

Definitely leanest. 4% leanest. If not available, then don’t buy it.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

No, easy to find filet mignon. Ask the butcher, if needed.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

Buy ground beef – it’s the meat that my kids will eat. Tacos, meatballs, hamburgers. It’s an easy purchase for me. Get several meals out of it.

Flank steak – same way. My mom always had. Recipe that’s been passed down. Pick that up, it’s easy.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
• Priced competitively

Somewhat, more interested in lean.

• Federally approved (USDA)
I see that but it doesn’t register with me.

- Source verified/traceable/transparent

I’m not paying attention enough to notice it.

Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

I couldn’t even name them off the top of my head. Country National Beef sounds familiar.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

Some exclusive ranch in California, remember seeing something in Whole Foods. A brand that was associated with an exclusive – between Carmel and Santa Barbara. Harris Ranch?

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

No. I don’t know. I think there is a company that is called Omaha Steaks. Shipped steaks through a work thing for my husband.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

Probably be indifferent, because I don’t pay attention to where they come from.


If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

What would you expect from a Montana meat product?
I might wonder if it’s better quality meat. I possibly might expect it to be leaner.

Would you expect that product to be processed in Montana?

I probably wouldn’t care. Don’t know enough about packaging and distribution.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

I am sensitive to price but not huge. Jumps a dollar and stays a dollar, then think about purchasing there.

Probably be indifferent. The label of Montana would not be intriguing.

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

Thanks again.

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Very health conscious.
Has one child.
Very price sensitive.
Very conscientious about the ingredients.
How much meat is she consuming.
ONE MONTANA
RESEARCH TOPICS #2, 3 AND 5
CONSUMER INTERVIEWS

Research Topic #2: Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

Research Topic #5: Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO CONSUMERS)
- Who is going to purchase our products in the local/regional, domestic and international markets?
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- Does it need to be processed in Montana?

METHODOLOGY: Consumer Interviews

PURPOSE OF THESE INTERVIEWS

The purpose of these consumer interviews is to:
- Better understand the potential unique qualities and opportunities for a Montana meat product that could add value for consumers.
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PARTICIPANTS

Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:
- Live in the eastern part of the United States
- Well-educated
- Affluent but may not be necessarily rich
- Health conscious
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- Socially minded
- Want a greater sense of connectedness
DISCUSSION GUIDE

Introduction
Thank you for agreeing to talk with me. I am curious about what you have to say about the types of food you purchase and how you make decisions around what you buy – specifically as it relates to meat.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

Dogs are spoiled. I tend to be tasked with the challenging dogs. The asylum for unplace-able dogs.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many steps did you make? Etc. Tell me about that experience.

My shopping routine is incredibly boring. Semi rural area. Closest one is the Food Lion. Not a high line but it’s starting to offer more interesting.

Latest shopping adventure with digestive issues in mind. Gluten free possibility. Looking for gluten free and lactose free. Hard to find and three times the cost of other things. Heightened my awareness.

Although I eat a fair bit of meat and a wide variety. But I don’t actually buy a lot of it. Usually have dinner with my parents (early 80s) to check on them. Live on a farm. Meat consumption with them. Wide variety. Eat some deer meat off of property. Local food. One of the farmers provides lamb. Used to get goose off the property, too. Not as much anymore.

Local butchers gets a lot of things locally. Eat a lot of it but don’t buy a lot of it.

What do you look for when purchasing foods and why?

I try to go with stuff that has as little processing as possible, not a lot of processing. Try to go for some of value. Type of food than value. Don’t get real excited surprised or picky about organic and natural. Doubting of the label. USDA standards, but I
think it’s overhyped. Chain of production. Maybe the farm is organic than it gets processed, how pure is it being kept. Don’t too worried about it.

Sticking to unprocessed stuff, than doesn’t make that much of a difference.

Little processing – processed has higher fat content, higher salt, fats that aren’t that good for you. Better off with straight butter, vegetable oils, etc. Overall healthy lifestyle, moderating salt, easy way to improve diet.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways:

Food Lion
Local Butcher
Local Farmers
Specialty items – than look for stores with greater variety.
Wagner’s – Mount Aire Meat Locker – process meat that’s brought in
Harris Teeters

What do you look for when purchasing meat? (Probe, if needed.)

Specialty item. Rather spend – get less of it but a higher quality. Basic quality of meat versus the cut. Smaller cut, better quality.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?


What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Tends to buy more high-end (father).
Tends to buy more staple purchases (mother).

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

Treat it as a treat, less than a staple. Not meat and potatoes every night.
Non-essential.
Diet is more fruits, greens, nuts, etc.
Other things that are icing on the cake.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
- Priced competitively

Specialty items, low volume – price doesn’t matter as much.
If you are going to buy something, than buy more elaborate.
- Federally approved (USDA)

Basic hurdle.
Basic inspection.
Field-fed beef vs. feed-lot beef.
Not as concerned.
- Source verified/traceable/transparent

It would depend on how that was defined. If I really knew the process that they used, and what the standards were, then I could see getting more attached to a certain brand. If that brand has a standard that they stuck to, was verifiable.

Specific Brands:
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Specific meat brands:
Source – if we have a special occasion, we will go to the local butcher that we know and trust. The guy has been there forever, he puts out quality stuff. There is no particular objective standard, but he’s local, trustworthy, well-handled product. Personal, local.

Not a Wyoming brand, have to take their word on their website that is what they are doing.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

I have seen them in some of the stores, specifically labeled, but can’t think of them off the top of my head. Might purchase those – looking at the actual cut of meat. How well marbled, how fresh it looks, compared to others.

If it’s ridiculously expensive. Meat products have gotten so crazy expensive. If it was getting to be 25% more expensive, then would have a hard time. Assuming that the
competitors, then it looked close. If it looked much better, than it would be less of an
issue.

Pieces of meat that aren’t well cut – grain of the meat, well-trimmed.
I’m not that concerned about grass-fed or grain-fed?

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a
specific place – a state, a region? Have you ever purchased meat that comes from
Montana? (If so, how did you know that it came from Montana? Why did you choose
that meat?)

We have a lot of New Zealand lamb. Only thing that pops into my head.
Fairly local or U.S. produced. Some of the fish is a little more exotic.

Nothing comes to mind for Montana.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to
mind?

I would start thinking a little more about it. Farm raised bison, elk, beef. Lamb
doesn’t come to mind.

If something was labeled as being from Montana or branded as a Montana meat, would
that be compelling to you? Why or why not?

I don’t think it would make a huge difference. I have nothing against Montana.
Maryland beef vs. Montana beef – not compelling. I might even think that if I can get
local beef vs. something that was shipped across the country. Needs to be demonstrate
an additional benefit – transport time and transport cost.

Additional benefits – hard to quantify. Super high quality product. Kobe beef. I think
it would have to be fairly compelling storyline. Offering me something that is clearly
unique to justify. Shop locally, support local growers, farmers. Also, support local
economy. There does seem to be some higher value to find stuff that’s local – not
using the energy to transport it.

What would you expect from a Montana meat product?
Would you expect that product to be processed in Montana?

In terms of a piece of meat. Most of the value of the meat is the quality of the cattle,
what it’s eaten, how stressed it’s been. Shipped alive and butchered locality? Not too
conscious. If it’s a manufactured product, then I would be more concerned about
where it’s processed. A processing plant, as long as it’s clean and well-managed, it’s probably just as good in any state. Quality of the feed, more a determinant than where it is processed.

How sensitive to price would you categorize yourself?

Not super sensitive to price. With that category of shopping, less sensitive.

What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

Take some time establish.
Know that Montana subscribes to a set of standards, these are known and enforced, then you have a product that has some value to people. Can’t just be any old cow out of Montana. Needs to have code of standards, code of ethics, than have a value. Needs to be education, storytelling. Not just stamping Montana on a package. What differentiates every other piece of meat.

Convince people that we exceed minimum standards, then figure out a way to make it meaningful.

Thanks again.

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There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

I’m not a big fan of stuff. Not a minimalist. That carries over into a lot of aspects of my life. If I don’t use it, then I don’t want it. It sort of an aspect of being environmentally conscious. Not buying things that are wrapped in plastic, walk as much as possible. All of that goes together.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many steps did you make? Etc. Tell me about that experience.

I’m definitely a multiple stop shopper. I do eat meat. I also eat fish. If I’m buying meat than it’s once a week or so. I eat a fish a lot. I’m part of an SSA. Shellfish or fish straight off of the boat, once a week. Read about it in the newspaper. I can feel really tired because I was so excited. You get an email of what you are getting along with recipes. She’ll send out pictures of the producers—Frank, he dropped off the scallops. Picture of his boat. I think about it—everything that’s going on. Trying to increase my awareness. I like my cat, and I don’t think I could ever give up. But I also want to respect it and acknowledge them. The clams—started to suck it back in—I’m actually cooking it. I actually killed this to eat it, and I’m going to love it and enjoy it. Naïve, more eyes-opening. Let’s think more about where our food is coming from.

I am probably the least picky eater ever. I buy beef and lamb. I’ve occasionally bought bison.

I go to the local grocery store for fruits and vegetables. I just signed up for a new food co-op that’s coming to town.
I also have a bakery that I go to for fresh boards.

What do you look for when purchasing foods and why?

Recently I’m becoming more aware where my food is coming from. Trying not to pay so much attention to price. If something is totally absurd, then that’s one thing. If something is from a local farm, then I choose that over a factory farm meat. If I can, I try to go to the farm stores rather than the grocery stores – and it’s not out of the way – me driving an hour to buy one pound a meat offsets the overall goal. Within reason.

I know all meat comes on Styrofoam, and I can recycle here. If I have an option of something more biodegradable, then I will go with that than the plastic wrapped.

If I’m thinking about buying ham, I’ll buy it with the bone in to make pea soup afterwards. Try to think about that. Chicken legs – is it more of a pain. Maybe you can do something with the bones.

When I’m buying meat, I’m thinking about buying for myself. Most nights it’s either one or two of us. What’s a realistic amount that I can use and not go to waste.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

There’s a local butcher shop where I normally go to. I have a friend who has a small farm, and they have lots of connections with local farmers. I’ll ask her where I can get a specific cut. Person to person transaction – kind of rare.

Hamburger meat I buy at the local grocery store. It depends on how I’m planning my meals for the week. Hannaford’s.

What do you look for when purchasing meat? (Probe, if needed.)

Looking for less packaging – not plastic and Styrofoam. Definitely think price into consideration. Go with the less expensive than the fanciest. Looks do matter. Choosing based on appearance. Better color, dates, how long it’s been sitting there. The more recent the better. The size. If I only need a pound of meat for the recipe, then I’m going to choose the smaller one – even if it’s only saving me $.05. Also looking to see how much usable meat there is. Want to make sure I’m getting the most for my money.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?
Hamburger. Most things that I make are ground. Sheppard’s pie with ground lamb. I decided to make it with lamb over burger because I knew it would taste better. If the taste is better, I’m going to go with lamb – even though in the end it would have been cheaper to go with the beef. I’m not anti-substitution in recipes, but I like to go with the one that tastes best.

I don’t buy a lot of steaks. Usually more things like stew meat, beef. I don’t care if it’s cubed already. It’s usually going in something.

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

I haven’t had any issues yet. That’s because I don’t look for anything too crazy. I don’t think I would have a problem. She probably knows someone who could get me that.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

For specific recipes, taking it consideration how many people, environmental impacts. I’m not a picky eater. I’m always interested in trying new things.

One of my friends’ husband’s went moose hunting. I never had moose before. I took it and tried it, and it was really tasty. Always open to recommendations. If I’m at the local butcher shop and they say they have something different/new, I’m willing as long as it’s not $60/pound. I’m not stuck in the same rut all the time.

Most interesting about the SSA, I’m sure something exists somewhere.

I’ve had clams, mussels, but I’ve never cooked them myself. It’s an adventure, but I had no idea. Super easy. Sometimes get a whole fish, and it’s sort of fun.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?

- Priced competitively

Yes.

- Federally approved (USDA)

I’m not sure how much I trust it necessarily. I live an ignorance is bliss life. Hope and assume that it’s safe. The reason why I started talking to my friend about food
source, I was looking for raw milk to make my own cheese. It’s one of those things that I would be a lot more concerned if it was a factory farm. Tyson chicken. I’m assuming it’s safe until I get sick. I feel better about the local farm especially if they have a farm store.

- Source verified/traceable/transparent

I’m not sure what that means. Yes, agreed.

**Specific Brands**

Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

I don’t think so.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

No, I don’t. But now I want to look up and see what’s out there.

**Specific to Montana**

Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

I don’t know if I’ve ever paid so much attention to that.

I like that I know that it came from my neighborhood, somewhere in Maine. I don’t think about meat from one place over another.

I like knowing the story of my meat. That’s the aspect of local food. Why waste all the fuel in transporting it from California.

I’ve never knowingly purchased meat that comes from Montana.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

I would probably think of bison immediately. I’m sure there is a lot of beef coming from there. I think of more outdoorsy, wild game than standard meat. Chickens wouldn’t be my first thing. More people going out and hunting.
If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

No, because it would have come from so far away. But I also think of Montana in a similar way as Maine. They are concerned about where the food comes from, outdoorsy people who are concerned about the environment. Something more than meat came from Nebraska.

What would you expect from a Montana meat product?

I would assume that it is more likely to be organic, grassfed, maybe something more environmentally friendly in terms of the packaging. What would the packaging look like? It wouldn’t necessarily be that white or yellow Styrofoam with the plastic over it. Something that makes me think it’s more something that I would be more interested in than Nebraska or Kansas. Something that makes me feel like I’m out in the great wilderness/outer.

Would you expect that product to be processed in Montana?

I’d leap to the assumption that it had also been processed in Montana. I would make that assumption if it said that or not. If it didn’t say where it was raised and processed, I’d probably be more interested in it than if it was traveling to another state to be processed. Ideally it would be grown and processed in the same town or county. Know where it’s coming from.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Better flavor, more tender. Depends on the cut.

Wrap Up.

Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

What kind of cuts. Always think in terms of packaging. Might be interesting to say/show what part of the cow you are getting. Maybe getting something from the bison’s butt would turn people off. But whenever I see the chart, I think it’s really interesting. Something added that tells the story. Something about the area, the farm, this is what, where it’s from and here are some things that you can do with it. I don’t follow the recipe directions, but I think about trying it next time.
Out of all the states, there are probably only certain states that I would consider buying beef from those places. My association with Montana is Yellowstone — outside. And I'd be more willing to consider it.

Nebraska and Kansas — Try to go see the other sites, cornfields aren't all that exciting to me. Rather see the mountains and coasts. I have an automatic thought of giant factory farms. I'm sure there's also really awesome local farms, but don't see those.

Thanks again.

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There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

I am married, no kids, and we like it that way. We are both foodies, we love to eat. Work as an administrative assistant. Lived here for two years, used to live in Massachusetts, Virginia, etc.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

Go grocery shopping on Friday night when it’s not so crowded.

Love to cook, love to eat. Both enjoy it.

Wegman’s. Awesome, prices are good, produce is fresh. Usually $100/week-$150/week on food. Fresh fruits and vegetables. Try to cook every night during the week. Trying to do a diet—skinny cow, etc. Usually a vegetarian dish, fish taco, cook steaks, do a chili dish.

Most of the shopping there. Tried to go to Shopper’s. Hated it. Produce wasn’t good. Didn’t look good, didn’t taste good. Didn’t see that much of a savings.

Eating more fresh foods, not buy as much processed.

What do you look for when purchasing foods and why?

 Produce – freshness is a big thing. Look fresh.
When it comes to meat – price first, than freshness. What looks good out of what we can afford. If a meat is on sale but has a funny color, and then I won’t buy it. Meat and color is a big thing for me.

Packaged food – sale sign that catches my eye.

Little flies on the produce.

If the box is smooshed, then I tend not to buy that food.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

We don’t have any butchers nearby.
At the farmer’s market, but won’t buy. So expensive.
Sometimes Whole Foods and Wegmans.
Name brand at Wal-Mart if happen to be there.

What do you look for when purchasing meat? (Probe, if needed.)

Color
Size – just me and my husband – look for something that’s too big.
Marbling if doing steaks.
I don’t like colored stamps on the meat – stamp on the fat.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

Ground beef – once a week.
Look for something under a pound.
Ribeye steak, New York strip, Beef Stew
Stew meat chunks – in the winter time.
Love filet – but get that when we go out to a restaurant.
Every once in a while get lamb – more difficult to find, get a restaurant.
Usually get a sausage.
Buying ground turkey.

Good quality
Good deal – more money than we usually spend, you might buy it. New York Strip that’s on sale. More than usually spend.
Butcher at Wegman’s – husband will go over and ask the butcher and get recommendations. If doing special.

Organic is so expensive. So much more money.
Organic on sale – same price, than would buy.
Think that natural is something that you see on ground beef. Ground beef that comes in the tube turns me off, want to be able to see it.

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Look for meat and can't find goat. Like to make curry. Like to make rabbit.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. [Probe, if needed.]

I look through all of my recipes, and I'm always buying the food for my recipe. Looking for a meat that meets my needs. Don't go to a store without something specific in mind.


Get a lot of magazines.

If we are going to cook a steak, then maybe not have a specific recipe in mind.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?

- Priced competitively

Definitely

- Federally approved (USDA)

I do notice that. It doesn't draw me in. But color and price.

- Source verified/traceable/transparent

If it was local, then it came from down the road. Only local would spike my interest. If it wasn't local then that would turn me off

Specific Brands:

Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

I'll buy Purdue chicken. I'm really weary of their meat at Wal-Mart. When it comes to beef, I can't think of any name brands that come to mind. When it comes to chicken and sausages, then I can think of brands.
Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

**Kobe beef, Harris Ranch, Berkshire Farms, Omaha Steaks.**

**Harris Ranch (Fresh Market in Virginia Beach).**

My husband tends to splurge a little more. He picks the steak that he wants.

**Omaha Steaks** - it’s a mail-order. Meat coming in the mail sounds weird to me.

**Harris Ranch is grass-fed and typically used in higher end restaurants.**

Wagyu Beef they feed the cows beer and massage them. Supposed to make the beef better. Almost too earthy tasting. Never bought from the store, but we’ve had it at restaurants. Never seen it at the restaurants.

**Specific to Montana**

Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place - a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

Never noticed if purchased from a specific area. Think about it for other things - cheeses, oranges.

Nope, never.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

Montana sounds like a state that would have a lot of cattle to me. It might draw my attention. Especially if it was comparable in price. Not advertised much as to where meat comes from.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

If it was a little bit more, think it was cool. I’ve never heard anything about Montana beef. If had heard about it, and saw it, then be interested.

What would you expect from a Montana meat product?

Expect that it would be good. I would hope that it would be better than used to.

Would you expect that product to be processed in Montana?
I would expect that if something is coming from Montana, that the cows are from Montana, butchered in Montana, coming from Montana. Expect everything to be done in Montana, and a distributor from Montana that dealt with the grocery store.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Expect that it would taste better. I would try it. If there is something new at the grocery store, then it’s always good to try it. Try one time, and if it doesn’t taste better, then not try it again. $15/steak.

I wouldn’t have preconceived notions of what kind of meat. Maybe think natural and not necessary. Not grass-fed, the meat tastes completely different.

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

Bison would be really appealing. We love bison and we never see it the grocery store.

Thanks again.

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ONE MONTANA
RESEARCH TOPICS #2, 3 AND 5
CONSUMER INTERVIEWS

Research Topic #2: Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

Research Topic #5: Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO CONSUMERS)
• Who is going to purchase our products in the local/regional, domestic and international markets?
• Will a Montana-branded niche product equate to a higher value?
• Does it need to be processed in Montana?

METHODOLOGY: Consumer Interviews

PURPOSE OF THESE INTERVIEWS
The purpose of these consumer interviews is to:
• Better understand the potential unique qualities and opportunities for a Montana meat product that could add value for consumers.
• Better understand the demand for Montana-branded meat products at the state, regional and national level.
• Better understand the competitiveness of Montana-branded meat products in the value-added market.

PARTICIPANTS
Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:
• Live in the eastern part of the United States
• Well-educated
• Affluent but may not be necessarily rich
• Health conscious
• Environmentally conscious
• Socially minded
• Want a greater sense of connectedness
DISCUSSION GUIDE

Introduction
Thank you for agreeing to talk with me. I am curious about what you have to say about the types of food you purchase and how you make decisions around what you buy – specifically as it relates to meat.

I expect this conversation to last about 10 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

I grew up in Connecticut, went to college at Colorado College. Afterwards, spent time in India and international development programs. Received masters in public health. Come from a family of doctors, younger sister just started in psychiatry. Not married.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

Keep a list of the main staples, the regular grocery store.
Stop and Shop and Shaw’s.
One of the things I enjoy as long as the store isn’t really crowded. I’m willing to go a little farther to get away from crowds. Once a week.

Meat usually get from meat market. McKinnon’s. Meat market, down the street. Go there because much better quality and cheaper than Stop and Shop. Something about it that it seems more local, ignorance.

Interested in food and the industrialization of food and meat. But can’t let myself go crazy in terms of budget and sanity. Avoid Puréé, etc. Something about getting it where they wrapped it themselves. Might be the ignorance.

What do you look for when purchasing foods and why?

I have no interest in what brand it is. I usually budget. I have list of things that I need but if there is something else that I use regularly, and it’s on sale, than I will buy that, too. I’m pretty good knowing what I need and/or have in the house.
Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

Sometimes buy it other places, depending on immediate needs.
Usually stick to McKinnon’s.
It’s already packaged. Deal with all in back. Packaged by animal.
Frozen section with more esoteric – octopus, oxtail, etc.
Might get something else – if see something – sausage, haven’t had that in awhile. I can use that in the next couple of days. Triggers a reminder. Keep it in freezer.

What do you look for when purchasing meat? (Probe, if needed.)

Chicken
Ground beef
Italian sausage

Sausage – all the different kinds – go with the one with the least ingredients.
Ground beef – based on the size – what percentage fat. 90%
Chicken – what am I mood to buy.

Things that I notice – chicken looks gray, beef, too.
If it looks great, and there are two dates, will take the one that expires first so that it doesn’t go to waste. If it doesn’t look bad.

Don’t usually look for natural, local, organic. If it’s there, then I will consider. I love to support the farmer’s market, hard to rationalize spending 4X as much. It has to be practical.

Why choose McKinnons:

Like to give local, small businesses business. That’s definitely a factor. The quality that seems to better. Same price or a little bit cheaper. The thing that initially got me in the door, it’s part of the community. There’s lot of meat out – it’s not sterile and not brightly lit. Can’t see everything.

Another place – Halal – can see.

I’ve wondered where it comes from, but I have no idea. I’ve never been curious enough to look into it.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?
What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Lamb and bison - don’t buy. Occasionally will buy goat. Sometimes beef for stew. Very rare that buy steak. Predominantly because I cook for myself; if I’m cooking for other people, then I would buy.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?

• Priced competitively

Correct.

• Federally approved (USDA)

If anything that might be deterrent. It’s more to me than it’s irrational to think about it. It seems more industrial, if it’s stamped by the Federal Government then it comes from Missouri. It’s not about trust. It more that it symbolizes the industrialization.

• Source verified/traceable/tranparency

That would be appealing to me. I probably would never get so far to look it up. If it seems like a mom-and-pop operation, than good.

Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Chicken – Purdue, Butterball – won’t buy unless in a real pinch.
Meat – Angus
The Whole Foods brands has their own brands. Every store has their own brands.

Speaks to the industrialization of food.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

Kobe beef. Type of beef. From Japan and it’s supposed to be exceptional and expensive.
Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place - a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

No, nothing that comes to mind. I’m sure I have at some point – maybe when I visited.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

I would think that it would probably be good, and I would try it – wild, natural. All other things considered. Less likely to be from a big farm, slaughterhouse.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

It seems to be some kind of reassurance – a little less wild and a little less industrial.

What would you expect from a Montana meat product?

I don’t think I could taste the difference. It would be more on principle. Wilder than less fat. Wandering around then in a cage. This looks unique, and I would want to give it a try. Made it all the way here, than it must be worth trying.

Something Boston based, than that’s great. Most preferable. Local for somebody. Small as opposed to big. Less industrial. Transplanting across the country, I would just as soon avoid that. When I think local, somebody’s local. Somebody’s homemade.

Would you expect that product to be processed in Montana?

My gut feeling is that if it said Montana on it, then I would assume that the meat and the processing occurred in Montana. Perhaps not. Maybe. Don’t think I’d ever get that far.

If I were to see Montana beef, and it said packaged in Massachusetts, then that would be a deterrent. What really it Montana about this? Almost cause me to think about it. Thought about it too much than wonder about the difference.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?
If it is was within 10-20%, then would give it a try. Looks interesting. Wow, this is a really great product and I can taste the difference here, then would probably get it again but not as regularly. Maybe a little more often at 10%. Burger – got it. Chili – slightly cheaper, too.

Wrap Up
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Thanks again.

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ONE MONTANA
RESEARCH TOPICS #2, 3 AND 5
CONSUMER INTERVIEWS

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METHODOLOGY: Consumer Interviews

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Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:

• Live in the eastern part of the United States
• Well-educated
• Affluent but may not be necessarily rich
• Health conscious
• Environmentally conscious
• Socially minded
• Want a greater sense of connectedness
DISCUSSION GUIDE

Introduction
Thank you for agreeing to talk with me. I am curious about what you have to say about the types of food you purchase and how you make decisions around what you buy—specifically as it relates to meat.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

From the D.C. area, lived here my whole life. I like to travel a lot. Have a dog. Work in special event, party planning, etc.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

I don’t like to go to just one grocery store.
Like to go to Trader Joe’s. It’s a healthier store in my mind.
More produce than meats. Try to stay away from prepared foods—boxed, cans. Lots of stuff for salads. Like vegetables. I like to cook things from scratch but like to do it simply. I like to cook in batches. If I end up working later hours, then I have healthier things together.

I am single, and I don’t want to eat the same things five times in a row. Grill chicken, salads, roasted veggies. Change up the combination.


There are two Shopper Food Warehouses. I used to live right across the street one. I know where everything is. Sometimes I’ll go there for branded items that aren’t at Whole Foods.
I live walking distance from Whole Foods. Produce section is great. I ended up poking through and trying something new. They also have a hot food bar. They also do cold cases. Feel like doing something good for myself.

There is a Giant down the street. There is also a Harris Teeter.

**What do you look for when purchasing foods and why?**

I try to stay away from the processed stuff. I’ll look around and look at displays that recommend recipes. Produce aisle, use avocados in a new way. I like new ideas. Cheese, etc.

A lot of times I go with basic things in mind. Bring a list, always have some things in mind. Buy something that is universal. A big package of chicken and make a bunch of servings to try and save a little. Get something bigger that I could cut it down into smaller chunks for a specific recipe.

I look for natural, but I don’t go for the organic. I have a really bad habit of having things go bad. I’m not sure I understand the benefits of organic. Don’t want to buy an organic orange was twice as expensive and have it go rotten before I eat it.

How let’s talk specifically about meat. Where do you buy your meat? List all of the ways.

I ended up getting my meat at Trader Joe’s or Giant. I don’t buy a lot at Whole Foods – tends to be more expensive. A little more out of my range.

If it is a special occasion, then I will go for the steak/fish at Whole Foods. A lot of time I’m getting a bulk package at Giant.

**What do you look for when purchasing meat?** (Probe, if needed.)

I’ll look for a sale – look through stuff through the paper before I go out. I look and see what's available. A multi-pack, etc.

I will get pre-packaged meats, too.

For beef, I will look at the different cuts they have available. I will look for marbling, the color, date it was packed, the freshness. I look at the area where it’s out – how clean that area might be, weird smells.

I look at the container – clean, sealed up, leaking, etc.
What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

Chicken
Steak
Ground beef – meatballs, meatloaf, burgers, etc. mixed with rice and vegetables.
Pork loin, pork chops
Beef roast – London broil – crock pot
Never lamb.
Bison – I have. Like it.

What are some of the varieties of cuts that you buy? Why do you choose those cuts?
Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

I don’t think I’ve ever had trouble finding it.

Shirt steak, hangar steak. I have trouble with that one. I had a really good recipe online, and I was trying to do steak.

Went to a butcher in a farmer’s market. It was way more than needed for more than one person.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind.
   [Probe, if needed.]

Recipe in mind.
Plan of what I’m going to do with it.
On sale – occasionally.
Samples, promotion – something different – will try it.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
   • Priced competitively
     Yes.
   • Federally approved (USDA)

I don’t know that I do. If I saw a sticker on everything else, but not on one package, then I probably wouldn’t buy it.

   • Source verified/traceable/transparent
I have a lot of friends who will only get her meat from local farms. I’m interested in it but it doesn’t necessarily influence my decision.

Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Smith Field's for Pork.
Purdue for Chicken.
Nothing specifically for beef.

I’m not brand loyal to them. I’ve gotten Purdue – pre-packaged chicken breast. I do get Smith Fields from time to time. Easy to do.

Store brands.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

Not that I can think of. If I was at Whole Foods and Harris Teeter, than I would expect to see them there.

If I buy beef at Whole Foods, then I buy a steak and I don’t know the brand is.

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

I’ve gotten steaks from Texas. I think of Texas as being a big beef state. I don’t. It sounds right. I know it’s a ranching area.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

It would sound like it was natural, it was farm raised. I would choose Montana beef over New Jersey beef.

Montana sounds like a nice place to be a cow until it’s time.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?
It would be compelling. If I'm looking at two things, and Montana has a backstory, location. It has the connotation of being big wide open space, farm, natural. I wouldn't think factory farming.

My grandfather was a tobacco farmer and had some cows. When I think about cows being raised like that, I think of a big farm like his.

What would you expect from a Montana meat product?

Large scale, big rolling hills, grass-fed. Good marbling, very flavorful. When they are raised that way, it's supposed to better flavor, better for the meat. Probably use salt and pepper, want to taste the meat first. Be flavorful. More like a restaurant steak.

Would you expect that product to be processed in Montana?

Probably. I guess I would. The cost of shipping the cow somewhere else to be packaged. Probably be still more.

Local wouldn't be competitive. A lot of the farming operations are smaller, independent. Would have a hard time competing price wise. I go to local farmer's markets, local farmers.

Meat needs to come from wide-open spaces.

How sensitive to price would you categorize yourself?

I'm middle ground depending on what it is. If it's special, and there is a reason for being priced higher. Grass-fed, process that's worth the extra cost. If I know where it comes from, I would rather know where it's coming from. I'm willing to spend an extra dollar two.

What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Wrap Up:
Thank you for taking the time to talk with me today. Any other thoughts that you'd like to share? If something comes up, please call me or send me an email at your convenience.

Cousins are all farmers.
Thanks again.

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ONE MONTANA RESEARCH TOPICS #2, 3 AND 5 CONSUMER INTERVIEWS

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METHODOLOGY: Consumer Interviews

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Introduction
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I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I'm more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

I do weight watchers. That influences my food decisions. I also have a bit of a digestive issue. I don't get things with high fat content. We don't eat pork, because I don't care for it.

Food and Its Role in Your Life
Now let's talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

I am somebody who really likes produce. I have an eye on produce. When I think about meat, I like to think about what I'm making, the season – outdoors grilling. I like to buy things that are a leaner cut. My husband doesn't like the lean cuts as much as me. He likes lamb a lot. I like it less. I will sometimes buy chops for him. But I will buy the ground lamb for both of us. I also have recently been very influenced by an Indian cooking show that I watch. Spice Goddess. A lot of cooking with lamb – find myself looking more at lamb.

I like to keep things reasonable in price.

We got a groupon for a butcher. Sell some fish. It's not a grocery store. For our meat, we have a tendency to go to the butcher.

They often run Groupons.
Specialist. Northern Virginia magazine. That's the way we purchase meat.
I'm crazy about flat iron steak. Creatures of habit. When we go to the butcher that we are going to get the same thing. Flat iron steak. $9.99/pound. If it's special, then something else. Not pinching pennies, if we wanted to spend $27 we could. When I
was living on my own, I was less of a meat eater than I am now. A difference in taste. My palette isn’t significant that I can tell the difference between $16 and $10.

The weight watchers facility is 10 steps from the local Safeway. Friday is Sabbath. I’ll go into the store to make something for Sabbath. I will always look at dates. I’m very conscious of the dates. 50% off to put in the freezer in the next hour. For the really fresh stuff, we buy from our butcher. Springfield Butcher.

Hispanic market – just about a mile from house – Best Way (chain). I go there for produce, but it’s a small grocery store but it has everything that a regular store would have. They also have a nice meat section – I always look at the stuff. I price it out against our butcher. I sometimes like to buy pre-cut meat – stew meat – I look at that.

L.A. meat – ethnic. Fish, meat, etc. Very thinly sliced – cooks quickly, not going to kill my teeth. I like that. Do that on occasion. Don’t shop there on a regular basis. But I always look – are there any good deals. Gary and I came back last night and we knew there was a huge storm. Went to Best Way – do we have meat, beef, lamb in the house. I like to always as much as possible have something in the house. It’s easy, when I come home, tired, throw it in a pot and have Chili. When I buy meat, I think about the ease factor when cooking. I don’t know how to use the gas grill. Gary’s domain. Need to have the cut of meat that I can cook. I will occasionally buy a roast in the winter, put it in the slow cooker. I start think a few weeks again – St. Patrick’s Day. I am influenced by those things.

What do you look for when purchasing foods and why?

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

Because we shop at the butcher, I am a little less observant at the butcher. Just because I see them butchering meat. I know it’s fresh. They are sort of a rough bunch. To say them, ask if this is hormone-free. The butcher is in a strip mall. But directly across the street is a Trader Joe’s. I had a conversation with them once, and my parents are more observant than I am. Asked about kosher meat. I had a feeling that this person didn’t really know what that meant.

A bunch of hockey jerseys hanging on the wall. They aren’t nice, but they are professional and knowledgeable in what they do. I see them butchering the stuff. It’s quality, it’s good meat. I don’t think it’s shot up with hormones. I don’t get the impression, they seem to be purist. They don’t want to feed hormone-laden products to themselves and the customers.
If I'm at the grocery stores, when I get the lamb, there is a brand—Open Nature—Safeway's Natural. I look the word natural. I know it doesn't mean anything, but I'm going to feel better and buy that. I prefer not to put the hormones, crap into my body.

I'm not so concerned about free-range, organic. I'm big on sustainability. If I knew if a company was treating its employees poorly or has a bad history, I would stay.

Politics also plays into how I shop for meat. I don't shop at Wal-Mart, because I don't think they treat their employees well. That extends to the way I shop. I like to know I'm getting product... There was a story of the meat industry, and workers were getting their limbs caught in machinery. Those stories horrify me. I want to buy things and support companies that are doing right by their employees and their animals. I don't eat veal. I think it's cruel to raise an animal in a 2 by 2 pen. I made a decision that I can't support with my dollars.

Kosher meat processing that was raided, and it made me feel bad that it was a scandal. Very upsetting me.

We don't buy Kosher meat. I would have to go to Maryland.

What do you look for when purchasing meat? (Probe, if needed.)

See above.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

See above.

What are some of the varieties of cuts that you buy? Why do you choose those cuts?

See above.

Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

I would say, no. There are times when nothing appeals to me. But that rarely appeals to me at the butcher. They sell chuck and sirloin packaged burgers.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
• Priced competitively
• Federally approved (USDA)

That's hard to say. I'm not even sure I know what that means.

• Source verified/traceable/transparent

Specific Brands
Still thinking about meat. Are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?
Open Nature. Safeway's brand - rancher's reserve. Don't insist, but I'm aware of it.
Open Nature.

The butcher is the butcher. The butcher is the brand. The guy has been in business for 40 years, we trust it to the end of the world.

Are you aware of any specific high-quality niche meat brands? If so, which ones?
What do you know about these brands? Do you purchase these? Why or why not?

Waybu beef. Kobe beef.

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place - a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

New Zealand lamb. Probably, but not knowingly.

What's your reaction to or opinion of Montana meat products? Any thoughts come to mind?

I would say that it's Montana lamb that you are charging me the same that I pay at the butcher.

Simply by telling me that it's from Montana, it's not enough to compel me to buy it.

Price, freshness, Montana lamb that traveled in a truck for four days. Although I don't think about that so much. If it was well-marbled.

It was ground-beef that was $0.20. I would not buy it.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?
If there was a story, would that

What would you expect from a Montana meat product?

I would expect that it would be very fresh, delicious. Almost a melt-in-your-mouth experience. From what I’ve seen of Montana, a colleague of mine lived there. Montana is a very big, outdoor fresh air mountainous, if something is living how it could be anything less fabulous.

Would you expect that product to be processed in Montana?

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

FWIW, I read stuff online, I have friends who are vegetarians.

I have very mixed feelings about the health industry. 90 year-old lady who ate meat every day of her life. Others who give up who have cancer.

You need to be aware of what’s going on. Educate yourself but not go crazy. Not going to read every last study. Friend who is a vegetarian to be healthy and then drinks a lot of wine. I don’t agree with people who don’t eat meat – ethical reason more than a health reason (veal).

There are two sides to every story. Follow my conscious. Follow my gut.

I feel why I love shopping the Springfield butcher, I feel very strongly about supporting local businesses. No one cares about Daphne at Safeway. I develop a personal relationship with the butcher.

Cabot – co-operatives. Vermont. Small farmers, pool their things, make cheese. Means a lot of me.

Thanks again.

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ONE MONTANA
RESEARCH TOPICS #2, 3 AND 5
CONSUMER INTERVIEWS

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TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO CONSUMERS)
- Who is going to purchase our products in the local/regional, domestic and international markets?
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- Does it need to be processed in Montana?

METHODOLOGY: Consumer Interviews

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Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:
- Live in the eastern part of the United States
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I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

Just back from visiting family in Oakland.

Food and its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

I can tell you that my husband is the major food shopper and cooker. I will refer to what he does. But it’s together.

We live in New York City, on a major thoroughway, near Broadway. Westside Market. 2 or 3 scattered around the city. A lot of fresh fruits and vegetables. They have a meat counter. It has a big enough selection. The selection is pretty good.

We also may go to specialty stores nearby.

I like to eat a lot of salad. I get fresh lettuce at local market, fruit, whatever is in season. Organic greens. Potatoes, root vegetables. It’s a green market, local farmers bringing in produce. They come twice a week. Local dairy, cheese, breads. Flowers, mushrooms, etc. One of the wineries from Hudson Valley. We usually do a run there. They sell organic, and I buy it there. We don’t go out of our way to make sure that everything is organic.

We do eat meat. All kinds. Meat, fish or pasta as main course. His cooking is almost stuck in the 50s. Campbell soup on something. He usually incorporates something with hamburger meat.
Lamb chops
Pork chops
Fish
Chicken
Turkey breast

What do you look for when purchasing foods and why?

We buy organic because it’s in the green market, it’s supporting the local movement. Local produce and farmers. They have a variety of things. You can mix all of the greens. Get them fresh. My husband will get pre-packaged things. Something for a soup. It’s a good idea to buy organic when you can. It’s not the top priority. Partly because of chemical wise. But I don’t go to the extreme.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

Westside Market
We occasionally do a spring lamb – go to a butcher. Those are sort of disappearing. Or another nearby grocery store.

What do you look for when purchasing meat? (Probe, if needed.)

I usually check expiration dates.
It’s not all pre-packaged. There is a counter.
Check price.
The amount – we like leftovers.
Don’t look at how it is farmed.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

Sausages:
Variety of those kinds of sausages – chicken apple.
Turkey drumsticks.
Lamb chops.
Pork roast
We don’t get whole turkeys and chickens – because of size, quicker quickly.
Pre-sliced deli sandwich meats.

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?
Ground beef
Steaks – London Broil, various cuts, something simple.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. {Proba, if needed.}

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
• Priced competitively
• Federally approved (USDA)
  We would assume that it would be. I don’t know if there is something on the label. I don’t know where you would get something that wasn’t federally approved.
• Source verified/traceable/transparent
  Not really. Don’t go looking in particular. If it might say New Zealand lamb, then that would be fine. Not sure if that’s even provided.

Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Not fresh. Not even deli. No.

Are you aware of any specific high-quality niche meat brands? If so, which ones?
What do you know about these brands? Do you purchase these? Why or why not?

Robe beef. I’ve been to Japan. I’ve never ordered it.

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

New Zealand lamb. I’m aware, but not really. Long Island on a menu. Grew up in Long Island. New York Steak – not even sure what that means. When shopping, you will see something but it’s incidental. It seems so generic. Sometimes a fish says Chilean Sea Bass. Sort of with a grain of salt.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?
I don’t associate with Montana with a brand of beef or lamb. I don’t have a sense of it being anything better than anything else in the Midwest. It might be interesting if that was on a label. Let’s try this, out of curiosity. I wonder if that means that it’s different. I could be pulled in by a certain name, but not necessarily.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

I’m not aware of how it would be different. If there was some kind of marketing attached to it, I might be aware of some kind of reason. Long Island and New York is a personal connection I can make it. I like the idea of Montana.

What would you expect from a Montana meat product?

It might be something exotic. A buffalo burger. I would guess that it might be more free-range type of thing. I wouldn’t associate it with a factory farm. That would be a positive for me.

Would you expect that product to be processed in Montana?

I wouldn’t think about that. If I did, I would assume it was. My main assumption is that it would be grown, farmed in Montana. If it wasn’t, then I wouldn’t hold it against it.

How would you feel about the non-local aspect it? I would feel okay about it. Meat, things like that, I would expect it to be grown somewhere else. New York City.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Would you be willing to pay $1 more for it? Yes, possibly, it’s a little intriguing. Just to try it. Maybe not if it was there on a regular basis. Not necessarily, unless we found it to be really tender. Easy to cook. Then we would probably take another look. It’s possible. It would catch on.

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

I’m concerned about inspections. I certainly want to make sure it’s well-cooked. I’m sort of aware that inspections might be up to standards these days. Making sure the meat looks fresh, expiration dates. There is a bit of a health concern there. He likes
meat as the center of the meal. I try to persuade to go for fish and seafood and get leaner cuts.

Thanks again.

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If you stressed the fact that it's federally inspected, fresh, rushed to market. Don't want to think about it being a long way away. Get's there fast. Fresh, inspected. Those would be the points I'd emphasized.

Sometimes we buy it fresh and freeze it. Flash frozen. Doesn't change the quality of it. Buy it because it was frozen fresher.
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First, tell me a little bit about you, your family and what matters most to you.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

I go to the grocery store every day. It’s a family-owned supermarket every day. Palmer’s Market. Better produce, meat. A lot of pre-made things. I don’t go to Stop and Shop. I go to Stu Leonard’s to get their bagels.

What do you look for when purchasing foods and why?

Some of the things. Eggs, milk, I’m very picky. Chicken has to be cage-free, antibiotic free. I don’t buy a lot of meat, but my kids eat steaks and hamburgers. My kids eat turkey. No antibodies.

I get nervous, I do believe that everything that we start to put into meats. I’m not so concerned about the food allergies. We don’t raise our food as we should. I don’t want my daughter going through puberty at the age of 9. My friend’s daughter started to go through puberty. I know how they eat. They live like they are still in the 1950s—nothing organic.

Fruits and vegetables—don’t go completely organic. I look for what looks good and fresh. I don’t know why. I certainly read all of the news about what you should and should not eat organic. Look for the organic stuff first.
I don't buy a lot of junk food. My daughter is about to get scoped, she'd been having a lot of stomach issues. I don't keep a lot of snacks, but they are kids. Gold fish, granola bars, Frosted Flakes.

Taco night, if they are having beef tacos.

Now let's talk specifically about meat. Where/how do you buy your meat? List all of the ways.

I don't eat red meat because I don't like the taste of it. Everyone else in my family eat.

I buy meat at Palmer's. There's also a market called Fairway, used to be New York and now they are in Stanford. Big supermarket chain in the city.

We don't really have a local butcher.

Palmer's has a butcher on site. I've never gotten anything from the butcher counter, I get it from the meat section.

What do you look for when purchasing meat? (Probe, if needed.)

Porterhouse steaks, try to get those. If I'm getting hamburger meat, I do get it with a little bit of fat in it. 85% lean - I think they taste better. It's for them. I'm trying to not make them as neurotic as me about food. Thrilled that my daughter likes meat.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

Turkey meat.
Porterhouse steaks.
No lamb, no bison.

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

How it looks.
The size of the steak.
Make sure it’s not too marble-y.
Not too thick.
Based on my husband’s preferences.
Never buy anything frozen.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?

- Priced competitively
  I’m always look at USDA certified, no hormones. I’m probably paying around $15 for one porterhouse. Look for grass-fed, natural.

- Federally approved (USDA)
  - Source verified/traceable/transparent

Never looked that. I do look where my dairy is from. I don’t know why. Eggs and milk that I buy are from two CT farms. Saw it on the packaging and then looked them up online. Stu Leonard’s does a lot of advertising. They are very big on where their cows are – big part of their approach.

Specific Brands:
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

I can see the packaging.
Stonybrook – Turkey.
Bell and Evans – Chicken.
Meat – I have no idea.

It says on the packaging that it’s organic, no hormones.

Are you aware of any specific high-quality niche meat brands? If so, which ones?
What do you know about these brands? Do you purchase these? Why or why not?

No, nothing specific.

Specific to Montana:
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

The only time that I can think of – Thanksgiving, Christmas, Easter. They give you six to eight choices of turkeys and tell you where they come from. I pay a little attention to it, but I don’t.
Never

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

That’s it probably more likely to be a venison or bison. More gamey than a steak and hamburger.

I don’t really have an opinion.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

Not compelling to me.

What would you expect from a Montana meat product? Would you expect that product to be processed in Montana?

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

Both of my in-laws grew up on working farms. They do raise cattle. It’s interesting because my mother-in-law has no interest in organic.

Thanks again.

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First, tell me a little bit about you, your family and what matters most to you.

Quality over price points.
I’m always looking to save a buck but I’m willing to pay for quality if there is a perceived value or proven value. That’s everything. Food, drinks, clothes, etc.

Quality of life. Instead of spending 20 hours a day to make money, I’m trying to figure out how to spend 8 hours a day to make enough money to play the rest of the day.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

Food shopping experiences can be woven into – quick, fast, convenient.
Going to a friend’s for the weekend, shopping for the week.
Don’t do the Costco thing – don’t have the room or near one.
If feeling flush, then go to specific meat markets. Tend to buy more when I go there. Once a month to the butcher.

What do you look for when purchasing foods and why?

Comfort food – pleasing to the taste food – or healthy food. They might not all be the same.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.
Once a month to the butcher.
Two major grocery stores – Shaw’s and Hannifors.
Shaw’s = Decent.
Hanniford = Better quality meat. Seems to.

Buying shrimp, New York Strip or very inexpensive meat to put into stews or marinating for the grill.

What do you look for when purchasing meat? (Probe, if needed.)

When I go to buy meat, if I have my druthers, I would eat filet 9 out of 10 times. Tip meat – super marbled, not lean meat.
NY Strip – thickness and color – nothing gray or green.
Pre-packaged or display window – immaterial.

Never been disappointed by going to butcher store.
Ask about specific meat and about how best to cook it.
What things to be added to bring out the best in that cut meat, how to cook it properly, etc. Spend more money per weight to get that advice.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

What are some of the varieties of cuts that you buy? Why do you choose those cuts?
Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Sometimes I do have trouble finding it. If you aren’t at a butcher shop, then you are at the grocery store late at night, they might not have a good cut left. Very small, not the healthy ones.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

Taste, convenience, pocketbook. Combination of 2 or 3.
Would love to buy bison but not easily available here – Meat House, ground bison.
Love the taste – steak, ground, etc.

Will eat lamb if served to you.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
* Priced competitively – yes
* Federally approved (USDA)
Assumed that it’s federally approved. Shouldn’t, but if it’s in the three stores than it would be approved.

- Source verified/traceable/transparent
  - I don’t know enough — except
    - Grain-fed, corn-fed.
    - Argentinian, Kobe.
  - If noticeable that not American sourced animal, then make assumptions.
  - Trust that if American animal than it has passed all of the rigorous tests.

I’m not on the organic bandwagon. Maybe a knee-jerk reaction. It hasn’t been proven to me to be any safer, etc. If it were proven to be that the piece of meat tasted better, than I would listen. If charging extra, then have to prove to me the value of it.

Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

No brands that come to mind. More on the retail level. Meat House — New Hampshire, made famous by marinades. Got to know that brand, because the people behind the counter are unbelievably knowledgeable about the meat.

Everyone knows Idaho potatoes. Taste the difference — Idaho taste better.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

Not aware of any brand specific. Which bullet shot it.

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place — a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

Yes, Argentinian beef. Not in the last 3-4 years. Budget constraints and not haven’t seen any signage. Seen sometimes in the restaurants. Nothing in the stores. I don’t frequent Whole Foods or Trader Joes. (Love to put me in touch with self-trained chefs. Yuppy store.)

Not even purchased anything that comes from Montana. At least not knowingly.
What's your reaction to or opinion of Montana meat products? Any thoughts come to mind?

I would try it at least once. I'd choose Montana over Maine.

If it was a significant price difference, with no price difference. Priced within $.50 to $1.00 per pound with a noticeable taste difference, than you win me over.

It boils down to a very neophyte – Montana has always been known for cattle drives. Walking 2,000 miles. In shape, healthy. Think of the West, think of cattle, think of mountains. Could brand Montana how Maine has branded lobster. Lots of grass.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

What would you expect from a Montana meat product?

I don't know Make assumptions (great), grass-fed over corn-fed. Grass-fed was tastier piece of meat. Have to be educated.

Would you expect that product to be processed in Montana?

My gut reaction is yes. The cynic in me says that I would care. We buy awful lot of American cars that come with 90% parts. Born, bred and fed in MT but processed in WY or somewhere else, than okay. Shipping them to China to process.

I would support a product.

I could see paying a premium if it was worthy.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Better taste. Expect a value to the premium.

**Wrap Up**

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It's going to be god awful. I hate crowds. We would go to Costco first so that I can buy in bulk and buy a bunch of stuff that I don't need. I'll buy meat and fruit that is freezable and last awhile.

Last week went to the grocery store and spend $328 because I was out of food. I have to plan my meals. I need these 10 ingredients. I will do that a week a time.

What do you look for when purchasing foods and why?

Whatever I eat is what I've historically eaten. Or I've gone online and looked at a recipe and I would purchase what was listed.

But I would go into the deli section of Whole Foods.

I don't look at organic or local. I'll typically buy whatever. I'll go to a restaurant.

Now let's talk specifically about meat. Where/how do you buy your meat? List all of the ways.

Costco.
Publix.
I'll buy fish at Whole Foods.

PAGE 2
What do you look for when purchasing meat? (Probe, if needed.)

- Calorie thing.
- Ground beef. Percent lean.
- On other meats – I don’t want it to have fat in it.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

- Ground beef
- Steaks.
- Stuff cut up.
- A better quality meat cut up in a cubes, beef stroganoff
- Roast.
- Bison burgers.

Recipes.

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
- Priced competitively
- Yes. That’s why I don’t buy organic.
- Federally approved (USDA)
- No. I make an assumption that if it’s being sold at Publix.
- Source verified/traceable/transparent

Specific Brands.
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

No brands come to mind.

PAGE 3
Bubba burgers. Frozen meat. Don’t eat them, but grandfather did.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

Noope.

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

Does Iowa make beef? I’m sure I have. Grain-fed. But I don’t know.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

That would be good. It would be more free-range. We have Ted’s Montana Grill.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

No. I wouldn’t choose it over something else. There is no brand recognition.

What would you expect from a Montana meat product?

Nothing.

Would you expect that product to be processed in Montana?

I wouldn’t expect anything. Don’t want anything.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

Wrap Up
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ONE MONTANA
RESEARCH TOPICS #2, 3 AND 5
CONSUMER INTERVIEWS

Research Topic #2: Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

Research Topic #5: Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO CONSUMERS)
• Who is going to purchase our products in the local/regional, domestic and international markets?
• Will a Montana-branded niche product equate to a higher value?
• Does it need to be processed in Montana?

METHODOLOGY: Consumer Interviews

PURPOSE OF THESE INTERVIEWS

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• Better understand the demand for Montana-branded meat products at the state, regional and national level.
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Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:
• Live in the eastern part of the United States
• Well-educated
• Affluent but may not be necessarily rich
• Health conscious
• Environmentally conscious
• Socially minded
• Want a greater sense of connectedness
DISCUSSION GUIDE

Introductions.
Thank you for agreeing to talk with me. I am curious about what you have to say
about the types of food you purchase and how you make decisions around what you
buy – specifically as it relates to meat.

I expect this conversation to last about 30 minutes but can make it shorter depending
on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid
perspective, and I’m more than willing to keep your responses confidential, if you
would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your
most recent food shopping experiences. Where did you shop, what did you buy, how
many stops did you make? Etc. Tell me about that experience.

I have an attack plan. I like to shop at specialty stores – the butchers for the meat. We
have so many good stores. There are great grocery stores with specialty stores inside
the markets. Most stunning section of produce, a lot of fresh fish.

If I had time and energy, I would always go to the specialty stores. We also have a
huge stand-alone produce market.

Smaller markets.
Berry Fresh Farms
Key Foods
Butcher – a little whole in the wall, don’t even know the name.
Lives in a very Greek area. You can see a whole lamb, skinned and hanging by it’s
hind leg. Like to see it on some levels, but don’t on other levels.
Halal butchers. I feel like they are doing it right.
Unity Brothers
I would definitely go to farmers markets.
Trader Joes when I lived in California.

What do you look for when purchasing foods and why?

Freshness.
I've gone to a grocery store, started picking up the produce and have put it back because it wasn’t fresh enough. I pick up everything and smell it. It needs to smell like something. Otherwise it doesn’t make sense to pay for it.

The freshness is where the quality is. If it’s not ripe, I will stick it in the fridge. I hate throwing things away. I try to buy seasonal. I like things to be of their time.

Now let's talk specifically about meat. Where/how do you buy your meat? List all of the ways.

I don’t buy a whole lot of meat. Very lean. Very fresh. I don’t look as much as I could at free-range, organic. I don’t go actively looking for it. I've read that some things are worth it and some things are not worth it. I start to wonder if it’s just a label that they are starting to put on things.

But when I go to the farmer’s market, I hope that what I buy is relatively chemical free. It seems like it would be.

I almost never buy anything canned. Sometimes frozen if you can’t get in the fresh produce section.

What do you look for when purchasing meat? (Probe, if needed.)

Lean.

Low fat. Ground beef - I get the leanest of the lean. I get some argument on that one. My family says the flavor is in the fat, but I don’t like it.

Halal butcher. I feel like they are cleaner when they butcher it.

Steaks – good, high end because I don’t like fat.

I don’t like chicken skin, chicken fat. I’ve been paying closer attention to hormones. Chicken breasts that are the size of my head are not right. I know that. They are injecting so many hormones. I’m not looking for free-range but I’m looking for things that look more normal. Smaller, skinless. What I remember as child.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

I’m not even sure I’ve seen a lot of organic meats.

Chicken
Beef – ground beef and steaks
Lamb – once a year.
Bison – you don’t see it out here much. I’ve had it out west. There are a couple of restaurants that offer bison burgers.

Don’t buy organic as often a price issue.
What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

I only buy fillets and tenderloins. I just don’t trust other cuts of meat. People say that marbled meat is better, but I’m looking for lean meat. I don’t want meat that bites me back — chewy.

I’ve never had a hard time finding something that I wanted… When I lived in California, I would see tri-tip. You never see it here. There’s no tri-tip here. They use hangar steaks here for steak frites.

My choices are normal, common place things.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

We didn’t eat a lot of meat when I was kid. I have taken on their tastes when it comes to meats. My parents were relatively health conscious early on, and I’ve carried those traits on with me. Now we cook things differently – they used to over cook everything, and I like my meat medium rare.

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?

- Priced competitively
  Yes, I want things priced competitively but I will spend extra money for a better cut of meat without hesitation. If something is 98% fat free, then I will buy that even if it’s double the price.

- Federally approved (USDA)
  I will look for that. It scares me a little bit about unsanitary conditions in slaughterhouses. The butcher has a USDA sticker on their windows. But I feel like they are getting the whole animal, they are taking care of it in a fashion that’s cleaner. It’s not a huge operation where things are out of control.

Health inspectors in New York. You have to get an A or a B. I feel like someone is watching.

When you go to a butcher with some religion behind it, there is some extra care taken.

Also, there is a store with live chickens. Three miles outside of Manhattan. You pick your chicken, and then you come back and get it.
- Source verified/traceable/transparent

No, not really.

Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Chicken has more recognizable brands — Tyson, Perdue, standard. But I don’t remember anything in respect to beef, pork, etc. It seems more like the grocery store is packaging that.

I will look for the names, but if they have a chicken breast the size of my head, then I won’t buy that.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

Not really. We get part of our Christmas gifts. A big cooler filled with Omaha Steaks. Is it higher end? Not sure. It seems to be because it’s a gift you get. If you were to get it on your own, then it’s ridiculously expensive.

How do you feel about getting meat in the mail?
We get it every year at the office. Shipped, hard as a rock. Frozen, maybe they flash freeze them so that they aren’t frozen forever. I don’t mind it. But I wouldn’t be ordering from Omaha Steaks, price issue.

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place — a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

No, not knowingly. The closest that I could say — is the chicken place. Not sure where the chickens come from.

I have no idea if I’ve ever purchased meat from Montana.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

Having no knowledge of Montana meat, my gut feeling is that it’s probably very good. It seems to be the right environment for cows. Beautiful open healthy state. I would equate the wide openness of Montana to raising the animals well.
I’ve never been to Montana. But I think of beautiful, wide-open spaces, I think of that, they are probably doing things right raising and then butchering. With not huge slaughterhouses. Rightly or wrongly, that’s what I think of.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

It would. As far as I could see the brand on the packaging. If it met my other criteria. If it looked the same or better. It’s kind of like Argentinian beef - what I’ve had in a restaurant.

What would you expect from a Montana meat product?

I’m not sure. I would hope it would be lean. A lot of flavor. My preconceived idea that it would be healthier.

Would you expect that product to be processed in Montana?

Yes, I would expect it to be.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

It would be unique, and I would give it a try. If I thought it was like everything else, then I probably wouldn’t buy it again.

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Introductions
Thank you for agreeing to talk with me. I am curious about what you have to say about the types of food you purchase and how you make decisions around what you buy — specifically as it relates to meat.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.


Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

We have a Market Basket nearby, inexpensive place to shop. That’s our regular place. There is also a Whole Foods, Trader Joe’s. We shop at all those places. I do catering at times. I go to the specialty stores, Asian marketplace to buy products from there.

Having lived in NYC and abroad, I tend to shop for that kind of stuff wherever it is the specific place that I’m shopping. It’s very European, and I look at food shopping that way. Specialty shopping. Brand or product specific.

What do you look for when purchasing foods and why?

Quality. I’m always look for the best quality I can get. Freshest foods, I look for local. When I’m in the Northeast, that’s sometimes hard to find. When I go to the fishmonger, he always goes back to get the things that just came in. That’s why I like going to those kind of places, as he usually provides that kind of service. I enjoy the one-on-one interaction.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

Whole Foods — I know that I can get that organic, grass-fed beef. I’m looking hormone-free, nitrate-free foods. Market Basket sometimes have those things, too.
I go to Costco and BJ kind of places – big packages to portion it out myself. I’ve gotten to know the Whole Foods people so they will portion it out for me.

Oftentimes when I’m shopping and I ask for something very specific and they will ask me what it’s for, and then in conversations it will come up, or I will tell them it’s for a catering gig and I need something specific.

I like to think of myself as semi-professional. I teach cooking classes at Williams-Sonoma as well as a local purveyor, I also do some catering. It’s not my full-time job, it’s more of a passion.

What do you look for when purchasing meat? (Probe, if needed.)

Those are the big things (see list above). I specifically look for the quality of the cut, the graining, the marbling. I don’t take the first thing. Kry-o-vac. I will pick through what’s there and pick what I visually like.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

A little of everything.

Very specific to what I’m doing.

Personal, professional.

A lot of time catering people will want filet, so I’ll buy the whole loin – secondary section, trim down myself. That way I get 2 or 3 extra meals for the same cost.

Flank steak to do beef teriyaki. Chuck roast. I definitely try a little bit of everything I like to try different things.

Does buy lamb and bison.

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Ever once in awhile, Whole Foods, short ribs are hard to find. Cross-section cut. Oxtail is hard to find.

Hangar steak never seems to make it to market. Becomes popular in restaurants and harder to find in stores.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)
Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?

- Priced competitively

To a certain extent. If it’s for a catering job, yes. Personal, don’t want to spend more than matter.

- Federally approved (USDA)

Prime select, I do notice it. But I don’t choose based on that per se.

- Source verified/traceable/transparent

Yeah, I notice it, but it’s not in the forefront of my decision making. It sticks out because it’s not so prevalent. I don’t seek it out.

**Specific Brands**

Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

**New Zealand Lamb.** If I see it, I might be inclined to buy it. In the past, it has had a less gamey flavor. I’ll ask where something comes from.

Honestly, not really.

Whole Foods – it’s just in the case. Sometimes they say where it is from.

Let me think… not really.

**Osaka – gagging.** Don’t like the product. I don’t buy it. The quality isn’t any good. I’ve tried every which way – always comes out dry. It’s still not up to my expectations. It certainly has a brand. My mother buys it. Not worth the cost.

Are you aware of any specific high-quality niche meat brands? If so, which ones?

What do you know about these brands? Do you purchase these? Why or why not?

Not specific. I’ve seen some on TV, cooking shows. My wife’s brother sent us some product. Something Brother. Fzip Brothers. Farm-raised products. Wouldn’t know the names of it.

**Specific to Montana**

Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

Never knowingly recognized.
What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

I’ve had it. I’ve had meat in Montana and it’s spectacular. Any of those plain states.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

Yes, probably because I’ve had product from there when I was out there. It was some of the best I’ve ever had.

What would you expect from a Montana meat product?
I would think it would be a superior product. Flavorful, tender. I would expect a lot of it. I wouldn’t expect it to be grass-fed, other criteria, but I would hope it to be. I would want that. Certainly grass-fed.

Would you expect that product to be processed in Montana?

I would think it would be butchered locally as to where it was raised.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

I would expect all of those things, especially if I had to pay a premium, higher price for it.

I would look at it if it was higher priced, if all things were the same. If the labeling is telling us where it’s from, how it’s raised, how it’s processed, I would expect to pay more. I will do comparisons. I will buy two of the same products from two different manufacturers, and try them both. Satisfy my curiosity.

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

I don’t know if I’m the exception to the rule. But we have two separate freezers and refrigerators – it’s obscene. Vacuum seal and freeze them. At Costco, they hid prime beef, and I bought $500 worth as I know how hard it is to find prime beef. From my standpoint, my cousin will go and buy a ¼ or ½ cow. For me, that’s interesting. I like to butcher my own product. For me it would be interesting. When I go fishing, I catch a stripers, and I save the head. I save everything. I use every bit of the fish. I’d like
the ability to purchase ¼ or ½. It’s frustrating when I go to the butcher, and they didn’t.

Filet Mignon on the bone – hands down the best cut I’ve ever had. Hotel in Manhattan. Chef John Helgason had it. We all got it, blown away.

Having lived in NY, favorite chefs in Manhattan.

I haven’t done much with Wagyu beef, because I have a hard time spending that much money.

I do like European style shopping where I can talk to the butcher and get their feedback. Supermarkets, even Whole Foods, the counter is a barrier. When you find a purveyor that you can talk, it’s amazing how much information you can get and how much you can learn about the product. “This is what you should buying.”

It’s amazing how much these professionals want to share with you. It’s important to know where things are coming from and why.

I’d like to see more about where things are from. Have a sense of what you are getting. Distance in food.

Thanks again.

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First, tell me a little bit about you, your family and what matters most to you.

Food and Its Role in Your Life
Now let's talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

We shop in two locations. Costco and Publix. Both are convenient. On our way to and from things.
Publix – good location, good store, good range of the everyday quality we look for.
Costco – reasonable deals at the time.
All of our meat and vegetables come from Publix because they have better quality. Occasionally go to Whole Foods – it's out of the way, occasionally go to Farmer's Market.

Whole Foods is better quality, more towards organic. I'm quite taken with the quality and food hygiene, food safety of the organic.

I grew up on a farm. I understand all of the nuances. Ex-farmer. agriculture. Leader of the agriculture industry. Informed view on agriculture.

What do you look for when purchasing foods and why?

It's got to look to me because it's fresh, not sitting around. Well-grown. As long as it's not covered with chemicals.

I like to see it fresh and presented in a manner that is appealing.

Understand the cuts of meat. I look for that, and I can appreciate a well-presented meat, based on my background.
I can tell whether it’s been grass-fed. A feedlot cattle will be housed in a feedlot. The meat and the fat will look very different. I can tell the difference between dairy cow and beef. New Zealand – it’s probably a dairy cow. Nothing wrong with it. Not lower quality. Not quite as tasty as beef cow. U.S. beef. Australian.

Processed – mixture of everything. Prime roast – for example.

The store presentation. What are they doing to keep it fresh, remove the degraded things. Keeping those bruised and slightly spoiled out of the presentation. Don’t have to dig through it.

I also look for the labels. I still work in sustainable agriculture. What effort is this producer bringing to the table. Standards, fair trade.

A little bit different with meat as it’s not quite at the same standards. I follow the USDA symbol – it’s a guidance. It’s a quality guidance. There’s a rigor of commitment. A level of safeguard. Some confidence. I wouldn’t buy meat from farmer’s market.

Now let’s talk specifically about meat. Where/how do you buy your meat? List all of the ways.

Publix
Occasionally Whole Foods – chicken – presented with more seasonings, marinated. We tend to do our own beef marinades. If we have a big function, then we will buy from Costco, bigger cuts, bigger portions, bigger.

What do you look for when purchasing meat? (Probe, if needed.)

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

60% of meat consumption – steak – across all of the cuts. Prime roast, the T-bone, filets.
Bacon – my wife is big on bacon.
Lamb chops
Lamb roasts
Mutton
Pork tenderloins
Chicken
Fish – tend to eat more when we go out. Easy to buy fish out. Food security.
What are some of the varieties of cuts that you buy? Why do you choose those cuts?
Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

Wholesome cuts. There is a substance to the particular cut of the beef. They present and prepare well. They don’t shrivel up to nothing. I like my beef cooked – not still mooing at me. You can cook it all different ways – doneness. Easy to present beef for the multitude of tastes. Show off and demonstrate the flavors. There are lots of different preparation options.

I grew up with lamb – lamb chops. Mutton – about 80 months old. More substantial cut of meat. Very, very tender. A prime lamb roast, melts in the mouth. It is one of the delicacies of life. It’s a staple of where I grew up. Australia. It is terrific the day after. There are so many things that you can do the day after. Hot serving with the baked vegetables. Cold meat and salads, 3rd day – shepherd’s pie. You don’t get that out of pork or chicken. It doesn’t.

The thing about lamb, it can be presented the same as the barbeque ribs. Attractive part of meat – it can be a real statement. Nice range of vegetables.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind. (Probe, if needed.)

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?

- Priced competitively

No, not really. We don’t shop from one supermarket to other. Sometimes Kroger’s has some great sales on meat, and we will go down and fill up the freezer, if the quality is good. I understand the meat and what you can use it for. Slow cooker – put a tough piece of meat and have a terrific meal. Lack of understanding of how to cook a certain piece of meat. You can really screw it up. Briskets – tasty cut of people. Ribs – they are terrific. Only if you have know how to do it. We look for a cut of meat that is going to satisfy that party.

- Federally approved (USDA)

- Source verified/tracable/transparent

I like those disciplines so you have that custodial trail. I understand that. But I also know through the various international standards. If meat is coming from Brazil, I know all of the food standards and guidelines. Others, too. They have a strong commitment that it’s done right. The strength of the supply chain protocols. Product of and grown.
Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Not by the time it gets to the supermarket shelf. Hormel’s and Johnsonville’s Delicatessen. Uncooked – ubiquitous.

Seek out Hormel’s and Johnsonville’s. They are specialize products. They are taking a leg of pork and curating, putting thorough a process and making it ready. It’s a value added product of the leg of pork. Beef jerky – the same thing. Taking a certain part of the cow.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase these? Why or why not?

No, then I will remember it later. Value add comes from early in the supply chain. Presented at prime time. When it was slaughter, left to hang in a cool room. I know those processes, but you don’t see that at the meat counter. A consumer in today’s society wouldn’t understand the process.

Wagyu beef. That’s a brand that I know. I know why it gets to be that way. Process that results in a more expensive. Don’t buy it – heavily marbled. But I don’t have a

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know comes from a specific place – a state, a region? Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

Yes, knowingly purchased.

I can’t say that I have ever seen meat differentially by U.S. state. I look at labels. More with lamb, U.S. is not a big producer of lamb. Not a huge producer of lamb. I’m curious to know where it comes from. I look at label of beef – U.S. but not by state.

We go to Ted’s Montana Grill quite often.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

Wide open spaces, big ranches, cattle country. I would expect to see beef from Montana. It’s high country, mountains.
I would expect it to be pretty good quality.
I don’t expect to see beef from California,
Montana, Texas, New Mexico, Nevada, Dakotas.

There’s no reason why I wouldn’t pick that up, look

If something was labeled as being from Montana or branded as a Montana meat, would
that be compelling to you? Why or why not?

It wouldn’t be a negative.
It’s cattle country thus I would expect that the cattle is well-bred, conditions are
conducive to cattle. Processing, pathway to market, assumption that it would be good
experience.


Beef cattle – have always been on the big open spaces. Montana is a region.

Initially grass-fed. An area, my image is big rolling paddocks. Expect a lot of grass-
fed cattle. Could expect it to be finished somewhere else.

Trying to get a premium. A very surprised if it doesn’t find its way to market through
a feedlot.

What stage of the annual production cycle was the animal turned off. Did it go
through a hard stretch for while.

What would you expect from a Montana meat product?
Would you expect that product to be processed in Montana?

Produced in or grown in.
Not worried about where it’s produced. Just want honesty in labeling. Don’t try to
label it as product of U.S.A. but it’s from Brazil. Proudly grown in Montana. Just
want honesty in labeling. Don’t try to hide behind it. Mainly in the generic labels.
Product = processing. Produced. I understand what they are trying to do.

How sensitive to price would you categorize yourself? Not very.

What would you expect from a Montana meat product that was more expensive than a
more generic meat product?

We would be willing to buy it. Introduction process, how introduced, satisfied tastes
and cravings, then seek it out. We are fortunate enough that we could buy it. The
premium is not going to be multiples of the competing product. Presented better,
packaged better. Omaha Steaks, lot of market research, get that couple of times a year. Branded. It comes through direct, deliver to door. Paying for quality and paying for presentation.

Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you’d like to share? If something comes up, please call me or send me an email at your convenience.

I love animals. I eat them everyday. The humor exists.

Education of the consumers. Surveys with school children. Milk comes from the carton. Go back to 1980, most city people were 1 step away from someone in the country. These are people who live in Sidney, never been to a farm. It’s ignored topic of conversation.

Meat and Livestock Corporation. They’ve done an enormous amount of education. How do you promote high quality meat, understand the food supply. Someone is making an investment.

Cheap, fresh, high quality, but don’t want the farmer to make a reason living. Disconnect. Educating people.

Need a concerted education campaign.

Doug

Don’t need to reinvent the wheel. I wonder if it will work here.

Pork Australia.

How do we improve the understanding?

Thanks again.

This project is funded in part with support from the Montana Department of Commerce Big Sky Economic Development Trust Fund.
ONE MONTANA
RESEARCH TOPICS #2, 3 AND 5
CONSUMER INTERVIEWS

Research Topic #2: Research potential unique qualities and opportunities of a Montana meat product that could add value. (What is the product?)

Research Topic #3: Research the demand for Montana-branded meat products at the state, regional, national, and international level. (Who will buy it?)

Research Topic #5: Determine the competitiveness of Montana-branded meat products in the value-added market. (Can it be successful?)

TOPICS #2, 3 AND 5 BURNING QUESTIONS (SPECIFIC TO CONSUMERS)
- Who is going to purchase our products in the local/regional, domestic and international markets?
- Will a Montana-branded niche product equate to a higher value?
- Does it need to be processed in Montana?

METHODOLOGY: Consumer Interviews

PURPOSE OF THESE INTERVIEWS

The purpose of these consumer interviews is to:
- Better understand the potential unique qualities and opportunities for a Montana meat product that could add value for consumers.
- Better understand the demand for Montana-branded meat products at the state, regional and national level.
- Better understand the competitiveness of Montana-branded meat products in the value-added market.

PARTICIPANTS

Based on initial discussion on who may be the best target audience, MercuryCSC will contact 10-12 people who fit the following criteria:
- Live in the eastern part of the United States
- Well-educated
- Affluent but may not be necessarily rich
- Health conscious
- Environmentally conscious
- Socially minded
- Want a greater sense of connectedness
DISCUSSION GUIDE

Introductions
Thank you for agreeing to talk with me. I am curious about what you have to say about the types of food you purchase and how you make decisions around what you buy—specifically as it relates to meat.

I expect this conversation to last about 30 minutes but can make it shorter depending on your time constraints.

There are no right or wrong answers. I simply appreciate your honesty and candid perspective, and I’m more than willing to keep your responses confidential, if you would prefer. Just let me know.

First, tell me a little bit about you, your family and what matters most to you.

I was born in Mass, grew up in Long Island. Self employed, television production company, biology background. We were together years ago. After my two kids, I planned to stay at home.

Earthwise—environmentally sound products, way before 7th generation. Early 90s. I am much more environmentally conscious than the average person. It’s always been kind of a hobby, a thing of mine. I still volunteer to monitor the water.

The town I live in still farms oysters.

Food and Its Role in Your Life
Now let’s talk about the food you eat. For starters, share with me about one of your most recent food shopping experiences. Where did you shop, what did you buy, how many stops did you make? Etc. Tell me about that experience.

My kids have left home. It was different when I have two kids living with me—had to buy a lot more. Do a weekly shopping at Trader Joe’s—organic, natural. The lion share of our food shopping comes from Trader Joe’s. The closest Whole Foods is 20 minutes away—maybe go there once every couple of months. I also shop at Wild by Nature—not a chain, that’s why I like them, too. I will go there once a week. A lot of organic.

I try to do mostly
I can buy organic chicken at TJ.
We eat pork, meet.
Restaurant—look for the grass-fed.
Splurge thing—fish and chicken you do all week.
Go to a steak restaurant. I will get fish out, too.
We hardly ever barbeque unless we are entertaining. No one wants to cook a steak in the kitchen.

What do you look for when purchasing foods and why?

Pesticides have always been known to be a danger. They still tease me about the natural peanut butter. Concern of mine since the early 90s. Unbleached coffee filters. Definitely meats – so much pesticides.

Bell and Evans Chicken – raised without antibiotics and hormones. Always the organic meats – higher up the food chains, higher concentrations.

Ate a lot of salmon, not farm raised. A lot of fish that I knew I was wild caught. Milk, too. When we started Earthwise, upstate New York, used to have them deliver milk – weekly delivery in garage.

Now let’s talk specifically about meat. Where do you buy your meat? List all of the ways.

What do you look for when purchasing meat? (Probe, if needed.)

Grass-fed. Definitely. No antibiotics, no hormones. I’m not that crazy when it comes to pork. I would never buy meat in the regular supermarket. I don’t buy it if it’s not grass-fed.

What kinds of meat do you buy? Why? How would you categorize the type of meat that you buy?

Fish
Chicken
Beef
Never buy lamb or bison. TJ does nice lamb, have bought them for special occasions – New Year’s Eve. Not routine. A lot of fat in those, they are delicious.
Sausage – Applegate.
Chicken sausage with apples in it and

What are some of the varieties of cuts that you buy? Why do you choose those cuts? Have you ever wanted to buy a specific cut and had trouble finding it? If so, what was that cut?

I don’t like to get ground beef that much. Sometimes burgers. Weekend thing. Steak – don’t know a lot about what kind of cuts. London broil, rib eye.
Not a lot of fat.
Thick, trimmed up nicely.

Why do you buy the meat that you buy? Tell me all the specifics that come to mind.
(Proba, if needed.)

Do you consider any of the following criteria when you are buying meat? Do any of these matter to you?
- Priced competitively
- Federally approved (USDA)
- Source verified/traceable/transparent

I look at the brand.

Empire
Kosher
Bell and Evans
All natural line

Wild by Nature has some specific brands. No antibiotics, grass-fed. I don't care about the location. Brand name that recognize. Organic, natural. But natural doesn't mean anything.

Specific Brands
Still thinking about meat, are there any specific brands that come to mind for you? Do you buy those brands? Why or why not?

Not really. Nothing comes to mind.

Are you aware of any specific high-quality niche meat brands? If so, which ones? What do you know about these brands? Do you purchase them? Why or why not?

Nothing comes to mind. I just look for grass-fed.

Specific to Montana
Have you ever purchased any meats (lamb, beef, bison) that you know came from a specific place—a state, a region?

Trader Joe's does a New Zealand lamb. Maybe Australian. Somewhere down there. That's terrible use of energy. Out on Long Island, there are goat farms. Goat cheese. I will buy. I will stop by the farm and get locally sourced goat cheese.
Have you ever purchased meat that comes from Montana? (If so, how did you know that it came from Montana? Why did you choose that meat?)

Nope. Doesn’t ring a bell.

What’s your reaction to or opinion of Montana meat products? Any thoughts come to mind?

It would seem it would be natural. Free range, roaming around, it seems like it’s healthy. Seems like it be more natural.

No I wouldn’t think about transportation costs. Montana is not so bad. I’ve eaten at a restaurant in NYC — Ted’s Montana Grill. I’ve been there a couple of times, and I ate steak there. Free range, healthy, not thinking that it was horrible not eating New York.

If something was labeled as being from Montana or branded as a Montana meat, would that be compelling to you? Why or why not?

Yeah, I think I equate it with free range. I would look further on the packaging to see who they were feeding them. I would expect it to be grass-fed.

What would you expect from a Montana meat product?

They would be free-range, wandering around with the mountains in the background. Probably

Would you expect that product to be processed in Montana?

That would be my first impression. But logically, that doesn’t make it any sense. Nice farm. Bucolic clean farm with all of that serenely.

I did drive across country to Nebraska. The whole state was full of cows. I don’t think I’d ever want to eat meat from Nebraska, saw all of the slaughterhouses. It was smelly.

How sensitive to price would you categorize yourself? What would you expect from a Montana meat product that was more expensive than a more generic meat product?

I would choose the Montana one, if all things being the same. It is ideal setting for raising cattle. I’ve never been there, but that’s assumed it would be.

The price difference would deter me. If all things being the same, just the Montana location, then I would go with the generic.
Wrap Up
Thank you for taking the time to talk with me today. Any other thoughts that you'd like to share?

Chicken sausage.

If something comes up, please call me or send me an email at your convenience.

Thanks again.

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References Task 5.1


