

Feasibility of a Beef Processing Plant In Beaverhead County, Montana

Feasibility Study Sponsored by:

Headwaters R, C & D
&
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Section 1 Executive Summary

Beaverhead County is home to one of the largest beef production areas in the U.S. There are several new and existing branded beef marketing companies attempting to sell meat products from their own beef cattle but processing has limited their ability to grow their markets.

According to USDA reports (2005), there were 138,000 cattle and calves and 79,000 beef cows and heifers produced in Beaverhead County in 2005. Twelve local beef producers were interviewed to their interest in a packing plant. All were interested and estimated a need to process 2,880 head of beef cattle in 2007 and 1,640 cull cows. The local sale barn owner was also interviewed and disclosed that 10,000 to 12,000 cull cows per year are marketed locally but, prices are discounted to compensate for the over 1,000 miles of freight to a packing plant destination.

Eight USDA inspected meatpacking plants in Montana were interviewed as to their capacity and fee structure. All eight plants are relatively small. Only one plant is located within 1 hour of Dillon, MT. The average fee for beef processing is \$402.

A business model predicts the first year custom processing fees for a proposed future plant for beef to be \$300.

A plant capable of processing 40 head of beef per day (either steers/heifers or cull cows), which also has the capability of cooking, sausage manufacture, and other further processes, was designed in concept. This plant would be approximately 16,000 square feet and would cost approximately \$230/sq. ft. including refrigeration. The equipment costs would be approximately \$300,000.

With these assumptions, the business model predicted the following financial results:

The business model predicted the company will lose money for the first 12 months, will recover in the second year, and could produce over 1 million in net earnings by the end of the third year. It is important to note all these financial predictions are dependent on the company's ability to successfully market products and services.

This same business model demonstrates that cull cows purchased live from producers and processed meat sold into the marketplace has the greatest income potential per head by the third year in operation. Custom processed beef shows good, steady income every year.

A series of exercises to gauge the general feasibility of this project were conducted but the bottom line most critical question to be answered is, "are there sufficient numbers of interested producers, can they deliver sufficient quantities of livestock, and can sufficient capital be raised from participating producers to

fund all or part of a future processing company”? If the answer is yes, then the project should proceed to designing the plant, designing the business to support it, and developing a plan for raising the equity to build, equip, and run it.

Section 2 Introduction Of The Project

The Beaverhead Development Corporation through its Agriculture Committee has been working since 2001 with local livestock producers to market their own beef. Some success has been achieved in this venture and more producers have been added to the project. A hurdle to this project is processing. It is commonly known that Montana is a net exporter of its livestock. Very little infrastructure exists to process the animals that are produced in the state. Beaverhead and surrounding counties in South West Montana produces a significant number of cattle and has a desire to add value to this commodity industry. Producers and commercial interests are also inspired to create more economic benefit to the region by adding value to the area's valuable resources.

At this point, many of the beef producers have found success marketing directly to consumers and selling through local restaurants and retail stores. Initially, it has been thought a processing plant should be just a custom processing company selling processing services to existing producers and small marketing companies. However, 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. This feasibility study will evaluate cow processing as an opportunity to add value to the rancher's beef herd salvage value. Nevertheless, cow processing and product marketing will require a new marketing effort, which will be explored in this report.

Food and Livestock Planning, Inc. of Kansas City, MO with a reputation and experience for investigating, planning, and managing meat processing resources has been engaged to conduct a feasibility study to test the following hypothesis:

“There can be a successful plan to build and utilize a beef processing plant accommodating market steers, heifers and cull cows in Southwest Montana. This plant would be strongly supported and used by livestock producers in the region, can be adequately financed, and can be managed well in order to grow its business.”

The purpose of the feasibility study will be the gathering of sufficient data and knowledge in order to accept or reject the null hypothesis.

A business plan will follow the feasibility study and will define the business entity owning and managing the plant and means of which to raise capital to build and maintain the plant.

Section 3 Market Analysis

3.1 Selling Custom Processing Services

Custom processing for a fee is an excellent method for managing cash flow in a packing plant. There is no financing of inventory and receivables and much of the accounts receivable is cash on receipt of product. There is also no margin risk with buying live animals and selling meat.

The difficulty with custom processing is the great amount of individual service required to many different customers and across many different products. It is difficult managing a plant with many customers and a small volume of different products from one customer.

As will be discussed in greater detail in Section 4.1.2, twelve producers were interviewed in attempt to understand the size and scale requirements of a potential new plant. Six branded beef programs were represented in these interviews and are included in the following list:

La Cense Beef (www.lacensebeef.com).

Big Sky Natural Beef (www.bigskynaturalbeef.com)

Heritage Natural Beef

Centennial Valley Grass Fed Natural Beef

Centennial Beef

Montana Branded Beef

All of these branded beef efforts are currently new or small and need high quality processing. All claim processing capabilities are limiting their growth. There may be other small, producer-owned meat programs in the region.

3.2 Developing a Marketing Company

3.2.1 Introduction

Southwest Montana and Beaverhead County is home to one of the largest cow/calf areas in the U.S. However, there isn't a major cow packing plant within 1,000 miles of this region. The opportunity to process cull cows in a prospective future plant has opened up the need to investigate a

marketing company to sell the meat from these animals. Also, some individual producers and marketing companies find difficulty in marketing all cuts from the carcass. Therefore, it will be necessary to explore a corporate marketing strategy.

3.2.2 Selling byproducts, offal, and hard-to-sell items

Regardless of the development of a new marketing company, a processing plant has some inherent marketing functions regardless of the existence of a separate marketing company.

i. Hides

In the packing industry, the successful selling fresh high quality beef hides results in approximately 5% of the total revenue from a beef carcass. Unfortunately, small packers do not have the numbers required and adequate buying interest from traders to garner this amount of revenue.

It is important to generate as much revenue as possible from hides. This will require finding several traders to shop prices. It might be required to salt and store hides for approximately one month to build up suitable numbers.

If possible in a small plant, a hoist and pulley system should be rigged to mechanically assist in the removal of the hide. A mechanical hide puller is quite expensive and may not be justified in a small plant, however, an inexpensive pulley and hoist system can be used to pull the hide off the carcass, which will increase the speed of removal and more importantly, increase the value of the hide because of the reduction in knife cuts through the hide.

The plant should have facilities to lay out the hide, apply salt, and store hides on pallets until a truck-load volume can be sold. The plant can sell fresh-green hides the day of or day after slaughter however; the value is approximately \$10 less than a salted hide.

ii. Offal

In the packing industry offal is usually sold to companies specializing in the export of frozen meat items. However, with a small plant, these items are either sent away with rendering or sold in local markets. Of the offal items, tongue generally has the best selling potential locally. Liver, oxtail, and hearts are also sold. Market prices for these items generally depend on

what the customer is willing to pay. Hearts can sometimes be used in further processed variety meats.

iii. Hard-to sell items

It is difficult to sell all items from a carcass profitably. In every carcass, there are items that are undervalued or hard-to-sell. Beef fabrication generates a lot of trim of which is hard to sell at times. The plant could be able to further process a composite of these items and may be able to develop some new further processed items available to be sold to larger-volume markets.

3.2.3 Marketing features and benefits

There exist some unique opportunities and benefits to a small local plant owned (partially or fully) by the producers who supply it. Two important features include:

i. Locally produced, raised by family farmers/ranchers

The American consumer has compassion for farmers and ranchers, especially local ones. The “locally produced” family-farmer/rancher connection is a valuable marketing tool. Most consumers support small and medium-sized beef producers, who add to their rural communities, not detract from them. Appropriately scaled operations lead to better environmental protection, a more diverse agricultural base, safe and fair working conditions, and stronger rural communities.

ii. Further processed meats

The greatest potential revenue generators of undervalued or difficult-to-sell meat items from beef, especially with cull cows, are further processed meats. Further processing could be in the form of grinding into a variety of fresh and frozen products such as ground patties and sausages. It could also include cooking for the selling of precooked roasts.

Small plants usually have a great advantage because they conduct all processing (slaughter, boning and further processing) under the same roof and have great control over quality and age of raw materials. Plus, small processors are usually artisans with a great deal of experience in manufacturing high quality processed items. Many take pride in proprietary recipes, which find great favor with local customers.

3.3 USDA Quality Grading of Beef – An Issue with Small Plants

Quality grading is a measurement to predict the eating quality of beef. Graders use a combination of marbling or intermuscular fat (measured on the ribeye muscle) and animal maturity to segment beef into various grades. The seven USDA quality grades, in descending order of quality, are Prime, Choice, Select, Standard, Commercial, Utility, and Cutter. USDA grading is a fee-based program and is strictly voluntary. But, most of the younger, market beef sold in interstate commerce carries the USDA quality grade stamp.

Nevertheless, small beef plants in remote locations far removed from the major packing industry have extreme difficulties achieving USDA grading. Locating a USDA grader and paying for their time, expenses, and actual grading time in a small, remotely located plant is cost prohibitive. There are situations where the USDA Grading Service has trained a USDA Food Safety Inspection Service (FSIS) employee to conduct grading exercises because they are located in the plant anyway. However, the packing company usually is responsible for the cost of training the FSIS inspector.

In any case, achieving USDA grading of beef is very difficult and expensive. It is common for some small plants do their own in-house grading on the USDA scale and/or hire an independent third party to grade the beef carcasses and sell a house-graded brand. This is commonly accepted amongst local or regional customers buying “locally grown and processed” products but is seldom accepted in larger, national markets.

3.4 Marketing Meat From Cull Cows

3.4.1 Introduction

It is almost impossible to brand fresh lean beef from the slaughter and boning of cull cows and bulls because it sells on the world market as manufacturing meat and is truly a commodity. Very little whole muscle items from cull cows are sold as such. Over 50 percent of the carcass is sold as lean beef and beef trimmings under a variety of differing parameters. Selling fresh lean trimmings for a positive margin as a commodity from a small plant is very difficult because of worldwide competition and high costs of processing in small plants.

Therefore, the only way` to add value to meat from cull cows and bulls from a small plant is to add value sufficient to overcome high processing costs and low meat value.

Table 3.4 Marketable items from cows

Whole muscle meat items	Trim items	Offal items ^a	Misc.	Further proc.
Tenderloin	90% lean	Liver	Hide	Ground beef
Ribeye	S.P.B ^b	Kidney	Hooves	patties
Bnls. Chuck	85% lean	Lungs	Head	Sausage
Chk. Tender	75% lean	Gullet	Bones	hot dogs
Pld. Knuckle	65% lean	Mountain chain	Fetal blood	summer
Inside round	50% lean	tripe		Kielbasa
Flats (round)		Tongue		Salami
Eye (round)		Stomach		Jerky
Striploin		Oxtail		Precooked
Butt tender		Heart		roast beef
Top sirloin				jerky
Shortloin				Breaded
Flank steak				Meat balls
				Meat loaf
				Steaks
				Patties

The above table is a list of products that can be produced from slaughtering and processing cull cows and bulls. Several of the meat items are only produced by certain grades. Low volumes of some offal products and low market values often results in these products dumped into rendering. Further processed products require special manufacturing procedures and equipment.

3.4.2 Trim

The greatest volume of products generated from cull beef animals is boneless beef trim. Greater than 50 percent of the carcass end up in boneless beef trim. The value of this trim is generally low in comparison to whole muscle products. Grinding the trim and manufacturing a variety of ground beef products is a popular way to add value. Some food companies add value through the manufacture of preformed and shaped ground beef patties and breaded products such as meatballs, meat loaf, or Salisbury steak. Another line of products utilizing trim would be sausage items (hot dogs, summer sausage, bratwurst, kielbasa, salami, beef jerky sticks). These products are also often pre-cooked. Lean beef trim chunks, pieces, or ground beef can be used as soup stock.

^a includes both edible and non-edible (condemned) items

^b s.p.b. = small pieces of beef = 100% lean

3.4.3 Whole muscle

Marinated, pumped, and precooked beef roasts and ribeyes are a popular method of adding value to some whole-muscle beef products. Round or chuck muscles can also be used to manufacture beef jerky. Shredding whole muscle products and precooking can produce microwavable shredded beef or beef jerky. Chopping whole muscles and adding smaller pieces of beef, placing them in a form, followed by cooking will produce chopped beef and other roast beef-type items.

3.4.4. Potential wholesale value

Prices or values for further processed beef products are extremely variable depending on volumes, quality, market demand, brand recognition, etc. The following table lists various further processed products and ranges of wholesale prices that have been witnessed:

Table 3.4.4 Wholesale price ranges, expected processing costs, and expected gross margins of further processed beef products.

Further processed product	Reported price range, \$/lb ^a	Expected processing costs, \$/lb ^b	Expected net gross margins, \$/lb ^c
Frozen lean ground beef patties	1.00 – 2.35	0.75 – 0.90	0.25 - 0.62
Jerky (whole muscle strips)	5.00 – 8.00	3.00 – 4.00	2.00 – 4.00
Sausage products (beef only)			
All beef franks	1.50 – 3.00	1.00 – 1.70	0.50 – 1.30
Bratwurst	2.00 - 3.50	1.50 – 2.00	0.50 – 1.50
Summer sausage	2.00 – 5.00	1.50 – 2.00	0.50 – 3.00
Salami (inc. beef hearts)	1.35 – 2.35	1.00 – 1.70	0.26 – 0.28
Marinated, raw roast beef	3.25 – 3.75	0.50 - 0.75	2.75 – 3.00
Precooked roast beef	3.50 – 4.50	0.80 – 1.00	2.70 – 3.50
Precooked, chopped & pressed roast beef	2.50 – 3.50	1.00 – 1.50	1.50 – 2.00
Precooked beef tips	3.00 – 4.00	0.80 – 1.00	2.20 – 3.00
Precooked shredded beef	3.25 – 3.75	1.50 - 2.00	1.75

assumption

- a. The lower end of the range is reported wholesale values of large commodity-type food service orders and the larger end of the range are wholesale prices to retail. The lower

- range would reflect products without much marketing overhead and the higher range would involve considerable marketing overhead costs.
- b. Manufacturing costs include product shrinkage, ingredient costs, direct and indirect labor, plant overhead, and packaging cost. It does not include corporate overhead, freight, marketing and sales cost.
 - c. Net gross margins include manufacturing cost but **do not** include meat raw material cost.
 - d. **Disclaimer:** These reported prices, expenses, and margins are estimates only based on the author's experience and suggests that such an outcome is possible but is not guaranteed.

3.4.5 Potential customers and marketing expense

The above listed further processed products would be sold to the following markets:

- Direct marketed to local customers.
- Local retail stores.
- Local restaurants (especially ground beef items and precooked and marinated raw roast beef).
- Food service distribution companies.
- Retail chains.
- C- stores (especially jerky and snack sticks).

The success of a project is dependent on enough capital to be allocated to marketing activities. The amount of marketing dollars needed in the promotion of new products can vary with the number of products and types of products marketed. Marketing fixed costs are made up of costs of promotion, training, advertising, sales/support, and website development. Variable marketing costs include sales incentives, slotting or shelf fees, packaging/labeling and brokerage fees. Marketing costs, as a percent of sales, are high in the first year as a result of the quantity of marketing materials purchased up-front and averaged across a start-up year. Some start-up companies use brokers early in their business life in order to gain entrance into much of the marketplace because new players often do not have credibility with food companies.

Labels and promotional brochures will cost several thousand dollars up-front and need to be purchased before revenue is generated. Even for a very small company this cost will range between \$10,000 and \$20,000.

If a marketing company is developed as a part of a new plant or as an adjunct company, the marketing expenses for the first year are estimated at \$40,000. These expenses are predicted to decline slightly in successive years.

Section 4 Animal Production and Supply

4.1 Report on Expected Numbers of Beef Available To Be Processed

4.1.1 County, regional and statewide numbers

Table 4.1.1 Livestock inventory (NASS – 2005)

	All cattle and calves	Rank of counties in MT	Beef cows & heifers	Rank of counties in MT
Beaverhead County	138,000	1	79,000	1
SW Region, MT	296,000		166,000	
State of MT	2,350,000		1,432,000	
Slaughtered in state of MT	20,700		N/A	
Slaughtered as % of inventory	0.9		N/A	

Beaverhead County is the state of Montana’s leading county in producing total cattle and cows. The above table demonstrates the large number of cattle produced in the state of Montana but only approximately 1% are actually slaughtered and processed into meat in the state.

According to the Montana Stockgrowers Association, most of the cattle feeding in the state is along the Yellowstone River Valley in a region between Billings and Sidney, MT where there is irrigated cropland.

4.1.2 Antidotal numbers from interested producers

Telephone calls were made to twelve rancher producers in the Dillon, MT area. Eight of these producers market their own branded beef products. Most of these producers use Ranchland Packing in Butte, MT as their custom packer. Four producers do not have a branded beef program but are very interested in a regional packinghouse processing cull cows. Most of the producers with branded beef programs were also interested in a packinghouse that would process cull cows. The Beaverhead Livestock Auction was also interviewed in which John Erb claimed between 10,000 and 12,000 cull cows are marketed annually.

Interviewees claimed expected beef numbers used in a future plant in 2007 or 2008 would be:

2,880 steers/heifers and 1,640 cull cows.

4.2 Seasonality

Obviously, when a supplier has captured the business of a customer, the customer expects to receive what they have ordered every time they order. This can be a problem when there is great seasonality of supply. The largest supply availability for mostly spring born beef and buffalo is late summer to the first quarter of the year. There is usually a lapse in supply in the late winter, spring and early summer for both species.

Most cows are culled in the fall to early winter after pregnancy testing and are sold as open cows so that they do not have to be fed through the winter. This usually causes a market glut and reduced prices during this time frame. The peak slaughter cow prices occur in the late winter and early spring when there are fewer cull cows marketed.

The seasonality of beef and buffalo is somewhat overcome with the plant's ability to further process fresh or frozen raw materials to use when plant production is slack. To the customer, 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. For cull cows, feeding open cows to achieve better yields also benefits with better prices by marketing during higher demand months.

4.3 Compensation Strategies For Producers

Livestock can be purchased in any of a number of ways. These include:

- Live purchase (live weight or carcass weight basis) based on a reported local, regional or national market report for a specified day or week.
- Formulated price based on individual carcass merit.

Premium and discounts are applied after a base carcass price is determined. With cattle, premiums are awarded to Quality grades and Yield grades within a desired target.

Discounts are applied to heavy or light carcasses. With cattle, discounts are applied to high numerical yield grades (>4) and low quality grades (<Select).

- Formulated price based on reported boxed meat sales

This method of payment is a little more complicated and requires use of a computer model but other companies have used it.

Section 5 Processing

5.1 USDA Inspected Packing Plants in Montana

As stated in Section 4.1, there are a small number of animals processed in the state of Montana as a percentage of those actually produced in the state. Table 5.2 represents a list of USDA inspected packing plants located in Montana, their distance from Dillon, MT and some particulars about their capacity and fees.

There is one USDA inspected plant located within 70 miles of Dillon, MT. The remainder are located over three hours away. This plant could be used to custom process for developing test products for a newly formed marketing company until such time as a new plant is operational.

Table 5.2 USDA inspected packing plants in Montana

Plant name Plant location Plant no.	Miles from Dillon, MT	Capacity		Vacuum packaging	Cooking Smoking	Beef Proc. fees
		daily kill	daily small stock kill			
Ranchland Packing Butte, MT 406-782-6371	64	35	70	Yes	No	\$20 + \$0.50/lb
Mickey's Packing Plant Great Falls, MT 406-727-7900 Comments: Organic Certified	219	20	35 (can only bone 5 beef/d)	Yes	No	\$40 + \$0.50/lb
Whites Wholesale Meats Ronan, MT 406-676-0082 Comments: Processes for Montana Natural	228	30	0	Yes	No	\$35 + \$0.35
Stillwater Packing Columbus, MT 406-322-5824	249	8	20	Yes	No	\$40 + \$0.45/lb +
Marias Packing Shelby, MT 406-434-2011 Comments: Certified Organic	300	35	89 (can only bone 4 beef /d)	Yes	Yes	\$30 + \$0.70

Stratton's Butcher Block Roundup, MT 406-323-1810 Comments: Processes hogs for Huterite colonies	341	10	25	Yes	Yes	\$40 + \$0.50/lb
Little Rockies Malta, MT 406-654-5538 Comment: Owned by Ft. Belknap Tribe	421	10	30	Yes	Yes	\$50 + \$0.45/lb
Quality Meats of Montana Miles City, MT 406-232-0689 Comment: Custom processing capacity - limited	434					

Summary

- Range in distance from Dillon, MT = 64 – 434 miles
- Processing costs - beef (assume 750 lb beef carcass)
Range = \$298 - \$525; Avg. = \$402
- Most plants have vacuum packaging and two-thirds have smokers.

5.2 Building New Plant

5.2.1 *Conceptual size, scope, and cost*

Without an established market, determination of the size of a facility is difficult. Based on livestock numbers available and a prediction of what the local and regional market can accommodate, a conceptual estimate includes the following:

- Capacity = capable of processing 40 head of beef (combination of steers/heifers and cull cows) per day.
- Over-all plant size = 16,000 square feet.
- Location = to be decided but in the Dillon, MT area.
- Projected plant cost = \$230/sq. ft. (includes refrigeration and utility hook-ups).
- Equipment needs = \$300,000.

Note: The size and cost of this proposed packing plant is conceptual at this point and engineering plans and drawings will be required for confirmation.

5.2.2 *Siting requirements*

The following section details the typical site location criteria, which should be taken into account with any new plant site selection.

- The site should be located within reasonable access to the type of livestock to be processed. While access to a site that welcomes this type of industry is probably of more importance, it should not be forgotten that meat is cheaper to transport in cartons rather than on the hoof, by a factor of approximately 2:1.
- The proposed site must be easily accessible to trucks bringing in live animals and loading out finished product.
- Heavy consideration should be given to communities with a prevalent attitude of acceptance and support for agricultural industries.
- The location of the site relative to its proximity to major shipping lanes is critical. Getting outbound trucks to a facility located off the beaten path is difficult and expensive. Backhauls significantly reduce freight costs and location close to major shipping lanes.

- The final market place is a factor and should be weighed against the location of the raw material.
- A major criteria in site selection is finding land suitably zoned for operation of a food processing plant. There should be minimal impact on the local community visually, ecologically and environmentally. An all-around buffer zone is desirable including landscaping.
- Soil types subject to large expansion and contraction or water logging should be avoided. The site should lend itself to construction of sound and separate drainage systems for process wastewater, storm water and sanitary waste. A suitably qualified engineer should be engaged to prepare a report on the proposed land's suitability as a food-processing site.
- The availability of land area sufficient for the envisaged operation with space for future expansion is another issue worthy of consideration. Some meat plants have adjacent land for livestock grazing and holding prior to slaughter to ensure continuity of supply.
- There must be availability of a clean, fresh water supply, which is potable or can be made potable easily (a requirement of USDA licensed premises).
- The effluent system will be a huge issue. Whether the plant effluent utilizes the local authority systems or the plant carries out some primary treatment on site, gaining acceptance of the relevant local authorities will consume much time.
- In some cases, local authorities have put incentives in place to attract businesses to their area. The availability of incentives, rebates and/or support needs to be actively canvassed.
- The availability of suitably skilled labor for processing, maintenance support and management of the plant is critical. The arrival of a meat processing plant in a community, which alters the social balance, may not necessarily be welcomed. This issue requires careful management.
- Consideration must be given to the available supply of energy (electricity, gas, or oil) and if it is currently already at the boundary of the site.
- The prevailing wind direction and the absence of wind born emissions of gas/condensate/smoke/dust from existing industries on the boundary can place the new plant at risk. Equally the plant must control emissions both within the site (nonfood to food) and to the boundary, which may be urban.

- The suitability of the land for the proposed operation should include consideration of the water table and natural drainage. The water table activity could have an immediate bearing on the decision for subterranean floors.
- Modern meat processing plants must have systems in place for the disposal of used packaging material and any other waste produced, other than effluent.
- Road transport connection to the site for both livestock received and dispatch of finished products should be paved or sealed to minimize dust and to enhance appearance.
- An all round buffer zone of 0.3 miles (500 meters) minimum from residential, light industry or commercial premises is desirable.
- A minimum downwind buffer distance of 0.6 miles (1,000 meters) from the nearest residence is desirable.
- Areas where there are noxious industries or processes, which are likely to lead to the contamination of the meat product, must be avoided.

Site Criteria Ranking

Most important criteria:

- Proximity to major transportation routes
- Plant distance from raw materials
- Utility availability and adequacy
- Community acceptance
- Labor force availability
- Land site suitability

Important criteria but not critical:

- Local incentives
- Taxes
- Fire & police protection
- Child care opportunities

5.3 Byproducts/Waste Products

5.3.1 Hides

Hides are typically the most valuable byproduct of ruminant animals and should be properly handled to prevent deterioration. Unbranded beef hides have the greatest hide value. Currently, fresh green beef hides delivered to a hide company are worth \$55 - \$60 per hide. However, small plants selling salted hides are only receiving \$25 - \$30 per hide. Buffalo hides are being sold from \$8 - \$15 per hide. Currently, lamb pelts and hog skins have limited value and are not being sold from small packing plants in Montana.

The small plants in Montana will be too small to ship fresh "green" hides daily to a hide company; therefore, the plant will have to manage hides to prevent their deterioration. If enough hides can be collected to ship once a week to a hide company, salting the hides or chilling the hides in a 40° F water bath is a good strategy. A 20-ton chiller costs approximately \$12,000.

Salt curing is the most effective method of preventing deterioration and increasing the flexibility of marketing hides to a variety of customers. Two methods of salt curing are possible: manual dry application and wet application through a brine raceway. The wet application is less labor intensive and more effective but does require proper equipment. Some companies now manufacture miniature raceways.

5.3.2 *Offal*

Edible offal has important value to the total carcass. Typically, these products are cleaned, frozen, and packaged for specific customers. The primary offal items saved by small processors for resale purposes are the tongue, liver, heart, and oxtail. For a small plant, the wholesale value of many of these items are too low for the expense of cleaning and packaging them; so, they are dumped into the rendering product bin.

5.3.3 *Bones/ Fat/ Tissue*

A considerable volume of bones from the de-boning of meat, heads, hooves, legs, trim fat, and some low value offal items are generated from processing animals and are a liability to the plant. Earlier in history this material generated revenue for the meat processing plant. Today, with the low cost of rendering value, freight costs for hauling fresh waste products from the packing plant to the rendering plant can easily eat up margins. Some small packing plants located a considerable distance from the rendering plant have experienced the transition from receiving a revenue for products to being sent an invoice from the rendering company for disposing of waste material. Obviously, this scenario is dependent on the volume produced from the packing plant and distance to the rendering plant.

5.3.4 Blood

Fresh blood from the slaughter floor has had value to companies manufacturing products from blood such as albumen or blood meal for animal feed. The blood companies would typically install tanks and pumps in the packing plants and would routinely haul fresh blood from the packing plant to their own manufacturing plants. Nevertheless, as with the rendering industry, the blood industry has experienced low values for their commodities due to high volumes of supply, high-energy costs, and competition from other protein products. Small plants have found local ways of handling waste blood such as land application as fertilizer. Stricter environmental constraints limit this practice. Many small plants are allowed by their municipalities to allow the blood into the main sewer system.

5.3.5 Paunch

Paunch is the material left in the rumen of cattle, bison and sheep when the animal is slaughtered. The rendering company can also pick up paunch. But, like blood, paunch will dilute the value of the rendering material. The best method of handling paunch is to collect it daily in a truck and haul it to a local farmer for stockpiling. Paunch has good feed value as it was recently fed to animals. It can be fed back to ruminant animals provided it is a small percentage of the diet. Paunch also can be spread on fields for fertilizer.

A relationship should be developed with a local farmer(s) to store paunch from the packing plant. It would be fair and desirable that the paunch would be given to the farmer(s) at a net 0 value.

5.3.6 Rendering companies

A rendering plant cooks bones/fat/tissue from slaughter plants, separates the fat from the protein material, and dries the protein and mineral products. The resultant products are sold as different qualities of liquid fat or different protein to bone ratios of dried meat and bone meal. These products are primarily sold to the poultry, livestock, or pet food industries. As a result of the 1997 USDA ban on the feeding of ruminant derived meat and bone meal, for the ultimate protection of Bovine Spongiform Encephalopathy (BSE), the value for meat and bone meal has dropped considerably. Animal fat prices have been low for several years primarily as a result of high supplies and the relatively low cost of competitive energy sources (i.e. corn).

The only rendering company servicing small plants in Montana is Baker Commodities, who has a collection station in Missoula and a plant in Spokane, WA. This company has established a collection route to small

plants and will charge a pick-up fee. This company also purchases salted hides.

5.3.7 Composting

There has been some research including recent work at Cornell University on composting rendering material. Rendering material with additional organic material is packed into a confined space and allowed to ferment into a new form of organic matter. Several plants in New York state use this strategy. There is a cost of labor, additional organic matter, and space but is usually less than the costs rendering companies charge for picking up rendering. Usually heads are not composted due to the extent of time necessary to break them down. The Cornell Waste Management Institute, 2003, provided the following information:

- Select a site that is well drained, at least 200 feet from watercourses, sinkholes, seasonal seeps or other landscape features that indicates the area is hydrologically sensitive.
- Lay a 24-inch deep bed of coarse wood chips 1 to 12 feet wide and as long a space permits to allow for 1 to 2 months of butcher residual.
- Spread a 12 to 15 inch layer of residuals then cover with a 12 to 18 inch layer of wood chips and add another layer of butcher residuals and cover with 2 feet of wood chips. The finished section should be 5 to 6 feet high.
- When incorporating large amounts of blood, make sure there is plenty of material to absorb the liquid.
- Let sit for 4 to 6 months, then check to see if the offal is degraded.
- Remove large bones before land applying compost or use as part of the base for the next compost pile.

The total cost for the composting materials, equipment, fuel, and labor is estimated to be \$44.35 per ton (Natural Rendering 2002). On a comparative basis a large carcass will generate between 1.5 and 2 barrels of rendering materials, which will cost \$20 to \$25 / barrel to be disposed of by a rendering company.

5.4 Effluent and Water Use Considerations

5.4.1 Water use

Beef will require approximately 450 – 550 gallons of water per head per day. Therefore, this is also the approximate volume of wastewater produced. The water should be potable, good quality (low nitrates and sulfates), and have high volume per gallon.

5.4.2 Wastewater

The most sensitive and critical part of planning a new slaughter plant or expanding an existing plant is the effluent or wastewater system. All process wastewater from the slaughter floor should pass through a screen to catch and separate solids. Screened effluent pumps and pipe system will convey screened process wastewater to the proposed effluent treatment system.

A five-day Biological Oxygen Demand (BOD) value is used to measure the level of treatment needed to discharge wastewater safely. The BOD for all food-processing wastewater is relatively high compared to other industries. A high BOD level indicates that a wastewater contains elevated amounts of dissolved and suspended solids, minerals and organic nutrients containing nitrogen and phosphorus. The following table contains expected wastewater composition from a livestock packing plant.

Table 5.4.2 Composition of wastewater from a packing plant * **

	Raw Effluent	After Screening
Biological Oxygen Demand (BOD)	4,440	2,420
Chemical Oxygen Demand (COD)	6,478	3,563
Suspended Solids (SS)	4,033	1,008
Total Nitrogen	330	182
Total Phosphorus	61	34
Oil & Grease	1,711	428

* Source – Proand International Ltd.

** Effluent does not include blood from the sticking process

Two options are available in dealing with the effluent from the plant: a) discharge to a municipality waste water system and pay fees for wastewater, biological oxygen demand (BOD) and total suspended solids (TSS); or b) treat the wastewater at the plant site.

i. Municipality wastewater

Various municipalities have differing rates for BOD and TSS and may or may not have adequate treatment capacity to handle the effluent from a packing plant. Typical charges for BOD is approximately \$0.30 / lb and TSS is approximately \$0.20 / lb. There is concern of being totally at the mercy of the municipality for wastewater treatment services.

ii. Lagoon system

It is too expensive to build a total system wastewater treatment facility for a small plant. However, utilizing a lagoon system is a non-intensive, lower cost approach for handling wastewater. The lagoon water can be used for irrigation to local farmers.

5.5 Accommodating Dry Aging

Several of the producers and marketing companies interviewed (Section 4.3.2) indicated they desire their beef be dry aged. Dry aging is the traditional process of placing either an entire carcass or subprimal (without covering or packaging) in a refrigerated room for approximately 21 days at 80 – 85% relative humidity and with an air velocity of 0.5 – 2.5 m/sec.

Traditionally, the entire carcass is dry aged by hanging in the carcass coolers for an extended period. Dry aging the entire carcass is extremely costly and causes a great deal of complication if using the same carcass coolers as non-aged beef because optimum environmental conditions are not the same for aged and non-aged beef. Also, it doesn't make much sense to age bone and those cuts intended to be ground anyway. Boning of dry-aged beef is much more difficult than non-aged beef because the muscles are much dryer and are more resistant to knife cutting.

Therefore, a more desirable method of dry aging is boning the carcass first and placing the desired cuts for dry aging on racks placed in optimum environmental conditions for dry aging. Several companies will set racks in carcass coolers with fans blowing on them. This plant must be designed with enough cooler space to accommodate dry aging racking.

Section 6 Distribution System Analysis

6.1 Distribution Methods

Delivery of meat products from the warehouse of the processing plant or its cooperating marketing company to the dock of the customer is typically done: a) 'in-house' by the meat company with their own trucks (owned or leased); or, b) 'out-sourced' by a distribution company.

6.1.1. In-house distribution

Usually, with a small company focused on servicing local customers, the plant will use one or two refrigerated delivery trucks. In-house distribution requires attention to be placed on the following overhead criteria:

- a). Truck or trucks equipped with refrigeration units
- b). Labor (truck drivers)
- c). Insurance
- d). Truck maintenance
- e). Fuel costs

In-house delivery should be considered a separate profit or cost center and all costs should be captured through delivery costs to the customer.

6.1.2 Out-sourced distribution

There are two methods to outsourced distribution:

- a). Companies that will pick up meat products and deliver them to a company's customers for a fee per pound or a fee per drop.
- b). Companies that will purchase the meat products and then resell them to the customer.

This packing business will probably use a combination of the methods described above. It is anticipated several small trucking companies are available for pick up and drops to several cities for a pick-up and drop charge.

6.2. Warehouse and Distribution Requirements

With the advent of better vacuum packaging and better hygiene practices during processing, one would expect the shelf life and distribution life of fresh meat to be much better than even a few years ago. Shelf life is defined as the length of time before spoilage bacteria deteriorates the product beyond use. Distribution

life is the length of time that is reasonable to distribute the product from packaging to display so that the consumer has adequate time under normal refrigeration temperatures to store the product at home without spoilage concerns. An average number of days that a retailer displays product is 2 to 3 days. The length of time between distribution life and shelf life differs among the species with beef being the longest and poultry being the shortest. A processor who manufactures and labels the meat product often prints a “sell by” date that is reflective of that product’s distribution life.

The four factors that have the biggest impact on fresh meat shelf life are, temperature, oxygen, meat pH and beginning bacteria load. Storage temperatures for the carcass, boxed meat storage and transport temperatures should always be between 28° and 32° F. The retail display temperature should be 33° to 34° F. Under 28° F, meat starts to freeze and over 34° F weepage begins to effect net weight and eye appeal plus bacteria rapidly multiples.

Boneless beef has a normal shelf life of 62 days under a vacuum package. If the product contains a bone, the shelf life is reduced 7 to 10 days. The distribution life of boneless beef and bone-in beef should be around 21 days and 14 days, respectively. Fresh ground beef has a shelf life of only 14 to 16 days from the date of pack and should be distributed to the retailer within 7 or 8 days of packaging.

6.3 Expected Distribution and Warehousing Costs

It is expected there will be adequate refrigerated and frozen boxed storage located at the packing plant and additional storage costs may not be necessary. Typically, outside storage will cost approximately \$0.05 / lb.

Delivery charges using a refrigerated common carrier from the plant to a customer depends entirely on volume. If shipping less than truckload quantities (LTL) the rates are based on a pallet fee and handling fee for picking up and dropping off. These costs vary according to full or partial loads and the distance hauled. A fee of \$75 - \$100 / pallet is quite common. A pallet will hold up to 2,000 pounds, which will equal \$0.04 - \$0.05 / lb. If there are no LTL carriers available and the customer is not able to pick up at the plant, the plant must invest in a refrigerated delivery truck. This business must be managed such that the cost is adequately added to the cost of product sold. Used refrigerated delivery truck can often be located and purchased.

Section 7 Organizational Structure

7.1 Organizational Structure Options

There are several options to legally structure the plant and operating business. The most likely options are a standard C Corporation, Closed Cooperative or Limited Liability Company (LLC). A typical C Corporation is a simple structure which can accommodate many owners but has complications when solicitation for the selling of stock to many investors and requires securities registration. The later two are the most logical because of elimination of double taxation.

7.1.1 Closed Cooperative

This would be a traditional marketing cooperative, with a closed membership structure. This legal structure works best if the predominant suppliers of animals to the packing facility are willing investors. This business structure offers numerous advantages as summarized below:

- a. The cooperative model affords strong legal protection from anti-trust claims. Anti-trust issues always exist in the context of exclusive marketing agreements. The Capper-Volstead Act allows producers to organize and to collectively market products without being in violation of otherwise applicable anti-trust laws.
- b. Securities offered by agricultural cooperatives generally are exempt from registration under state law. Under federal law, a limited offering exemption may be available regardless of whether the entity is organized as a cooperative. However, we could obtain a separate more flexible exemption from federal registration requirements in the event that we obtain Section 521 tax-exempt status (which would certainly be available to the cooperative, although such status comes with some restrictions).
- c. The cooperative governance structure is simple - one member/one vote. Other aspects of cooperative governance are fairly standard and not as complicated as an LLC structure.
- d. The cooperative model allows for a straightforward production and delivery structure. Here, it would allow for the beef and pork production of the members to be a central focus of the business plan - since the cooperative legal and business structure is designed to implement a patronage form of business between the members and the cooperative.
- e. Marketing Advantages. The producer-owned cooperative model allows for a simple marketing message - producer owned and controlled, with all of the advantages of quality, source verification, and process verification.

The disadvantages to the cooperative system are difficult accommodation of non-member business and the treatment of patronage. Obviously, this plant will be conducting custom processing services for non-members, who are eligible for patronage, just as members.

7.1.2 Limited Liability Company (LLC)

A LLC has the single taxation advantages and can accommodate both investor and non-investor businesses better than closed cooperatives. The primary advantage of a LLC over a cooperative is flexibility – typically in the fact that returns are made on the basis of investment/ownership and not on the basis of patronage.

The disadvantages include: Partnership taxation can actually be more complicated for the individual owners - requiring filing state income tax returns in all states where income is earned. Moreover, you have no control over the allocation and flow-through of taxable income to the members, unlike in a cooperative. Moreover, it is more difficult to offer securities in the LLC model as compared to a cooperative. If there are a large number of potential investors outside of Montana for the project, the LLC structure may be difficult.

7.2 Producer Contracts

It is extremely difficult to run a business without some prediction or control over the supply of raw materials being delivered to the business. In a closed cooperative both the livestock producer and the cooperative enter into a Uniform Marketing Agreement. This agreement represents both a right and obligation for the livestock producer to deliver a known quantity of animals to a plant specified by the cooperative every year. In a closed cooperative the number of delivery units are tied to the investment units. Some Uniform Marketing Agreements may cover approximate delivery dates. The Uniform Marketing Agreement is one of the most valuable segments of the cooperative because this commitment saves time and resources for the company. It usually provides a level of control over consistency and quality of raw materials.

A marketing agreement between the suppliers of livestock and the plant are not required in a LLC and a C Corporation but can be accommodated. However, they are not tied to investment units.

7.3 Capital Required To Be Raised

To capitalize the business, money will have to be raised within the legal structure developed. Again this is only conceptual at this point but is estimated to be:

Start-Up Capital		
		(\$)
<i>Pre-Construction</i>		
	Legal	\$20,000
	Accounting	\$7,500
	Technical*	\$100,000
	<i>Totals:</i>	\$127,500
<i>Construction / Pre-Operations</i>		
	Market Development	\$25,000
	Const. Loan Interest	\$36,000
	Start-Up G&A	\$50,000
	Insurance, Bonds, Misc.	\$30,000
	Totals	\$268,500
	Start-up Capital as % of PP&E	6.1%

* Technical includes consulting, permitting, preliminary architecture and design, site options, geotechnical analysis, and miscellaneous

Project PP&E Requirements		
		(\$)
	Plant & Property	\$3,700,000
	Equipment	\$300,000
	Earthen wastewater lagoon	\$400,000
	Total PP&E	\$4,400,000
Capital Requirements		
	Preoperational Capital	\$268,500
	Total capital needs	\$4,668,500
	Percentage financed	50%
	Amount financed by term loan	\$2,334,250
Inventory & Receivables		
	Total capital required	\$1,000,000
	Bank line of credit	\$750,000
	Minimum cash required	\$250,000
	Total capital to be raised	\$2,584,250

Section 8 Financial Feasibility

8.1 Development of Business Enterprise Model and Outcomes

A business enterprise model was developed for this feasibility study, which is able to simulate business outcomes across differing inputs. As in the case with any model, the financial predictions are only as good as the assumptions used.

8.2 Revenue Expectations

8.2.1 Custom processing revenue

To determine custom processing revenue, the model had to appropriate processing fixed and variable expenses into expected processing times by animal group. After fixed and variable expenses by animal group are known, a margin to cover interest, taxes, depreciation and amortization was applied. The following table depicts these numbers:

Table 8.2.1 Determination of custom processing charges – processing fixed and variable expenses adjusted by a margin to cover interest, taxes, depreciation, and amortization.

	Yr 1 (\$/hd)	Yr 2 (\$/hd)	Yr 3 (\$/hd)
Beef Processing	\$261	\$131	\$108
+ ITDA margin			
Beef (30%)	\$340	\$171	\$140

The high first year numbers are due to fewer animals processed and inefficiencies in the first year. It is important to note that even the first year numbers are competitive with other Montana plants listed in Table 5.2.

8.2.2 Revenue from processed cows

It is very difficult to predict future earnings. From a feasibility study standpoint, using recent historical figures for pricing of live animals and the pricing of meat is the most practical approach. In this business model, USDA reported market prices for individual cuts of beef for the years 2000 to 2005 were used. For further processed meat items, the author used known wholesale prices of similar products.

To balance against market prices, USDA reported live cow prices from the Billings, MT sale barn for the same time frame ('00-'05) were used.

Table 8.2.2 Cull cow cut-out

Live wt.,	1,400	Carcass weight			672
		Purchase price, \$/cwt carcass			43.42
		Purchase price, \$/head			607.88
		Slaughter/fab costs, \$/hd			300
Subprimals sold fresh		Yield (% cold wt)	Wt. (lb)	Price (\$/lb)	Value (\$)
Striploin, bnls		1.59	10.68	1.77	18.91
Full sirloin		4.47	30.04	1.34	40.25
Tenderloin 190		1.48	9.95	3.65	36.30
Round - knuckle		3.84	25.80	1.44	37.16
Flank steak		0.62	4.17	1.91	7.96
Inside skirt		0.95	6.38	1.60	10.21
Chuck tender		1.12	7.53	1.47	11.06
Total fresh		14.07	94.55		161.86
Subprimals for processing					
Ribeye roll		2.93	19.69	0	0.00
Btm round - flat		2.75	18.48	0	0.00
Inside rnd - jerky		1.77	11.89	0	0.00
Inside rnd. Grind		1.77	11.89		
Btm round - eye		0.99	6.65	0	0.00
Flap meat		1.02	6.85	0	0.00
SPB		0.77	5.17	0	0.00
Trim 90%		30.36	204.02	0	0.00
Trim 85%		8.66	58.20	0	0.00
Trim 75%		6.51	43.75	0	0.00
Trim 65%		2.38	15.99	0	0.00
Trim 50%		0	0.00	0	0.00
Total		59.91	336.54		0.00
Other items					
Bones		18.26	7.93	0	0.00
Fat		7.6	3.30	0	0.00
Fetal blood & skins					3.00
Hides		0	0.00	0	27.00
Offal					
Cheek meat			4.00	0.91	3.64
oxtails			1.50	1.66	2.49
tongues			3.00	1.00	3.00
Total other		25.86	19.73		39.13
Overall total cutout-fresh fresh					200.99

Primal	Processed item	Proc. batch yield, %	Proc. Wt., lb	Wholesale Price (\$/lb)	Added ingred. cost, \$/lb	Mfg Cost, \$/lb	Packag. Cost, \$/lb	Net value, \$
Ribeye roll	Cooked ribeye	90%	17.72	4.75	0.00	0.00	0	84.17
B.Rnd-flat	Cooked roast	88%	16.26	3.50	0.00	0.00	0	56.92
Ins. Rd.	Jerky	50%	5.95	8.00	0.00	0.00	0	47.58
	Total cooked whole muscle		17.72					188.67
	Sausage	100%	84.13	2.50				210.34
	Total ground beef	96%	242.31	1.65	0.00	0.00	0	399.81
Total			366.37	798.81				798.81

	\$
Total cut-out value - fresh	200.99
Total cut-out value - further proc.	798.81
Total value	999.80
Net margins (with further processing)	91.92

8.3 Projected Income Statement

8.3.1 Additional assumptions

- Assumes employment of a plant manager, further processing manager and sales manager.
- Assumes 18, 24, and 30 direct plant workers used in Year 1, Year 2 and Year 3, respectively.
- Assumes truck and delivery expenses to be a separate cost and profit center and costs will be offset by delivery charges.

Table 8.3.1 Projected income statement for first three years in operation

item	Year 1		Year 2		Year 3	
	Annual #s	\$	Annual #s	\$	Annual #s	\$
Revenue						
Market Cows	1,000	999,802	2,610	2,609,482	3,840	3,839,238
Custom beef	1,000	339,898	2,610	887,134	3,840	1,305,208
TOTAL		1,339,700		3,496,616		5,144,447
Cost of goods sold						
Animal purchase						
Cows		607,880		1,586,567		2,334,259
TOTAL purchase cost		607,880		1,586,567		2,334,259
Freight, distribution and storage						
Distribution and storage						
TOTAL COGS		607,880		1,586,567		2,334,259
Gross Margin		731,820		1,910,049		2,810,187
Expenses						
Plant direct labor		224,640		299,520		374,400
Plant variable costs		60,100		156,861		230,784
Fixed & G&A		294,000		294,000		294,000
Sales & Marketing		123,250		154,853		180,760
Total Operating Expenses		701,990		905,234		1,079,944
EBITDA		\$29,830		\$1,004,816		\$1,730,243
Operating loan interest		-156,000		-180,999		-167,815
Depreciation		\$456,726		\$672,983		\$672,954
Net earnings		(\$582,896)		\$150,833		\$889,475

Table 8.3.2 Net margin (adjusted for processing costs) by beef category

	Year 1 (\$/hd)	Year 2 (\$/hd)	Year 3 (\$/hd)
Market Cows	130	261	284
Custom Beef	78	209	232

8.4 Financial Summary

According to information presented in Tables 8.3.1 & 8.3.2, the company will lose money for the first 12 months, will recover in the second year, and could produce over 1 million in net earnings by the end of the third year. It is important to note all these financial predictions are dependent on the company's ability to successfully market products and services.

Information presented in Table 8.3.2, demonstrate that beef purchased live from producers and processed meat sold into the marketplace has the greatest income potential per head by the third year in operation. Custom processed beef shows good, steady income every year.

Section 9 Testing Feasibility

9.1 Review of Questions and Answers

The following list of questions and their subjective answers stemming from data in this feasibility study can be used as a guide to determine the practical feasibility of this project. The answers to the questions will be either “yes”, “no”, “not yet determined” (ND), or “possibly”.

Questions	Answers
Are there adequate numbers of beef available in the region and interested producers to support a livestock processing plant?	Yes
Is there a definite need for livestock processing not being filled by an existing processor in the region?	Yes
Is the area designated for the plant able to accommodate the wastewater and utility requirements of a packing plant?	Possibly
Can a small plant be built and managed to where the costs of processing compete with other USDA inspected plants in Montana and surrounding states?	Yes
Are there adequate investor dollars to build and equip a small plant?	ND
Are the livestock producers themselves capable of financially supporting the construction of a small plant and its overhead costs?	ND
Are there willing livestock producers and support individuals and agencies in the area to get involved in the project and lead its promotion and equity drive?	Yes
Is there a plausible alternative to servicing processing need without building, equipping and managing a new facility?	ND
Are there communities within SW Montana who would welcome and provide some financial incentives of support for a new small plant?	Possibly
Are there grant dollars available to defray the cost of the equity drive, business plan, some of the working capital needs, and utility installation of a plant.	Possibly
The labor needs for a new plant are not great but are there readily available, trained meat processors available locally?	No
Are there services available to help find suitable people and train them for employment in a meat processing plant?	Possibly
Are there local builders/contractors available to build the plant according to engineering specifications? Are there individuals who can supervise this process?	ND ND
Are there local and regional markets available and ready to purchase products from a new plant?	Yes
Are there lenders available locally who would be interested in lending money for P, P, and E? Working capital?	ND ND

There are more affirming answers to the above questions than non-affirming but there remain several questions without suitable information to answer. Obviously, there must be an effort to find answers to these questions.

9.2 Barriers

- Start-up costs to control processing may be too prohibitive.
- Regulatory and environmental issues plus local resistance may prevent adding to processing capacity in the region.
- Distance from rendering company and the high cost of rendering disposal.
- Cost or difficulty in treatment of wastewater.
- Possible high processing costs and low or no offal and byproduct revenue from small processors.
- Poor workmanship of meat products, inconsistent products and poor packaging will limit sales.
- Difficulty in finding and training adequate plant processing labor.
- Difficulty may be found in customers trying products from new suppliers.
- New products require tremendous attention to consistency and quality.
- Producer discipline of maintaining and delivering high and consistent animal quality.
- Lack of product and customer monitoring, continual follow-up and customer service especially early in a program's life.
- Lack of cooperation amongst producers.
- Customer resistance to the price of locally raised meat products compared to low-cost conventional meat products, which are readily available.
- Difficulty in raising capital for the project.

9.3 Core Competencies

To ensure the success of a start-up venture a set of core-competencies must be achieved. The following is a list of examples developed for a producer organization to process and market meat products:

- Adequate numbers of livestock can be enrolled in an agreement with the plant to assure a high percentage of daily processing capacity.
- Skilled management, leadership and business sense of individuals managing the plant can be maintained.
- Individual producers can sustain their personal operations in order to deliver livestock to the plant.
- The skillfully and aggressive marketing of all products manufactured in the plant plus hides, byproducts, and offal by company personnel.
- Tremendous organization, communication and cooperation developed between custom processing customers of the plant and the plant's management.
- Skillful workmanship and production to customer's specifications of all products manufactured and sold from the plant.
- Skillful combinations of supply chain management and plant operations.
- Producers' conscience about the delivered animal's health, overall condition, cleanliness and quality.
- A board of directors governing the business whom are dedicated, loyal, and have a good business sense.

9.4 Decision Tree

The following decision tree could be used to assist in the sequence and content of making decisions by a steering committee or board of directors:

- a) Are there sufficient numbers of interested producers, can they deliver sufficient quantities of livestock, and can sufficient capital be raised from participating producers to fund all or part of a future processing company?

If no, the committee could:

- i. Wait until these objectives have been met.

If yes, begin due diligence on:

- i. Look into all available plants to lease or purchase.
- ii. Designing a small plant prototype Greenfield operation to accommodate current needs and future growth.

- b) Decide the extent of marketing responsibility the business will have.
- c) Begin the business-planning phase.
Business planning will fine-tune all developmental costs, design the business, design the equity raising strategy, and prepare the project for establishing a legal business.
- d) Hire a qualified engineering company and/or individuals to design the plant and its wastewater strategy.
- e) Form a qualified and energetic interim board of directors and keep the marketing groups and individual producers interested in the project informed and engaged in the project. Mailings or centralized meetings could accomplish this. Garner local, regional and state support for the project.
- f) Site the plant.
- g) Convert the business plan into an investment document.
- h) Organize an equity drive strategy.
- i) Seek qualified management talent to guide the project once capital has been raised.
- j) Launch the project!**

Section 10 Literature Cited and Credits

Literature Cited

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Credits

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