Market Assessment

MEAT PROCESSING PLAN TO INCORPORATE FRIESLA MODEL

Fiscal and Economic Research Center

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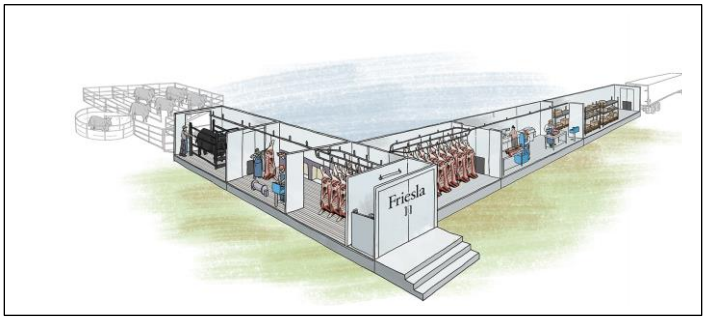
Executive Summary

The Fiscal and Economic Research Center (FERC) of University of Wisconsin-Whitewater has assessed the feasibility of operating a meat processing plant in South Dakota on the Rosebud Reservation. The goal of this feasibility study is to give an overview of capital requirements and challenges that come with the meat processing systems to update REDCO's feasibility study (BlueStone Dec 2020) and related them to Friesla models.

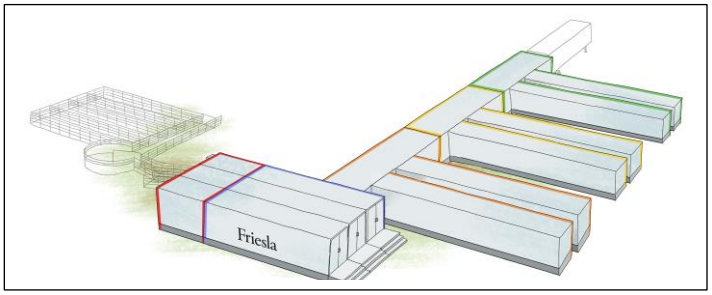
Summary of Major Findings and Conclusions

A meat processing plant on the Rosebud reservation can fulfill the need of managing their own meat product on their reservation, from production to market. This plant would provide local jobs on the reservation and secure locally sourced food including that from the REDCO regenerative bison herd. It would further allow the Rosebud Sioux Tribe and its members to add another economic step to their Food Sovereignty and Security initiative and wellbeing of their citizens.

Considering previous reports which have included both the mobile processing unit as well as the modular stand-alone unit in a combined analysis, the FERC (Fiscal and Economic Research Center) recommends a scenario where Frielsa's PS-1 processing plant operates by itself as a stationary plant. Our study shows that it is the most profitable after scale up. The client's values of food security make it all the more appealing to bring this processing plant to the reservation. When REDCO's regenerative bison herd reaches the carrying capacity for its land, an annual supply of about 500 bison should be secured for the processing plant. Additionally, other local sources include the SGU herd which should annually contribute about 40 head of bison. The value of this stand-alone modular processing unit, aside from being USDA compliant ready, allows REDCO to set up a specific location for ancillary expansion as other meat animals (i.e., beef) are added to the system.



Other considerations for the free-standing modular processing unit, is the ancillary hook ups for water and waste, herd management for USDA inspection during kill and handling, and additional modules that can be added for multi-use purposes, biproducts of the bison such as tanning hides, or a training center for workforce development.



Modular Harvesting Unit (MHU) scenario

Another scenario explored for this study included the same stationary plant that was in scenario one (Friesla PS-1), but this scenario includes the addition of Friesla's Mobile Harvesting Unit (MHU). After an analysis of this scenario there was no advantage to including a mobile unit and a stationary modular unit as a combined project. The FERC does not recommend using the Frielsa's MHU, and PS-1 systems jointly. The FERC does not see any advantage in revenue. Friesla's PS-1 meat processing system has the ability to fully process bison within its stationary plant. The MHU cannot further process bison past harvesting, and quick chilling the carcass. The costs that come with the MHU only change the location of harvesting which the FERC sees no advantage in.

Additional Scenario

An additional scenario studied was the use of Friesla's HP-1 stationary plant by itself. A system different from units involved in the two previous scenarios. The HP-1 system is capable of slaughter and processing of bison. Due to its low capacity, it was disregarded because it did not fit REDCO's needs with its capacity limit on such a small processing plant.

Market Overview

Within the United States and international markets, such as Japan and Mexico, there is growth demand for bison meat products. An increase in demand means the supply will increase to meet demand, and a study shows that South Dakota has the highest success rates in farms that could maintain production levels with a switch from beef to bison. Within the region studied including parts of Montana, Wyoming, Nebraska, North, and South Dakota, 69% of the study areas could successfully switch to bison from cattle. With in South Dakota the success rate increases to 88% including Todd County and the Rosebud reservation. REDCO meat processing plant will need to target herds of bison outside the reservation to meet capacity needs to follow the study as written. A target should be made for new herds of bison such as the Antelope Creek Bison (Mission, SD.) which started their switch from beef to bison in 2017.

In the United States, number of bison processed each month is growing. According to USDA statistics, the monthly average of bison processed throughout 2022 is 6,250 head. Up from a monthly average of 5,525 bison head processed in 2020, and a 4,725 monthly average in 2018. Demand is also growing, with marketers claiming growth in demand of over 10 percent according to the National Bison Association. The market for bison processing is not saturated and has an outlook of growth in demand from consumers, and supply from bison farmers and ranchers.

With the positive outlook for bison in the local region, establishing Friesla's PS-1 is advantageous. The plant's modular design allows you to increase capacity in the future by adding modules to adapt to future needs.

Other considerations on processing systems

Bison are native to North America, but under the USDA are considered “exotic” or non-amenable. For exotic species USDA FSIS inspections are voluntary. Contrary to the federal level, in South Dakota bison are amenable animals and the state will provide an inspector to inspect the slaughter and processing at no charge to the processor. Scheduling with slaughter inspections will need to be a consideration in herd management.

Friesla’s meat processing system has the capabilities to harvest chickens. A primary consideration for processing various animals is “the separation of time and space” In other words, there may be a requirement of a day to clean before processing a different type of animal in the same environment. Friesla offers some equipment specialized for meat poultry processing. However, the quantity of poultry processed per year sets a guideline for poultry inspection. For a number below 20,000 poultry per year, the inspection may be waived. Check State requirements (https://aib.sd.gov/poultry.html). Federal Food and Inspection safety requirements (https://www.fsis.usda.gov/), and/or any tribal food handling requirements.

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Major Findings

- The FERC recommends Friesla’s PS-1 processing plant with Bison being the primary animal processed using local sources and bison herd in the region of South Dakota. The modular model can be adapted to a start-up scenario and expand in modular form to accommodate various processing expansion needs .
- The State of South Dakota will provide an inspector for the processing of Bison with no charge to the processor.
- South Dakota inspection of bison allows sales across state borders.
- Outlook on Bison in long run is positive as claims of better nutritional facts and environmental factors drive demand.
- The south central region of South Dakota lacks any large meat processing plant, making the market more open for opportunities of a smaller plant to start and grow.

Scenario 1

In this scenario, the Friesla model PS-1 is solely used. The production capabilities when dry aging for 7 days is 50 head of bison per week. The bison would be entirely processed through this plant, from slaughter to cut and wrapped and stored in a freezer portion of the facility. Using a safe estimation of 200 days (40 weeks) of processing, maximum capabilities of this processing plant would be 2000 head of bison in a year. After scaling up production to 1000 head of bison a profit is reached.

Revenue

In this updated study total value of a processed bison from REDCO's previous feasibility is used.

	Grass finished Bison
Processed Bison Total Value	$4,125.57

PP&E- Capital Costs

Property cost has been removed since the preliminary location is on Keya Wakpala Development. Friesla models are turnkey processing systems that include equipment, installation, and other post purchase services including some training.

	Plant Cost
Friesla Model PS-1	$2,600,000

* 50% financed at 5.5% interest rate for 10-year term

**Depreciated over 7 years

Purchase Price

	500 Bison	1000 Bison	2000 Bison
Purchase Price of Bison	$2000	$2000	$2000
Total Purchase Price	$1,000,000	$2,000,000	$4,000,000

Packaging Costs

	500 Bison	1000 Bison	2000 Bison
Bison Packaging	$45/ hd	$45/hd	$45/hd
Total Cost of Packaging	$22,500	$45,000	$90,000

Labor Costs

Cost of labor in the processing facility 8 hours/day, 5 days/week, and 40 weeks/year. Hourly wage is based on BLS mean wage for butchers and meat cutters.

PS-1	Production 500-1000	Production 2000
Per hour labor costs	17.15	$17.15
Number of Laborers	4	8
Total Labor Costs	$109,760	$219,520
*Taxes and Benefits		
Total Labor Costs	$163,979	$327,958

Marketing

Marketing costs will be approximated at 1% of revenue, because a low marketing budget is estimated to be required for a small meat processing plant.

Marketing Costs	1%

Operating Costs: Monthly

Friesla states lower operation costs with their models, but due to limited data we cannot confirm.

Water	1000
Gas	1500
Electric	4,500
Total Utilities	$7000
Repairs, Maintenance and Supplies	$2000
Miscellaneous	$3000
Total Monthly Overhead	**$12,000**

Indirect Labor

Plant General Manager	**140,000**
Financial Controller	$115,000
VP of Sales	$115,000
HACCP Manager	$70,000
Office Manager	$30,000
*Taxes,Worker Comp, Benefits	
Total Indirect costs	**$562,123**

Income Statement

Year (Bison Processed)	Year 1 (500)	Year 2 (1000)	Year 3 (2000)
Revenue	$2,062,785	$4,125,570	$8,251,140
COGS	$1,000,000	$2,000,000	$4,000,000
Gross Profit	**$1,062,785**	**$2,125,570**	**$4,251,140**
Expenses			
-Processing Plant	$330,079	$352,579	$561,958
-Marketing	$20,628	$41,256	$82,512
-Indirect Labor	$562,123	$562,123	$562,123
-Property, Liability, and Product Insurance (3% of PP&E)	$78,000	$78,000	$78,000
EBITDA	**$71,955**	**$1,091,612**	**$2,966,547**
Interest	($72,513)	($66,927)	($61,035)
Depreciation	($371,286)	($371,286)	($371,286)
Net income(loss)	**($371,844)**	**$653,399**	**$2,534,226**

Scenario 2

Friesla's Mobile Harvest Unit (MHU) is used to match Harvest needs of Friesla's PS-1 meat processing system at 10 head per day, which is about a 75% of maximum production capacity of MHU as stated by the manufacturer. MHU is used in addition to the PS-1 Processing plant to do mobile harvest, and do further processing at the stationary plant.

Revenue

	Grass finished Bison
Processed Bison Total Value	$4,125.57

PP&E- Capital Costs

In this scenario cost of land is still removed. All equipment for processing is included in the cost of the Friesla model, but an allotted cost estimate for a truck to move the mobile unit to temporary locations is included in the MHU cost to make it functional.

	Plant Cost
Friesla Model MHU	$453,000
Truck	$75,000
PS-1	2,600,000
Total MHU Cost	**$3,128,000**

*50% financed 5.5% for a term of 10 years.

**Depreciated over 7 years.

Purchase Price

	500 Bison	1000 Bison	2000 Bison
Purchase Price of Bison	$2000	$2000	$2000
Total Purchase Price	$1,000,000	$2,000,000	$4,000,000

Packaging Costs

	500 Bison	1000 Bison	2000 Bison
Bison Packaging	$45/ hd	$45/hd	$45/hd
Total Cost of Packaging	$22,500	$45,000	$90,000

Labor Costs: PS-1

Cost of labor in the processing facility 8 hours/day, 5 days/week, and 40 weeks/year. Hourly wage is based on BLS mean wage for butchers and meat cutters.

PS-1	Production level 500-1000	Production 2000
Per hour labor costs	17.15	$17.15
Number of Laborers	4	8
Total Labor Costs	$109,760	$219,520
*Taxes and Benefits		
Total Labor Costs	$163,979	$327,958

Labor Costs: MHU

Estimated processing 8hours/day, 5 days/week, and 40 weeks/year.

MHU	
Per hour labor costs	$17.15
Number of Laborers	2
Base Labor Costs	$54,880
*Taxes and Benefits	
Total Labor Costs	$81,989

Marketing

Marketing costs will be approximated at 1% of revenue because a very small budget for marketing is expected to be used for a small meat processing plant.

Market Costs	1%

Operating Expenses: PS-1(Annual)

Friesla states lower operation costs with their models, but due to limited data we cannot confirm.

Water	12,000
Gas	18,000
Electric	54,000
Total Utilities	$84,000
Repairs, Maintenance and Supplies	$24,000
Miscellaneous	$36,000
Annual Operating Expenses	**$144,000**

Operating Expenses: MHU (Annual)

Estimated 10 head of bison harvested per trip, trips taken to meet weekly production capacity of stationary plant, which is processing for an estimated 40 weeks of the year.

	Unit Price	1 trip/week	5 trips/ week
Fuel for truck -$/mile -Trip Distance	 $1.5 100 miles	$6,000	$30,000
Water	$4.5/head	$1,800	$9,000
Maintenance and supplies	$250	$10,000	$50,000
Insurance (3%PP&E)	$15,000	$15,000	$15,000

Indirect Labor

Plant General Manager	**140,000**
Financial Controller	$115,000
VP of Sales	$115,000
HACCP Manager	$70,000
Office Manager	$30,000
*Taxes,Worker Comp, Benefits	
Total Indirect costs	**$562,123**

Income Statement

Year (Bison Processed)	Year 1 (500)	Year 2 (1000)	Year 3 (2000)
Revenue	$2,062,785	$4,125,570	$8,251,140
COGS	$1,000,000	$2,000,000	$4,000,000
Gross Profit	**$1,062,785**	**$2,125,570**	**$4,251,140**
Expenses			
-Processing Plant	$330,079	$352,579	$561,958
-MHU	$111,595	$139,395	$235,989
-Marketing	$20,628	$41,256	$82,512
-Indirect Labor	$562,123	$562,123	$562,123
-Property, Liability, and Product Insurance (3% of PP&E)	$93,840	$93,840	$93,840
EBITDA	**($55,480)**	**$936,377**	**$2,714,718**
Interest	($87,205)	($80,319)	($73,237)
Depreciation	($446,714)	($446,714)	($446,714)
Net income(loss)	**($589,399)**	**$409,344**	**$2,194,767**

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