Financial feasibility analysis, small business farm beef cattle livestock in Gorontalo District

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Abstract.
The objectives of this research are: 1) analyze the responses of farmers on small business farm beef cattle livestock in Gorontalo District, 2) analyze feasibility of small business farm beef cattle livestock in Gorontalo District, 3) analyze the estimated increase of beef cattle production in Gorontalo District. The research method that used is survey method. The data analysis used in this research are descriptive analysis, feasibility analysis and forecasting analysis. The result of this research showed: 1) The development of beef cattle business is an industry in the field of agribusiness with no limited. Beef cattle farmers said this business could give a huge profits. It can be seen from people welfare that increased, this business does not require a large cost from the technical point of view (cost of facilities and infrastructure), 2) Based on financial analysis aspect of beef cattle livestock is feasible to develop. 3) The result of forecasting analysis can be seen that there will be increased production for the Year 2017-2019 at all intervals except at 1-2cows.

Keyword : Financial Feasibility, Beef Cattle, Agribusiness

INTRODUCTION

Sudaryanto *et al.*, (2002) The livestock sector play as an important role in Indonesian economy in the Gross Domestic Product (GDP), contributors to employment, income sources, foreign exchange earning, animal food sources for the population.

Director General of Animal Husbandry (2003) reported that the population of beef cattle in Indonesia declined in the last five years (1.08% per year), while the number of beef cutting increased (+0.61% per year).To solve this gap, in 2003, the import of beef cattle reached 400,000, and meat is equivalent to 120,000 beef cattle (Kasryno et al., 2004).

Beef cattle is a large livestock species of ruminant become majority livestock farming in almost all countries in the world, both tropical, subtropical and countries which have four climates. The strategic position of the livestock subsector in national development is related to the provision of food sources of animal protein such as meat, milk and eggs as an essential factor in the intellectual life of the nation.

The volume of import is very large, the future should observed and anticipated that the dependencyof import can be reduced. Some efforts and strategies must be take by central and local governments to increase the productivity of beef cattle, ie through efforts to spread livestock government aid, increase. Birth through IB, suppressing mortality, controlling productive female slaughter (Soetirto 1997).

The fattening beef cattle business is usually dominated by large and small farmers. There are some individual breeders in some rural areas in Indonesia. It is still very rare for individuals in big cities to allocate their investments in this business because they consider the business to be a layman and not a huge profit, whereas in reality it is not too difficult and provides substantial benefits (Priyono, 2013).

Beef cattle business is very profitable, beef cattle not only produce meat but also produce organic fertilizer, labor and energy sources in the form of biogas. Other follow-up results can be utilized such as skin, bone, horn and innards (Ramadan, 2013). However, according to Fikar and Ruhyadi (2010) stated that there are some obstacles in trying beef cattle are: (1) difficulty in obtaining cattle seeds (2) low quality of feed (3) cow rate of non optimal body weight and (4)) lose competition with imported cattle (5) still difficult marketing system of beef cattle and limited business capital

Murtidjo (2012) said that some of the economic benefits of raising beef cattle are: (1) Beef cattle can utilize low quality food into meat production, (2) Beef cattle could adjust to the location or land that less productive for agricultural crops (3) Beef cattle require labor and equipment cheaper than other livestock business, such as dairy cattle, (4) Beef cattle business can be developed gradually as a commercial business in accordance with the skill level and capability of the capital of farmers, (5) Cattle livestock wastes are useful for crop manure and plantation cultivation, besides able to improve the barren land structure, (6) The mortality rate of beef cattle is relatively low, because for simple livestock business, the average mortality rate is only 2 percent in Indonesia, and (7) Beef cattle can be utilized for pen work Ngkutan and agriculture.

The population of beef cattle in Gorontalo District use a local cow that called with "dual function" cow as a cow type of workers as well as the type of broiler. The cow marketing system in Gorontalo Dictrict is very unique, there is a marketing channel that is patterned in almost all marketing centers of cattle called "Blantik" (brokers).The market "blantik" is a gathering place merchant traders and merchant traders (cutter). The markets where cattle are sold are referred to as animal markets (llham, et.al 2002, Kariyasa and Kasryno, 2004 and Yusuf, et al.2004)

Beef cattle business in Gorontalo District expected to provide benefits, feasibility analysis is needed to determine whether or not a business is run. Businesses are said to succeed when the business owner has earned a decent income for his business with various scales of ownership both in small, medium scale and large.

Based on the description above, the researcher want to do research about "characteristic of small scale cattle breeding business in terms of socioeconomic aspects of Gorontalo District"

METHODS

The research conducted at Gorontalo District with the object area Pulubala, Bongomeme, West Limboto and Tolangohula Sub districts. The determining location is the population and the highest number of breeders in Gorontalo Regency.

Data obtained in this study is primary and secondary data. Primary data is data obtained from interviews and direct survey results. Where secondary data is data from related institutions such as from various books, Central Bureau of Statistics Gorontalo Province, Central Bureau of Statistics Gorontalo District, and research journals.

The data were analyzed using the following analysis tools:

Analisis Return of Cost (R/C Ratio)

$$R/C = \frac{\text{Total Revenue Selling Product}}{\text{Total Cost}}$$

Benefit Cost Ratio (B/C)

$$Not\frac{B}{C} - \frac{\sum_{i-0}^{n}\frac{Bt-Ct}{(1+i)^t}}{\sum_{i=0}^{n}\frac{Bt-Ct}{(1+i)^t}} \begin{matrix} untuk\ Bt-Ct>0 \\ untuk\ Bt-Ct<0 \end{matrix}$$

Where:
Bt : Total revenue in t year (Rp)
Ct : Total cost in t year (Rp)
n : Project Time (years)
t : Years to 1,2,3….n
i : Discount rate (%)

Net Present Value Analysis

$$\text{NPV} = \sum_{1=1}^{m} (\text{AK})\ (FD)$$

Where:
M :Time
AK :Cash Flow
FD :Discount Factor

Internal Rate Return (IRR)

$$\text{IRR} = b_{tr} + b(\sum_{i=1}^{m} AK_{itr} / \sum_{i=1}^{m} AK_{itt})$$

Where :
IRR_i= Internal rate of return activity to-i;
b = Highest and lowest capital interest on activities
AK_{it} = Cash flows at the lowest capital interest on activities in-i;
AK_{itt}= Cash flows at the highest and lowest capital interest on activities to-i; (absolute numbers)
M = Year

Payback Period

$$PBP = T_{p-1} + \frac{\sum_{i=1}^{n}\overline{I_i} - \sum_{i=1}^{n}\overline{B_{icp-1}}}{\overline{B_p}}$$

Where :
PP = Time require to restore capital
I = Number of capital investment (RP)
B = Benefit of net result period per year (Rp)

Forecasting Analysis

Y = a + bx

Where:
x= Number of Time Period
y = Production

RESULT AND DISCUSSION

Response of small scale livestock business

The development of beef cattle business is an industry in the field of agribusiness with the chain activities that not only limited to on farm activities, but also extends to upstream and downstream activities as supporting business units. Upstream, seed production, feed, is a major activity that greatly supports the achievement of great beef cattle productivity, while downstream, postharvest handling plays a very strong role to improve the quality and value added for beef. These activities need to be carried out in an integrity in order to establish a strong industrial beef cattle industry.

Consumption of national beef always increasedeach year due to the increase of population economic level and nutrition people awareness. In 2012, the consumption per capita reaches 1.87 kg. From the consumption of meat per capita, Indonesia needs at least 484,000 tons of beef per year. Compared to the previous year there was an increase of 35,000 tons. The needs of the community's meat is only 85% that can be fulfilled by domestic production, the rest is imported.

This research conducted in Gorontalo District that have most of the people who have business of beef cattle and according to them, this cultivation cutting can bring high profits. This can be seen from the increasing welfare of the community, This business also does not require a large cost in terms of technical (cost of facilities and infrastructure). Many people earn big money by running this business because the level of risk or the level of loss is very small.

Financial feasibility

Investment cost

The investment cost of beef cattle business at various scale of ownership in Gorontalo District issued when the business is run. This cost is a fund in the procurement of investment goods and investment seeds.

Table1. Investment cost

No.	Medium to Lower Scale	
	Scale Enterprises (Cows)	Investment Cost (Rp)
1	1-2	14.450.000
2	3-4	14.643.444
3	5-6	17.318.519
4	7-8	19.850.000
5	9-10	20.800.000
Total		87.061.963
Medium to Higher Scale		
6	32	52.000.000

Source: Primary Data Processed, 2017

From the Table 1 showed that the investment cost to starting beef cattle business in middle low scale in Gorontalo District amount to Rp 87,061,963. The lowest cost for the 1-2 cow scale is Rp 14.450.000 and the largest cost for the scale of 9-10 cows is Rp 20,800,000. Medium to higher scale is 32 cows with the investment cost Rp. 52,000,000.

Fixed cost

Fixed cost is the cost thatis not exhausted in one period of production. This components only in depreciation equipment, cage depreciation, and land tax.

Table 2. Fixed cost

Medium to Lower Scale					
No	Scale Enterprises (Cows)	Land Tax(Rp)	Cage Depreciation (Rp)	Tools Depreciation (Rp)	Total Fixed Cost (Rp)
1	1-2	1,429	126,786	76,310	204,524
2	3-4	2,000	314,056	122,846	438,902
3	5-6	3,000	333,951	135,679	472,630
4	7-8	4,000	444,389	152,806	601,195
5	9-10	5,000	565,625	361,542	932,167
Total		15,429	1,784,807	849,183	2,649,418
Medium to Higher Scale					
6	32	10.000	12.000.000	6.612.500	18.622.500

Source: Primary Data Processed, 2017

From the Table 2 showed that total fixed cost in the middle low scale beef cattle business in Gorontalo District is Rp 2.649.418. The lowest cost for the 1-2 cow scale is Rp 204.524 and the largest cost for the scale of 9-10 cows is Rp 932,167. Medium to higher scale clarified with 32 cows of total fixed cost isRp. 18.622.500.

Variable cost

Variable cost is component of the operational in business activities that the amount is driven by the number of cows that are cutting. Variable cost incurred by farmers from vaccines, medicines and feed consumption.

Table 3. Variable cost

Medium to Lower Scale					
No.	Scale Enterprises (Cows)	Vaccine (Rp)	Pesticide (Rp)	Consumption feed (Rp)	Total Variable Cost (Rp)
1	1-2	120,000	71,429	521,429	712,857
2	3-4	407,778	106,667	2,595,556	3,110,000
3	5-6	570,741	185,185	2,859,167	3,615,093
4	7-8	916,667	191,667	4,550,333	5,658,667
5	9-10	1,037,500	316,250	7,208,750	8,562,500
Total		3,052,686	871,198	17,735,235	21,659,117
Medium to Higher Scale					
6	32	4.800.000	3.200.000	5.840.000	13.840.000

Source: Primary Data Processed, 2017

From the Table 3 showed that the total cost of varaibel in developing the business of medium-sized beef cattle in Gorontalo District is Rp 21.659.117. The lowest cost for the 1-2 cow scale is Rp 712.857 and the largest cost for the scale of 9-10 cows is Rp8.562.500. Where, the total variable cost in medium to higher scale in Gorontalo District is Rp 13,840,000.

Total cost

Total cost is all expenses incurred during the business activity. Total Cost consists of fixed costs and variable costs.

From the Table 4 showed that the total cost in developing medium to lower scale of beef cattle in Gorontalo regency is Rp 24.308,535. The lowest cost for the 1-2 cow scale is Rp 917.381 and the largest cost for the scale of 9-10 cows is Rp 9.494.667.

Where, the total cost in developing a medium to higher scale beef cattle business in Gorontalo District is Rp 32,462,500.

Table 4. Total cost

Medium to Lower Scale				
No	Scale Enterprises (Cows)	Fixed Cost (Rp)	Variable Cost (Rp)	Total Cost (Rp)
1	1-2	204,524	712,857	917,381
2	3-4	438,902	3,110,000	3,548,902
3	5-6	472,630	3,615,093	4,087,723
4	7-8	601,195	5,658,667	6,259,862
5	9-10	932,167	8,562,500	9,494,667
Jumlah		2,649,418	21,659,117	24,308,535
Medium to Higher Scale				
6	32	18.622.500	13.840.000	32.462.500

Source: Primary Data Processed, 2017

Revenue and income

Revenue is the result of multiplying the amount of production at the selling price. From the Table 5 showed that the amount of revenue in the business of medium to lower scale beef cattle in Gorontalo District Rp 94,025,695. The lowest revenue for the 1-2 cow scale is Rp 13.000.000 and the largest revenue for the scale of 9-10 cows is Rp 28.166.667. The amount of revenue earned in developing medium to higher scale beef cattle business in Gorontalo District Rp 87,500,000.

Table 5. Revenue and income

Medium to Lower Scale			
Nu	Scale Enterprises (Cows)	Revenue (Rp)	Income (Rp)
1	1-2	13,000,000	12,082,619
2	3-4	13,077,778	9,528,876
3	5-6	15,531,250	11,162,278
4	7-8	24,250,000	17,990,139
5	9-10	28,166,667	15,380,333
Total		94,025,695	66,144,245
Medium to Higher Scale			
6	32	87.500.000	55.037.500

Source: Primary Data Processed, 2017

Furthermore, revenue is the difference between total revenue and total cost. From the table above showed that the amount of revenue in the business of medium to lower scale beef cattle in Gorontalo District is Rp 66,144,245. The lowest income for the 3-4 cow scale is Rp 9.528.867 and the largest income for the scale of 7-8 cows is Rp 17.990.139. Where, the amount of revenue earned in developing business of medium to higher scale beef cattle business in Gorontalo District is Rp 55.037.500.

Net Present Value (NPV)

NPV is the difference between present value of benefit and present value of cost. The businessmean feasible if NPV> 0. If NPV = 0, means that the business is not profitable and no loss. If NPV <0, then the business is disadvantageous so it is better not

to be implemented. NPV aims to compare the present value of net cash inflows or net income with the present value of the cost of an investment.

Table 6. Net Present Value

Medium to Lower Scale			
No.	Scale Enterprises (Cows)	NPV	Note
1	1-2	22.188.385	Feasible Develop
2	3-4	31.451.613	Feasible Develop
3	5-6	52.165.808	Feasible Develop
4	7-8	36.941.865	Feasible Develop
5	9-10	56.542.869	Feasible Develop
Medium to Higher Scale			
6	32	123.089.056	Feasible Develop

Source: Primary Data Processed, 2017

From the Table 6 showed that beef cattle business feasible to develop at all of scale number of cowsbecause the value of NPV more than (>) 1.Which mean, every addition of 1 rupiah (Rp) is influence on NPV. Because the income value is higher than cost value of beef cattle business is feasible to develop because it produce a positive value.

Internal Rate of Return (IRR)

According Ibrahim (2009), Internal Rate of Return (IRR) is a discount rate that results in a rate of return equal to zero. To determine the IRR value must calculated with the value of NPV1 and the value of NPV2 by way of trial. IRR expressed in (%) which is the benchmark of a business's success. The IRR value on beef cattle business in Gorontalo District will be presented in the following table:

Table 7. Internal Rate of Return (IRR)

Medium to Lower Scale				
No	Scale Enterprises (Cows)	Bank Interest	IRR	Note
1	1-2	12%	51.87%	Feasible Develop
2	3-4	12%	39.77%	Feasible Develop
3	5-6	12%	42.32%	Feasible Develop
4	7-8	12%	41.09%	Feasible Develop
5	9-10	12%	37.22%	Feasible Develop
Medium to Higher Scale				
6	32	12%	43.30%	Feasible Develop

Source: Primary Data Processed, 2017

From the Table 7 showed that beef cattle business is feasible to develop on all cattle scale because all of IRR analysis result obtained is bigger than the determined amount of 12% by BRI Bank that has been selected among 3 banks, BRI Bank, BNI Bank, and Mandiri Bank.

Net B/C ratio

Khairunnas and Ermi (2011), B/C Ratio is the ratio between net benefit that discounted (+) with net benefits that discounted (-). The positive present is obtained from the reduction of gross income with the total cost in the business year, where the present value is negative. The Net B / C ratio of the beef cattle business in Gorontalo Regency will be presented in the following table:

Table 8. *Net B/C ratio*

Medium to Lower Scale			
No.	Scale Enterprises (Cows)	*Net B/C ratio*	Note
1	1-2	2.70	Feasible Develop
2	3-4	2.38	Feasible Develop
3	5-6	3.22	Feasible Develop
4	7-8	2.95	Feasible Develop
5	9-10	2.91	Feasible Develop
Medium to Higher Scale			
6	32	2.61	Feasible Develop

Source: Primary Data Processed, 2017

From the table above showed that beef cattle business is feasible to be developed in all part cows scale because the result of Net B/C analysis is higher than (>) 1.

***Pay Back Period* (PBP)**

Pay Back Period is a period of time that show the occurrence of cash flow cumulative equal to amount of investment in present value. More fast the return on investment cost, the the project also will become good because the good capital turnover. The value of Pay Back Period on beef cattle business in Gorontalo District,showed in the following table:

Table 9. Pay Back Period

Medium to Lower Scale		
No.	Scale Enterprises (Cows)	Pay Back Period
1	1-2	2 Year 1 Month 28 Day
2	3-4	8 Year11 Month 26 Day
3	5-6	3 Year 4 Month 28 Day
4	7-8	3 Year 7 Month 2 Day
5	9-10	2 Year 6 Month 2 Day
Medium to Higher Scale		
6	32	2 Year 4 Month 8 Day

Source: Primary Data Processed, 2017

Based on the Table 9 showed that the most required of payback period, the longest time is on a scale of 3 - 4 cows because it take up to 8 years 11 months 26 days.

Forecasting analysis of beef cattle business

Forecasting is science of predicting events that will occur using historical data and projecting them into the future with some form of mathematical models. The production of beef cattle production aims to see the future of rice production by looking at the increase in beef cattle production from the time series data.

Table 10. Forecasting production

Year	1-2 Cows	3-4 Cows	5-6 Cows	7-8 Cows	9-10 Cows	32 Cows
2017	0	4	6	8	6	36
2018	0	5	7	9	13	41
2019	0	6	8	10	15	45

Source: Primary Data Processed, 2017

Based on Table above showed that from 2017 until 2019 the production of beef cattle increased from all business scale interval, except on 1-2 scale because on the scale of 1-2 cows production position for the next three years is 0 cow.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the description, analysis, and discussion above,the conclusion on this research are:

1. The development of beef cattle business is the industry in agribusiness fieldchained activities that has no limited. Business of beef cattle declared this cultivation cut to bring high profit. This can be seen from the increasing welfare of the community, in this business also does not require a large cost from a technical point of view (the cost of facilities and infrastructure).
2. Based on the results of financial aspect analysis of beef cattle livestock is feasible to be develope because the value of NPV higher (>) than 1. IRR analysis result obtained is bigger than the determined amount of 12%. While for the value of R/C ratio also > 1. As for the payback period, the longest time is on a scale of 3 - 4 cows, ie 8 years 11 months 26 days.
3. Based on the results of forecasting analysis showed that there will increased production for the Year of 2017-2019 at all interval except at 1-2 interval cows.

Recommendation

Based on the conclusion above, the recommendations as the following:

1. Beef cattle business should be a superior program of the region based on the commodity of superior commodities so that it can increase the added value and become the drawer of the economyregion, especially in the District of Gorontalo directly by increasing the local income through wage and labor absorption. Furthermore, indirectly increasing demand for inputs such as animal feed, transportation and other services, can also generate demand for inputs of livestock production produced by the business world.
2. The development of beef cattle livestockmediumscale livestock business need to continuously supported by the government through enhancement of institutional capacity of livestock business groups, human resource capacity of farmers through incremental and consistent training, increased institutional access capacity of business partners, banking and marketing of beef cattle so that the prospect of increased production is maintained.
3. There are some important items that can not be research in this study of the research, including economic feasibility and social feasibility, therefore the authors suggest the item can research and enriched to become comprehensive scientific information forward.

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