Feasibility Analysis of Goat Milk Business In Senduro Sub District Lumajang District

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Abstract. This study is a study that aims to (1) determine the cost structure, (2) estimate the income earned and (3) determine the feasibility of the goat milk business. The method used in this research is descriptive analysis using the technique of sampling interviews directly to respondents using a questionnaire to people who are experts in their fields. The research location was in Burno Village, Senduro District, Lumajang Regency. Analysis of the data used in this study is the value of BEP quality, BEP Sales, BCR, Payback Period, NPV, PI and IRR. The results of this study found that (1) the highest cost structure was the cost of raw materials, namely feeding the goats in the form of calliandra grass and concentrates. (2) estimated annual income from the goat milk business is quite large. Whereas in determining the feasibility of the goat milk business seen from various values including BEP, BCR, Payback Period, NPV, PI and IRR values so that the business that has been carried out by Mr. Sumardi is at a reasonable level.

1. Introduction

Indonesia is an agrarian country where most of the populations work in agriculture sector. Beside becoming a sector which provides food, agriculture sector also gives job fields options for all of the workforces. However, the agricultural land worked by the farmers is narrowing and decreasing causing the farmers to increase their income by doing other complementary activities. One of those activities is livestock business activity.

Burno Village is situated in Senduro Sub-district, Lumajang Regency, East Java becomes one of the goat milk producer villages. Most of the populations in this village running dairy goat farming businesses. Almost in every village there are 1-3 goat breeders. The type of goat bred is Senduro Etawa Crossbreed Goat which is the type of crossbreed goat between Etawa Goat and Senduro Local Race Goat. Senduro Goat is the suitable goat type as dairy goat because it can produce pretty much milk.

Burno Village Senduro Sub-district is a village known as a goat milk producer. One of the goat milk businesses in the village is Sumardi Farm. Sumardi Farm Business has been established since 2011, which means almost 8 years established. Now Sumardi Farm Business has 40 goats with 20-40 liters milk produced every day in average. The milk that has been milked will directly be taken by UD Rumah Susu's work partners. The goat milk production also taken as one of the raw materials used at goat milk processing companies in various cities.

Sumardi Farm Business is still using conventional equipment, the milking process is using human power. However the quality of goat milk products produced is high and product defects is

rarely happen although not through pasteurization process. The company life cycle condition is in the growing phase but product diversification has not been done so that the products produced by the company are not unique. In the production side, this business has the potency which is able to develop.

The sale done by this business is still counted narrow relying on sales partner (there is middleman) and some of the products marketed to the direct consumers. The nonexistence of promotional activities done by Sumardi Farm causes the number of goat milk sales constant in accordance with the demand from UD Rumah Susu. The selling price set is on the level that is not far different from the competitors. The price change is still categorized in loose time although there are many factors influencing the price change. Sumardi Farm Business now still becomes market follower and the broad market overpowered is still limited so that the company position in the market is not good. With the production result categorized sufficient and the period of business standing, research needs to be done to test the feasibility of this goat milk business.

Business Feasibility Test seen from financial sector. The analysis used is Quantity BEP test (Break Even Point), Sales BEP (Break Even Point), BCR (Benefit Cost Ratio), Payback Period, NPV (Net Present Value), PI (Profitability Index), and IRR (Internal Return Ratio). The test is done to know the business feasibility from the financial sector

2. Research Methods

The methodology used in this research is

1. *Break Event Point* (BEP)

   Principal return analysis or break-even analysis break even analysis is an analytical technique for studying relationships between cost- profit- volume analysis. Costs calculated are total costs consisting of variable costs and fixed costs. In general, the company's goal is to obtain the maximum profit for the prosperity of the owner of the company by utilizing the economic resources owned. Determine the BEP mathematically as follows:

   To determine the position of the BEP mathematically, a formula can be found to find or determine the BEP in units and BEP in rupiah. The two BEP formulas in units and rupiahs can be explained as follows:

   BEP occurs when total revenue equals total costs :

   TR = the price per unit multiplied by quality = P x Q
   TC = fixed costs plus variable costs = FC + VC
   VC = variable costs per unit multiplied by quality

   Because TR = TC
   Then : P/u.Q = FC + VC / uQ
   P/uQ-VC/uQ = FC
   Q(P/u – VC/ u) = FC

   So that : $Q_{BE} = \frac{FC}{\frac{P}{u} - VC/u}$

   Where Q_{BE} is quality in circumstances BEP at BEP in units reached at

   $$BEP\ (Units) = \frac{FC}{\frac{P}{u} - VC/u}$$

2. *Net Present Value* (NPV)

   Net Present Value is the total net benefits obtained by the goat milk business during the economic age at a certain discount rate. NPV value is obtained from the difference between the total present value of benefits and the total present value of cost. The value generated from the NPV calculation is the unit of rupiah. According to Nurmalina et al. NPV can be formulated as follows

   $$NPV = \sum_{t=1}^{n} \left(\frac{Bt - Ct}{(1+1)^t} \right)$$

   Information :

Bt = Benefits from business in the t-year
i = Applicable interest rates
Ct = Cost of business in the t-year
T = The economic life of the project

A business is declared feasible if it has a NPV value greater than zero (NPV>0) which means the business is profitable and provides benefits and vice versa if the NPV is less than zero (NPV <0), then the business is not feasible to run.

If the Net B / C value is greater than (Net B / C> 1), then the business is feasible to run. Conversely, if the value (Net B / C <1), then the business is not feasible to run.

3. *Internal Rate of Return* (IRR)

Internal Rate of Return (IRR) is the discount rate that produces an NPV equal to zero (NPV = 0). IRR is generated using the interpolas method including a lower discount rate with a higher discount rate. IRR values are expressed in percentage units (%). The discount rate is determined from the source of venture capital, if the business uses its own capital, the discount rate comes from the deposit interest rate, but if it uses loan capital, the discount rate comes from the loan interest rate. IRR calculation is used to determine the percentage of profits from a business each year and shows the business's ability to return the investment invested. How to calculate IRR according to Nurmala et.al (2014) is

$$IRR = i + \frac{NPV\ 1}{NPV\ 1 - NPV\ 2} \times (i\ 1 - i2)$$

Information :
NPV 1 = positive value NPV
NPV 2 = negative value NPV
i 1 = The discount rate that causes NPV positive
i 2 = Tingkat diskonto yang menyebabkan NPV negative

A business is declared feasible if it has an IRR value obtained by the business greater than the discount rate. Meanwhile, if the value of the IRR obtained is less than the discount rate, then the business is not feasible to run.

4. *Benefit Cost Ratio* (BC Ratio)

Net B / C value results from the comparison of net benefits that are positive and net benefits that are negative from the goat milk business. Net B / C ratio illustrates the net benefits that benefit a business that results from each one unit loss of the business. According to Nurmala et.al (2014) Net B / C is systematically stated as follows:

$$Net\frac{B}{C} = \frac{\sum_{t=1}^{n}\left(\frac{Bt - Ct}{(1+i))^t}\right)}{\sum_{t-1}^{n}\left(\frac{Bt - Ct}{(1+i^t)}\right)}\ Where\ \frac{bt - Ct > 0}{Bt - Ct < 0}$$

Note :
Bt = benefit from business from year to-t
i = interest rates
Ct = cost of business in the year - t
T = economic life of the project

5. *Payback Period* (PP)

Payback Period (PP) is a period required to recoup investment funds funded by cash flow. The sooner the capital investment can return, the better a business is endeavored, because the returned capital can be used to finance other activities. If diving a business is run can return capital before the end of age, then the business can still be implemented. However, if until the last business and have not been able to return the capital used, then the business should not be implemented. Payback Period calculation is done by means of the net benefit value contained in the cash flow discounted and accumulated. PP value is expressed in units of years or business periods. Mathematically the calculation of PP according to Nurmalina et.al (2014) is as follows:

$$PP = \frac{I}{Ab}$$

Note :
PP = The number of periods required to return the investment
I = The amount of investment costs needed during the life of the business
Ab = Average discounted net benefits each year that have been discounted

A business is declared eligible based on the payback investment period criteria if the time to return on investment capital costs is less than the business life. Whereas if the payback period for investment capital costs is longer than the life of the business then the business is not feasible to run

3. Results and Discussion

Financial aspects feasibility used to see the level of feasibility in the field of business finance. It using the investment feasibility attributes in the form of calculation of Break Event Points (BEP), Net Present Value (NPV), Internal Rate of Return (IRR), Benefit Cost Ratio (BC Ratio) and Payback Period. The following table shows the result of performance output of the financial aspects of Senduro Goat Milk Business using DSS investment feasibility criteria:

Table 1. The Results of Financial Aspects Analysis of Senduro Goat Milk Business

Interest rate assumptions	15%
Period of time	10 Years
Initial capital	416.620.000
Quantity BEP	18.270,97
Sales BEP	105.307.771,78
BCR	1,76
Payback period	6,23
NPV	669.531.597,99
PI	2,55
IRR	50,16

Source: Scoring Output of DSS Financial Performance in 2019

Based on the DSS financial performance analysis output, the results obtained as follow:

a. It assumed that the annual interest rate is around 15%. This is a provision of the average annual interest rate systemized in the DSS MSME software Version 2.0

b. The projection period is 10 years. It is the absolute number of year periods as a projection of the system using DSS MSME software Version 2.0.
c. The initial capital that used in this business is around Rp. 416,620,000, - which is come from the owner. They do not make a capital loans from the banks or others. The initial capital obtained based on the first year initial capital assumption of the business establishment in 2010, then used as the first investment of the business inputted into the system projected for the next 5 years.
d. The value of quantity BEP is around 18,270.97, - which means, to recover the total costs incurred by the company, they need to sell as much as 18,270.97 liters. It is known that the quantity of BEP is positive, which means the quantity of products sold in Senduro Goat Milk Business has reached the break even point. So, it stated that the level of financial performance of the quantity BEP in Senduro Goat Milk Business at a feasible level.

Table 2. The Report and Product Quantities Projections of Senduro Goat Milk Business

No	Types of Product	The cultivation Result on the 1st year	The cultivation Result on the 2nd year	The cultivation Result on the 3rd year	The cultivation Result on the 4th year	The cultivation Result on the 5th year	The cultivation Result on the 6th year	The cultivation Result on the 7th year	The cultivation Result on the 8th year	The cultivation Result on the 9th year	The cultivation Result on the 10th year
1	Retail goat milk	5.400	6.210	7.142	8.213	9.445	10.861	12.491	14.364	16.519	18.997
2	Bottled goat milk	5.400	6.210	7.142	8.213	9.445	10.861	12.491	14.364	16.519	18.997
0		0	0	0	0	0	0	0	0	0	0
0		0	0	0	0	0	0	0	0	0	0
0		0	0	0	0	0	0	0	0	0	0

Source: The Primary Data that Processed in 2019

e. The value of sales BEP is around 105,307,771.78, - which means, to recover the total costs incurred by the company, they need to make sales around Rp. 105,307,771.78 per year. The table below shows the result of annual revenue or sales of Senduro Goat Milk Business presented :
In the first year of sales, the production and sales data of Senduro Goat Milk Business were above the sales BEP as much as Rp 199,800,000, - and tended to increase in the following year. It stated that the level of financial performance feasibility at the sales BEP of Senduro Goat Milk Business at a feasible level
f. The value of BCR is 1.76, which means that in each Rp. 1 as the cost incurred, the company will get a benefit/profit of Rp. 1.76. So the value of BCR Senduro Goat Milk Business > 1, it can be concluded that the financial performance of the Benefit Cost Ratio assessment at a feasible level
g. The value of Payback Period is 6.23, which means the business takes 6.23 to return the total investment of the business, or Senduro Goat Milk Business can cover the investment incurred within 6 Years 2 Months 23 Days. This value is still below the projection year (10 years), it concluded that the financial performance of Payback Period assessment at a feasible level.
h. The NPV is 669,531,597.99 which means that based on the investment made, the current value is IDR 669,531,597.99, - and it is a positive value. Based on the NPV (Net Present Value) valuation, the financial performance of the company at a feasible level.

i. The value of PI (Profitability Index) is around 2.55, which means that the business ability to obtain net investment cash flow from the value of the investment issued is 2.55 times. If the PI value > 1, it can be concluded that the financial performance of the company at a feasible level.
j. The IRR (Internal Rate of Return) value is 50.16, which means that the investment rate of return that has been invested in Senduro Goat Milk Business is 50.16%. IRR value is above the assumed interest rate of 15%, it can be concluded that the financial performance of the IRR (Internal Rate of Return) assessment of Senduro Goat Milk Business at a feasible level.

Table 3. The Report and Projection of Selling Price of Senduro Goat Milk Business Products

No	Types of Product	The cultivation Price on the 1st year	The cultivation Price on the 2nd year	The cultivation Price on the 3rd year	The cultivation Price on the 4th year	The cultivation Price on the 5th year	The cultivation Price on the 6th year	The cultivation Price on the 7th year	The cultivation Price on the 8th year	The cultivation Price on the 9th year	The cultivation Price on the 10th year
1	Retail goat milk	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000
2	Bottled goat milk	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000
0		0	0	0	0	0	0	0	0	0	0
0		0	0	0	0	0	0	0	0	0	0
0		0	0	0	0	0	0	0	0	0	0
	The total sales	199.800.000	229.800.000	264.254.000	303.881.000	349.465.000	401.857.000	462.167.000	531.468.000	611.203.000	702.889.000

The calculation values above obtained based on financial data from the 10 years projection in 2018-2027. These are the details projection:

a. In every working day, the increase of the direct labor wages consisting of the employee of procurement of raw materials and goats farming each year is around Rp 2,500. While Rp. 30,000 each month become the additional wages that give to the indirect employees or business management.
b. Based on the data in 2018, there was 15% projected increase in sales of goat milk products in the form of plastic and bottle packaging.
c. The projected increase in the selling price of goat milk products is estimated to be fixed annually at Rp.17,000 for plastic packaging and Rp. 20,000 for each bottle. It was taken based on the base year 2018 and the 3 previous years which did not change.

4. Conclusion

Generally, based on the analysis results of financial performance of Senduro Goat Milk Business in the form of the quantity BEP and sales BEP comparing with the conditions of company production, Benefit Cost Ratio (BCR), the comparison of Payback Period with the return business investment, PI (Profitability Index), NPV (Net Present Value) and the comparison of IRR (Internal Rate of Return) with the prevailing discount rate at 15%, shows that the analysis results of financial aspects performance of Senduro Goat Milk Business can be categorized as feasible to develop.

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