

Financial Feasibility Analysis of Trigona Honey Bee Business in Banten Province

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Abstract

This research aimed to study the financial feasibility in the *Trigona sp* honey bee business in Banten Province, by calculating the *Net Present Value* (NPV), the *Net Benefit Cost Ratio* (Net B/C), the *Internal Rate of Return* (IRR), and the *Payback Period* (PP) from the *Trigona sp* honey beekeepers in Banten Province. Data types and data collection methods include primary and secondary data from governmental institutions and related departments.

This research found the financial feasibility of the honey beekeepers and obtained the average *Net Present Value* (NPV), i.e. Rp 4.021.848. The $NPV > 0$ indicated that business is feasible. The *Benefit Cost Ratio* (BCR) was 2,84 and the *Internal Rate of Return* (IRR) was 45,7% > loan interest, indicated that the *Trigona* honey bee business in Banten Province is feasible with 2,7 years of investment return time.

Keywords: Beekeepers, Financial feasibility, Banten Province

1. Introduction

Bee cultivation is an activity that provides added values for plant cultivation. Beekeeping development is considered as important because Indonesia has great potential in this sector. Nature and climate in Indonesia support bee cultivation since the bee forage is available all year round (Septiantina dan Krisnawati, seri iptek V 2015)

According to Septiantina dan Krisnawati (seri iptek V, 2015), *Trigona* is a species in genus *Meliponini*, which is classified as stingless bees. The *Trigona* bees rely on *propolis* (bee glue) to defend the nest against predators and to maintain the nest temperature. The *Trigona* cultivation can be found in lowland (beach areas) and upland (mountain areas) and successfully cultivated in all locations.

Trigona are social insects belonging to stingless bees, using flowers as their food source. *Trigona* mostly live in the nests to protect the nests and to reserve forage, (Inoue dkk,1993). According to Erniwati (2013), there are approximately 50 species of stingless bees in South East Asia. However, the number of stingless bees in Indonesia has not been identified. Schwarz in Erniwati stated there

were 31 species of stingless bees in Kalimantan, 41 species in Sumatra and 9 species in Java Island. However, according to stingless bee specialist, Sakagami in Erniwati (2013), there were only 6 species in Java Island, namely *Trigona Leaviceps*, *T. Itama*, *T. Drescheri*, *T. Apicalis*, *T. Thoracia*, and *T. Terminata*. (Sakagami etc., 1990 in Erniwati).

According to the Ministry of Forestry, Indonesia, which has 136,88 million hectares of forest, has high potential honey development. Forest resources may be developed as an ecosystem and honey bee farms. Unfortunately, honey production in Indonesia is still low, therefore Indonesia has to import 70% of national demand or approximately 3.000 tons of honey per year. Honey production in Indonesia is still low, namely, 1.000 – 1.500 tons yearly and 90% honey production in Indonesia is mainly produced by forest honey bee. Unfortunately, the selling price of *Trigona* honey in Banten Province is still relatively low, i.e. Rp 400.000/600 ml; the number of production is 6.57 l/year in average. This situation commonly due to the problems facing by the beekeepers in producing bee honey, such as limited capital, limited capability of the beekeepers in cultivating, and market information.

Based on the background of study and the problems appeared, this research aimed to calculate financial feasibility of *Trigona* honey bee business in Banten Province. Particularly, this research calculated the *Net Present Value* (NPV), the *Net Benefit Cost Ratio* (Net B/C), the *Internal Rate of Return* (IRR), and the *Payback Periode* (PP) of the *Trigona* honey beekeepers in Banten Province.

2. Method

Data used in this research includes two types, namely primary and secondary data. Primary data obtained from observation and interview. Secondary data obtained from literature study, papers, and related institutions. Observation, questionnaire distribution, and data collection were carried out by the researchers. This research used Non Probability Sampling Method. According to Sugiyono 2009, Non Probability Sampling Method is a sampling technique that does not provide equal chance for any member of population to be chosen as samples. This research used Saturation Sampling method, which is a

determining sample technique when all population members used as samples. The calculation of financial feasibility used the interest rate of People Business Credit Program (Kredit Usaha Rakyat) of a State-Owned Bank (BUMN) by 9%. This study considered that the honey bee business in Banten Province is still classified as people-oriented scale not industry-scale business.

Financial Feasibility Analysis

Financial Feasibility is one of the aspects of business feasibility study. Husein Umar (2005) stated that the business feasibility study is a research on business plans that does not only analyze the viability of a business when it is creating, but also when a business is operating routinely to achieve the maximum profit in an unlimited period of time. According to Suwinto (2011), feasibility study is a study to examine business feasibility comprehensively and intensively. The feasibility of a business is referring to the comparison results of all economic factors that are allocated in a business/new business and the return of investment in a certain period. The examination of financial aspects is used to calculate the funds needed to create and operate a business and also to study the possibility of the source of funds.

a) The *Net Present Value* (NPV) is an investment criterion that is commonly used to calculate whether a proposed project is feasible or not. The *Net Present Value* (NPV) is the *Present Value* of the difference between benefits and costs on a certain discount rate. NPV calculated the comparison of benefit surplus and cost. The NPV formula is as follows:

$$NPV = \frac{P_1}{(1+i)^1} + \frac{P_2}{(1+i)^2} + \frac{P_3}{(1+i)^3} + \dots + \frac{P_n}{(1+i)^n}$$

$$NPV = \sum_{t=1}^n \frac{P_t}{(1+i)^t} - IO$$

where:

- Pt = Net cash flow (Proceeds) in the 1st year
- i = Discount rate
- n = Number of time period of investment
- IO = Initial outlays (initial investment cost)

According to Joel and Jae Shim in Irham Fami: Business is feasible when the present value is positive (NPV>0) or (NPV>1).

b) *Internal Rate of Return* (IRR) is a *discount rate* that makes the net present value of all cash flows from a particular project equal to zero.

where:

- IRR = Internal rate of return to be required
- IR1 = Internal rate (discount rate) of period-1
- IR2 = Internal rate (discount rate) of period-2
- NPV1 = net present value derived from IR
- NPV2 = net present value derived from IR

According to Suliyanto, a project is feasible if the IRR exceeds a company's required rate of return. The contrary is a project is not feasible when the IRR lower than a company's required rate of return.

c) *Net Benefit Cost Ratio* is the indicator of net positive discounted benefit (+) versus net negative discounted benefit (-), indicated by formula as follows:

$$Net\ B/C = \frac{\sum_{i=1}^n \overline{NB}_i(+)}{\sum_{i=1}^n \overline{NB}_i(-)}$$

A proposed project is feasible if Net B/C is greater than 1 and non-feasible if Net B/C is lower than 1. Cash in flows equal to cash out flows if Net B/C equal to 1. In Present. Value it is called Break Even Point (BEP) when total cost is equal to total revenue.

d) *Payback Period*

Payback Period is a method used to calculate the length of time required to recover the amount invested on annual cash in flows (proceeds) generated by the investment (Suliyanto, 2010).

$$Payback\ Period = \frac{Net\ Cash\ Investment}{Annual\ Net\ Cash\ Inflows}$$

3. Discussion

Research found that *Trigona* honey bee business in Banten Province is still classified as a small-scale business with a small amount of capital. This business is not the main job. The maintenance and the packing of products are still moderate. The biggest amount of capital is Rp 35.000.000 and the smallest amount of capital is Rp 900.000 with the average profit Rp 1.870.400.

Table 1. The Cash Flow of *Trigona* Beekeepers in A Year

No	Name	Investment	Cost	Revenue	Profit
1	Epen	Rp900.000	Rp180.000	Rp990.000	Rp810.000
2	H. Hamami	Rp3.600.000	Rp612.000	Rp1.350.000	Rp738.000
3	Apud	Rp1.260.000	Rp258.000	Rp1.080.000	Rp822.000
4	Ayip	Rp15.000.000	Rp18.000.000	Rp22.700.000	Rp4.700.000
5	Mardi	Rp1.710.000	Rp324.000	Rp1.080.000	Rp756.000
6	Oji	Rp1.350.000	Rp324.000	Rp720.000	Rp396.000
7	Nana	Rp1.980.000	Rp396.000	Rp1.170.000	Rp774.000
8	Memed	Rp3.600.000	Rp720.000	Rp3.240.000	Rp2.520.000
9	Makmud	Rp3.240.000	Rp648.000	Rp1.710.000	Rp1.062.000
10	Uen	Rp1.620.000	Rp324.000	Rp1.350.000	Rp1.026.000
11	UstadRohman	Rp2.160.000	Rp268.000	Rp2.160.000	Rp1.892.000
12	Sodikin	Rp1.080.000	Rp216.000	Rp1.170.000	Rp954.000
13	Riyadi	Rp25.000.000	Rp900.000	Rp8.000.000	Rp7.100.000
14	H. Pulung	Rp9.000.000	Rp1.404.000	Rp4.950.000	Rp3.546.000
15	Adhar	Rp3.000.000	Rp982.000	Rp2.340.000	Rp1.358.000
16	Anwar	Rp3.240.000	Rp648.000	Rp1.440.000	Rp792.000
17	Yadi	Rp2.340.000	Rp360.000	Rp990.000	Rp630.000
18	Marno	Rp1.640.000	Rp288.000	Rp2.070.000	Rp1.782.000
19	Sajar	Rp2.000.000	Rp900.000	Rp1.350.000	Rp450.000
20	Komeng	Rp35.000.000	Rp6.000.000	Rp11.300.000	Rp5.300.000
Rata-rata		Rp5.936.000	Rp1.687.600	Rp3.558.000	Rp1.870.400

Source: *Data primer diolah, 2017*

- a) *Net Present Value (NPV)*
 Samples in this research indicated the average NPV, i.e. Rp 4.021.848,- was greater than 0. Therefore, the *Trigona* honey bee business in Banten Province is feasible.
- b) *Benefit Cost Ratio (BCR)*
 The BCR of the average number of the *Trigona* beekeepers in Banten Province was 2,84, where one rupiah has benefit value 2,84. Therefore, this business is feasible.
- c) *Internal rate of return(IRR)*
 The IRR of the average number of the honey beekeepers in Banten Province was 45,7% and greater than the present rate interest. Therefore business is feasible.
- d) *Payback Periode (PP)*
 This research found the average total return of investment from the beekeepers in honey bee business in Banten Province is 2 years and 7 months.

4. Conclusion

The average NPV obtained from feasibility analysis is Rp 4.021.848,-. The $NPV > 0$ indicated that business is feasible. The *Benefit Cost Ratio (BCR)* 2,84 and the *Internal Rate of Return (IRR)* 45,7% > loan interest, indicated that *Trigona* honey bee business in Banten Province is feasible with 2,7 years of investment return time. It is concluded that the *Trigona* honey bee business in Banten Province is financially feasible. However, further researches have to be conducted to escalate the productivity of *Trigona* bee in Banten Province in increasing the number of production produced by the beekeepers.

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