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Financial Analysis of Trigona Bees Farming Enterprise in Bali, Indonesia

I Ketut Selamet¹, Ni Made Rustini¹, A.A. Sri Purnami^{1*}

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ABSTRACT

Trigona Honey is one of the forest resources that has the potential to be developed in cultivation, this is due to the abundant source of feed for Trigona Bees. Kuwum Village in Badung Regency, Bali, Indonesia, has enormous potential in developing Trigona honey farms because the village is still surrounded by various types of annual plants as plantation land as well as village greenery. The problem is that most of the farmers have not been able to clearly see academically whether the business they are developing is profitable in the long term or not even feasible to develop, so this study aims to conduct a financial analysis in the development of Trigona honey in Kuwum Village. Methods of collecting data and information by sampling method Non Random Sampling approach by taking key informants and then developed with the method of snowball sampling. The data collected were analyzed by using an investment feasibility analysis technique approach, namely Payback Period and Net Present Value. After analyzing the existing data, it was found that from the payback period of the invested capital in the form of purchasing Kukungan Trigona honey in an average of 10 units in an estimated effective harvest period of 7 years, capital can be returned within 4 years and 1 month. With indicators measuring interest rates and net cash inflows compared to the initial investment, you get a positive NPV, meaning that the investment is feasible to continue, even on a larger scale.

INTRODUCTION

Honey is a commodity from non-timber forest products (NTFPs) which has many benefits. Until now, honey consumption in Indonesia is still low. The low consumption of honey is caused by the attitude of people who know honey only as a traditional medicine, which is relatively expensive and lacks knowledge about honey. Trigona honey is one of the forest resources that has the potential to be developed in cultivation, this is due to the abundant source of feed for Trigona Bees. Almost all plants that produce flowers can be used as a source of food, both from forest plants, agricultural crops and plantation crops. Many communities or farmer groups are intensively cultivating Trigona honey.

There are various types of honey crabs that are suitable for cultivation, one of which is the local Trigona honey "Trigona honey" (Trigona Sp). Usually, the Trigona Sp Trigona honey is more often chosen for cultivation because this type of Trigona honey does not have a sting so it is easier to maintain. At this time many people are familiar with Trigona Sp as one of the stingless catfish. Trigona Sp. Is a species of the genus Melliponini which has a characteristic that can produce honey and propolis.

One of the many villages in Bali that is suitable to be used as a development area for honey Trigona honey (Trigona Sp) cultivation is Balangan Village, Mengwi District, Badung Regency. Now many farmer groups have cultivated this Trigona Sp Trigona honey. One of them is a farmer group in Balangan Village, Mengwi District, Badung Regency. The business of developing Trigona honey by cultivation is aimed at increasing the income

or income of members of the farmer group. However, in farming activities such as the cultivation of Trigona honey, these farmers do not understand how a farming activity can survive and be profitable in the long term. So they are faced with various risks and losses that will reduce the income of the farmers themselves (Karmila, 2013). Therefore, the main objective of this study is to conduct a financial analysis of the Trigona honey farming business in order to provide an overview to farmers how to carry out profitable farming activities by considering various costs and production factors that will be incurred in farming activities.

LITERATURE REVIEW

Trigona Bees Farming Enterprise

Trigona honey Cattle, or Trigona, is the treatment of a colony of Trigona honey that settles in its nest made by human labor. A Trigona honey breeder or apiaris raises Trigona honey to collect honey and other products from the nest he has made including Trigona honey wax, propolis, bee pollen, and royal jelly for sale to other consumers. So, owning a Trigona honey farm is a very lucrative business opportunity. The products produced by Trigona honey are widely used as medicine. The Trigona honey Honey Business is one of the businesses that needs to be developed by taking into account the Trigona honey agribusiness such as cultivation, procurement of production facilities, processing industries that support business activities. The agribusiness system in the cultivation of Trigona honey includes the subsystem of the procurement and distribution of production facilities and the farming subsystem.

¹ Faculty of Economics and Business, Warmadewa University, Bali, Indonesia

* Corresponding author's e-mail: reni_kenanga@yahoo.com

Definition of Investment

Investment is an effort to invest capital or funds in the hope of getting a profit (return) in the future. In general, there are two types of investments, namely long-term investments and short-term investments. Short-term investments are investments whose returns are expected to be realized in at least one to three years. Meanwhile, short-term investments are investments whose returns can be obtained in a period of more than 3 years. The investment period is usually also related to the amount of return. That is why, usually long-term investments provide greater returns than short-term investments. This is because short-term investment benefits can be obtained more quickly. However, investing also carries risks. The risk here is the loss of funds or other assets when the investment does not live up to expectations or even fails.

Production Cost

The production costs referred to in this study are all costs incurred by farmers during the cultivation of honey Trigona honey which consist of fixed costs and variable costs. The production process is a fundamental activity for a company. Therefore, a company needs to take into account the production costs that must be incurred to be able to produce quality goods/services that meet expectations. Production costs refer to the funds that must be issued by the company to produce a good or service. The calculation of production costs starts from the processing of raw materials, to finished or semi-finished goods. Therefore, the calculation of production costs is quite complicated, because there are several types of components of the company's expenses. When viewed from the type Production costs are divided into several types. Generally, in accounting records, production costs are divided into 3 types, namely raw material costs, labor costs, and factory overhead costs. In addition to the costs of raw materials, labor, and factory overhead, production costs can also be classified into 5 types, namely fixed costs, variable costs, average costs, marginal costs, and costs. total.

Input of Production

Production input is a production process consisting

of raw materials, raw materials, energy used and the necessary information. In the production system there are several inputs which in general from several experts say that the production inputs consist of: (1) labor; (2) machines; (3) materials; (4) capital; (5) method; (6) energy; (7) information; (8) managerial; (9) land.

Value of Production

The production value or farmer's acceptance referred to in this study is the amount of farm production multiplied by the prevailing price at the farmer level and expressed in one rupiah. The size of the Production Value can be determined based on the size of the number of products produced in one period. The more products produced the more value is obtained, and vice versa. The price used as the basis for multiplication is the price prevailing in the market.

Financial Analysis

Financial analysis in this study is the analysis used to determine the feasibility of a farm (Trigona honey honey) seen from the ability of the Payback Period and the Time Value of the invested capital. In the aspect of financial feasibility, it is related to the ability of a manager to project his cash flow (cash flow) which indicates a convincing condition that the investment is profitable or not within a certain period of time. (Fahmi *et al*, 2010). In the financial aspect that needs to be observed are the components and structure of costs, while what is meant by the structure and components of these costs are as follows: 1. Investment costs, in the form of: land/land for farming, taxes and the amount of loan interest, as well as costs for purchasing production equipment. 2. Operational/production and maintenance/maintenance costs, in the form of the price of raw materials and their quantity, the price of auxiliary materials and their quantity, the number of workers and their wages 3. The cost of replacing equipment with an economic life of 1 to 10 years. (Reviansyah, 2011).

Framework

Based on the literature review that has been discussed, a research framework can be drawn up as shown in Figure 1.

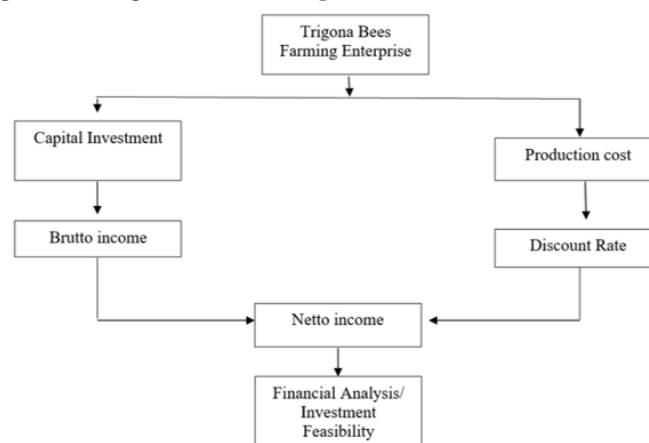


Figure 1: Research Framework

MATERIALS AND METHODS

This research was conducted in Kuwum Village, Mengwi District, Badung Regency by taking a sample object in Banjar Balangan using a survey method, namely by collecting data in the field through direct interviews with farmers using a list of questions that have been prepared. Determination of the sample was carried out using a non-random sampling method with a snowball sampling approach, namely by interviewing key informants, namely for farmers who were considered to have knowledge about investing in the Trigona honey business until they found the same answers to farmers recommended by key informants. This was done due to the limitations of time, energy and research costs, which did not allow researchers to find census data. Sources of data analyzed are primary data and there are some secondary data as supporting data. Methods of collecting data by interviewing with the help of a list of main questions to find the same information on several respondents. To complete the information, the researcher completes the collection of data and information from the documentation study, namely collecting several documents that have been recorded by farmers in several periods of cultivating Trigona honey honey. Data analysis of Trigona honey cultivation business in Balangan Village, Mengwi District, Badung Regency was carried out with a financial analysis of investment feasibility which includes:

Aspect of Feasibility of Investment Payback Period

Measuring the feasibility of an investment can be done using the Payback Period (PBP) method. This method can be used to measure the timing of the rate of return on investment (Al-Ani, 2015). So the unit of measure used is time. To measure the speed of return on investment, there are two things that must be considered, namely if the return on investment (cash flow) is the same every year, the PBP formula = (initial investment/cash flow) x 1 year is used. However, if the return on investment is not the same every year, used the formula: $PBP = n + (a - b/c - b) \times 1 \text{ year}$.

Where:

n = the last year in which the amount of cash flow has not been able to cover the initial investment

a = amount of initial investment

b = cumulative amount of cash flows in year n

c = cumulative amount of cash flows in year n+1

So, the assumptions of the PBP method are:

- If the PBP is faster or shorter than the provisions, then the investment is worth it because it is profitable
- If the PBP is longer than the initial provisions, then the investment is not feasible because it is detrimental

The Time Value Aspect of the Invested Capital

There are various approaches to financial feasibility analysis in the form of investment. One approach that can be used is the Net Present Value (NPV) method seen from the net profit obtained at the end of an investment (Dai *et al.*, 2022). The step that is used as the basis for calculating it is by calculating the difference between the present value and the cash flow from the investment in the future.

NPV formula:

$$NPV = \sum PV_t - A_0$$

$$NPV = (PV_1 + PV_2 + \dots) - A_0$$

$$PV = NCF \times \text{Discount factor}$$

$$\text{Discount factor} = 1/(1+r)^t$$

Where:

NPV = Net Present Value

PV = Present Value

NCF = Cash flow

A0 = Investment at the beginning of the year

r = Capital cost

t = Investment/project period

This method uses the following assumptions:

- If Total NPV0 > NPV1, then the investment is not feasible because it can cause losses
- If NPV0 < NPV1, then the investment is worth it because it can be profitable
- If NPV0 = NPV1, then the investment is not feasible because it can cause losses

RESULTS AND DISCUSSION

This section may each be divided by subheadings or may be combined. A combined Results and Discussion section is often appropriate. This should explore the significance of the results of the work, don't repeat them. Avoid extensive citations and discussion of published literature only; instead discuss recent literature for comparing your work to highlight the novelty of the work in view of recent development and challenges in the field.

Results of Descriptive Data Analysis

From the information above, it can be seen in the detailed data tabulation as shown in the following table:

Table 3: Informant Data Tabulation

No	Description	Unit	Total
		(Rp)	(Rp)
1	Average initial investment amount for 10 units of Trigona honey broodstock	2.000.000	20.000.000
2	he average effective age of producing honey from Trigona Bees brooders	7 years	
3	The Bank's average interest rate during the initial investment process	12%/tahun	
4	Net income after costs-excluding the purchase of glodok ranging from 100,000 to 500,000/10 brooders/3 months		

5	The average in one year according to the informant's data that the maximum income will be when the broodstock is 3-4 years old. The experience of net income that the informant got for seven years has fluctuated depending on the weather and the amount of feed and the condition of the broodstock pests are as follows:		
Year	Net income		
1	4.000.000		
2	4.000.000		
3	6.000.000		
4	6.000.000		
5	12.000.000		
6	12.000.000		
7	20.000.000		

Source: Analysed data

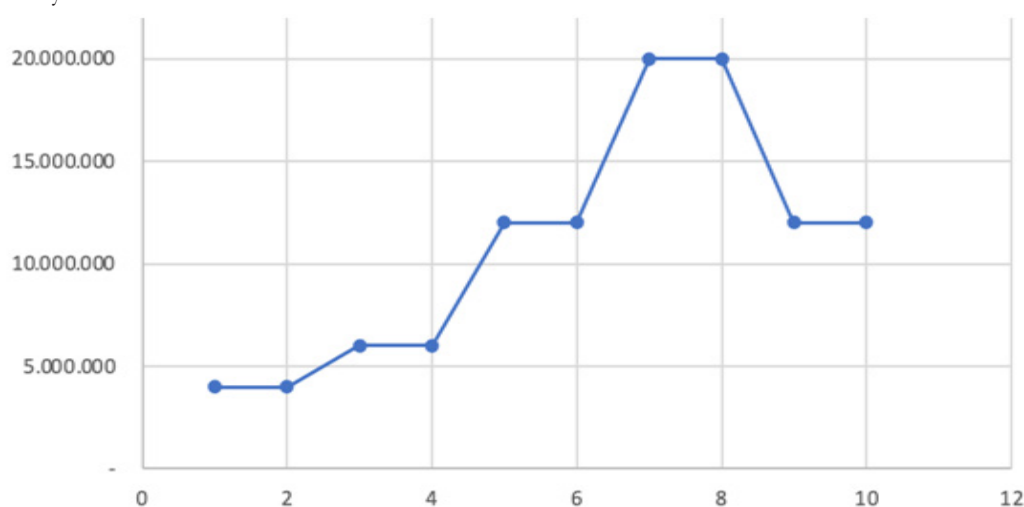


Figure 2: Cashflow Fluctuation For Ten Years Investment

Source: Analyzed data

Please note that the article will be published in black and white. Present tables and figures within the article, not at the end of the article. Tables should be numbered consecutively using Arabic numbering (Table 1, Table 2, etc.) and must have corresponding references in the main text. Tables should also have appropriate and concise headings. All figures and illustrations, as in the case of tables, should be numbered consecutively as 'Figures' (Figure 1, Figure 2, etc.) with corresponding references in the main text.

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Figures and Tables should be numbered properly with a descriptive title. Each Figure/Table must be explained within the text by referring to corresponding figure/table number. Any unexplained or unnumbered Figure/Table may cause rejection of the paper without being reviewed.

Payback Period Analysis

Analysis The initial payback period or in investment

analysis is called the Payback Period (PP) requires an adjustment of net income per year with the prevailing interest rate discount factored by the annuitet table. The applicable annuitet table with a Discount rate of 12% show in Table 4.

Table 4: DF table with 12% DR

$1/(1+r)^t$	
1	0,893
2	0,797
3	0,712
4	0,636
5	0,567
6	0,507
7	0,452
8	0,404
9	0,361
10	0,322

Then the Present Value Procced can be calculated by multiplying the annual cash flow by the annual DF as shown in the Table 5.

Table 5: Calculation of Payback Time

Year	Cash flow	DF	PVP
1	4.000.000	0,893	3.571.429
2	4.000.000	0,797	3.188.776
3	6.000.000	0,712	4.270.681
4	6.000.000	0,636	3.813.108
5	12.000.000	0,567	6.809.122
6	12.000.000	0,507	6.079.573
7	20.000.000	0,452	9.046.984

Source: Analyzed data

From the table data above, it can be explained that the investment will return in year 4 with a total return of Rp. 14,843,994 and the rest can be obtained in the 5th year for 1 month with a value of Rp. 5.156.006. So in the 1st month of the 5th year, all the capital invested by the community who cultivates Trigona honey honey has returned, amounting to Rp. 20,000,000 with a total of 10 glodogan/kungungan units. It means remaining time. After 2 years and 9 months is a net profit for Trigona honey honey cultivators.

So the payback period is 4 years and 1 month, which is shorter than the estimated 7 years of investment. And

it can be concluded that Trigona honey cultivation is profitable, or deserves to be continued.

Net Present Value Analysis

The benefits obtained by the Pay Back Period method are still very weak to describe whether or not the investment is feasible to continue, because it has not taken into account the time value of the current money that will be obtained in the coming year (Harahap, 2020).

To complete the analysis, an analysis of the time value of money invested is carried out in the form of money invested.

Table 6: Net Present Value calculation analysis table with DF 12%

Year	CF (Rp)	DF	PVP (Rp)
1	4.000.000	0,893	3.571.429
2	4.000.000	0,797	3.188.776
3	6.000.000	0,712	4.270.681
4	6.000.000	0,636	3.813.108
5	12.000.000	0,567	6.809.122
6	12.000.000	0,507	6.079.573
7	20.000.000	0,452	9.046.984
Total Present Value Process	36.779.674		
Initial Investment Amount	20.000.000		
Net Present value Proceed	16.779.674		

Source: Analyzed data

The table above illustrates that the Net Present Value Proceed (NPVP) shows a positive value of Rp. 16,779,674 where the total Present Value Proceed is greater than the total investment invested for 10 units of glodogan/Trigona honey honey broodstock. This means that profitable investments are continued because the time value of money embedded today is very beneficial for the next 7 years. The basic assumptions used for making investment value decisions when viewed from the side of the NPV analysis are; if the NVP is greater (positive NPV) than the investment amount, then the investment is worth continuing because it is profitable.

If the opposite happens (negative NPV) then the investment should be stopped or canceled because it can harm the company. However, if the investment value is the same as the NPV, the investment must be wary of because it can be profitable or detrimental. For this reason,

it is necessary to complement other analytical tools in investment analysis so that it provides more confidence to continue or postpone investment. All figures should be cited in the paper in a consecutive order, author may be asked to provide separate files of the figure. Figures should be used in bitmap formats (TIFF, GIF, JPEG, etc.) with 300 dpi resolution at least unless the resolution is intentionally set to a lower level for scientific reasons. If a bitmap image has labels, the image and labels should be embedded in separate layer. Figure 1 shows the logo of E-palli Publisher.

CONCLUSIONS

From the results of the financial analysis, especially the feasibility of investing in the cultivation of Trigona honey honey in Banjar Sobangan as a sample of the Kuwum village area, it can be concluded that judging from the

payback period invested in the form of purchasing glodog/Trigona honey honey broodstock imported from Kalimantan, it is profitable. , because the payback period is shorter than the estimated life of the investment, that is, within 4 years and 1 month the investment has returned. This means that the remaining time of 2 years and 9 months is an advantage for Trigona honey honey cultivators. The investment assessment from the Payback Period aspect has not ensured that the company benefits in real terms. Just calculate the return on capital.

For this reason, an analysis from another aspect is needed, namely the Net Present Value (NPV), which includes the calculation of the time value of the money invested now for the future value. Based on the NPV analysis that the cultivation of Trigona honey honey provides a positive value of Rp. 16,779,674. This means that investment in Trigona honey cultivation is feasible to continue.

The broad benefits obtained by people who cultivate Trigona honey honey are the additional average income of around Rp. 300,000 to 1,500,000 in every month throughout the life of the investment. This means that people who have lost their income due to the lack of tourism due to COVID-19 can increase their income for the needs of their families. In order to be able to provide better additional income, that based on the analysis tool for investment assessment of Trigona honey cultivation, it is better if the number of broodstock units held is in the range of 15 to 25 units in one period, and the investment time does not exceed 7 years because according to available data, after to 8, usually the broodstock begins to weaken to produce honey. To keep the broodstock always productive, the honeycomb cultivators are more concerned with maintaining the broodstock's nutrients by increasing the types of plants that are used as broodstock feed so that the broodstock remains healthy and productive. In addition, always maintain the cleanliness of the glodog area / confinement so that the parental predators and chicks of the catfish do not become prey to predators. Maintaining the humidity of the broodstock area also needs special attention, because if the air is too dry and humid it is not good for the productivity of the broodstock in producing honey.

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