



Management of Investment Feasibility in Strengthening the Trigona Bee Cultivation Organization in Bongkasa Pertiwi Village, Abian Semal District, Badung District

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ABSTRACT

One of the villages in Bali that is suitable as an area for developing kele-kele (*Trigona spp*) honey cultivation is Bongkasa Village, Abiansemal, Badung. This condition shows that group management is not good so that in the research year in 2022 there were still 8 active members with a total of 477 colonies. The method used in collecting data for this research is survey and interview methods with primary and secondary data sources. The analysis technique used is Payback Period (PBP), Net Present Value (NPV) analysis. With indicators measuring interest rates and net cash inflow compared to investment, getting a positive NPV of IDR 800,390,453 means that the investment is worth continuing, even on a larger scale

INTRODUCTION

Honey catfish are one of the forest resources that have the potential to be developed. This is due to the abundance of food sources for Kele-kele; almost all plants that produce flowers can be used as food sources, whether they come from forest plants, agricultural plants, or plantation plants. However, public interest in cultivation is still low due to a lack of knowledge and the perception that this business is not profitable. Apart from that, this business mostly involves honey bee farming with limited capital and no access to financing sources.

Other related parties, including banks and other financial institutions, do not yet believe that beekeeping is a business that can be developed commercially; therefore, information is needed on the financial analysis of the kele-kele honey bee business. One of the villages in Bali that is suitable as an area for developing kele-kele (*Trigona* spp.) honey cultivation is Bongkasa Village, Abiansemal District, Badung Regency. The "Sarining Trigona Pertiwi" group is a group founded in 2018 consisting of 22 members carrying out honey bee cultivation activities. In subsequent developments, many group members did it independently. This means that this condition shows that group management is not good, so in the research year 2022, there were still 8 active members with a total of 477 colonies. The business of developing honey kele-kele through cultivation aims to increase the income of the members of the farmer group. However, in farming activities such as honey catfish cultivation, 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, which will reduce the farmers' income (Karmila 2013). For this reason, an investment analysis of the honey kele-kele cultivation farming business is needed to provide farmers with an idea of how to carry out profitable farming activities by considering the various costs and production factors that will be incurred in farming activities.

The objectives of this research are (1) to determine the strategy for strengthening the kele-kele (*Trigona* Sp) honey cultivation business group in Bongkasa Village, Abiansemal sub-district, Badung Regency; (2) to determine production and income in the kele-kele (*Trigona* Sp) honey cultivation business in Bongkasa Village, Abiansemal sub-district, Badung Regency; and (3) to analyze the financial feasibility of the kele-kele (*Trigona* Sp) honey cultivation business in Bongkasa Village, Abiansemal sub-district, Badung Regency.

LITERATURE REVIEW

Kele-kele Honey Bee (Trigona sp.).

Trigona sp. is a species of bee native to Asia; the honey it produces has a sour taste but is resistant to fermentation and rarely moves from one place to another; and the price of the honey product is higher than *Apis* honey products. The *Trigona* bee belongs to the stingless bee group, namely the group of bees that bite but do not have a sting. *Trigona* bees maintain heat by forming swarms. When the temperature is too cold, *Trigona* sp. bees are busy maintaining their body temperature, thereby reducing their activity (Abdilah, 2008).

Definition of Investment

Investment is an effort to invest capital or funds with the hope of getting a profit (return) in the future. Meanwhile, according to the definition of investment by the Financial Services Authority (OJK), the meaning of investment is capital investment, usually in the long term for the procurement of complete assets or the purchase of shares and other securities to gain profits.

Production Costs

The production costs referred to in this research are all costs incurred by farmers during honey kele-kele cultivation business activities, which consist of fixed costs and variable costs. The production process is a fundamental activity for a company. Therefore, a company needs to properly calculate the production costs that must be incurred to be able to produce quality goods and services that meet expectations.

Financial Analysis

Financial analysis in this research is the analysis used to determine the feasibility of a farming business (Honey Kele-kele) in terms of its ability to generate income. The aspect of financial feasibility concerns the factor of a manager's ability to project his cash flow, which shows that there are conditions that ensure that the customer is capable of fulfilling his financial obligations, including the most important thing being being able to repay the loan on time without there being traffic jams or arrears (Fahmi et al., 2010). The financial aspects that need to be observed are the components and structure of costs. What is meant by the structure and components of costs are as follows: 1. Investment costs, in the form of land for farming, taxes, and the amount of interest on loans, as well as costs for purchasing production equipment. 2. Operational/production and maintenance costs, in the form of prices of raw materials and their quantities, prices of auxiliary materials and their quantities, the number of workers, and their wages. 3. Costs for replacing equipment with an economic life of 1 to 10 years. (Reviansyah, 2011).

METHODOLOGY

This research was carried out in Bongkasa Village, Abiansemal District, Badung Regency using a survey method, namely by collecting data in the field through direct interviews with farmers using a list of questions that had been prepared. Sample determination was carried out using the proportional random sampling method because the condition of farmers was relatively homogeneous in terms of the scale of business, cultivation procedures, and cultivation objectives. The respondents in this research were honey kele-kele agro-industry entrepreneurs in Bongkasa Village, Abiansemal District, Badung Regency. The type of data collected in this research is primary data, namely data obtained from direct interviews with respondents, guided by a list of questions that have been prepared, and from direct observations in the field.

Data analysis was carried out using financial analysis of investment feasibility, which includes: (1) strengthening the Kele-kele cultivation group; (2) the feasibility aspect of the return on capital; and (3) the time value aspect of invested capital.

RESEARCH RESULT

Data obtained based on interviews with key informants (kele-kele honey cultivators who already know a lot about the ins and outs of the business in question) is continued with informants recommended by key informants (snowball sampling method) until the information obtained whose character is close to the same (saturated) is that the glodok/kungkunga seeds (catfish broodstock) were imported from the Kalimantan region. The price per glondok is around Rp. 1.500.000 to 2.000.000, depending on the type of broodstock ordered. One brood house with a kele-kele queen that is still active can last 1-8 years and, on average, can produce effectively for approximately 2-7 years. If the humidity and temperature requirements can be maintained and the feed is guaranteed, then the broodstock of kele-kele can survive in one glodok for up to 10 years. The main food that is easiest to provide is coconut essence, mango, mangosteen, bridal tears, and others. The pests most feared by catfish honey farmers are lizards, geckos, ants, and pesticides that are accidentally sprayed on plants where catfish feed. Assuming that maintenance according to the characteristics of the kele-kele type bees can be maintained, the average income per glodok is 3-5 ml per month, so in one year, it can be harvested four times with an average of 15-20 ml per year per glodok. Price per mL: 1.500 to 2.000. Each farmer cultivates at least 10-50 kele-kele honey plants per cage, with an average capital of IDR. 20,000,000 to 100,000,000. This means that the capital invested in the form of investment in cultivating kele-kele honey is not small. If we look at the source of the funds, the funds are in the form of loans from banks, so if we look at the deposit interest rates that were in effect at that time,

The information above can be seen in the detailed data tabulation in the following table:

Table 1. Tabulation of informant data

No	Information	Unit (Rp)	Total (Rp)
1	The average initial investment amount is 477 units of glodokan or kungkungan of kele-kele broodstock.	2.000.000	954.000.000
2	The average estimated effective age for producing honey from catfish broodstock	7 years	
3	Average bank interest rate during the initial investment process	12%/years	
4	Net income after costs, excluding the purchase of glodok, ranges from 100.000 to 500.000/10 broodstock/3 months		
5	The average income in one year is based on informant data, which indicates that income will be maximum when the broodstock is 3–4 years old. The experience that the informant's net income has fluctuated over seven years depending on the weather, the amount of feed, and the condition of pests that disturb broodstock is as follows:		

Years to	Total net income
1	190.800.000
2	190.800.000
3	286.200.000
4	286.200.000
5	572.400.000
6	572.400.000
7	954.000.000

Source: processed data

Payback Time Analysis

Analysis of the initial payback time, called the payback period (PP), requires adjusting the net opinion per year with the applicable interest rate, which is discounted and factored into the annuity table. Applicable annuitant tables with a 12% discount rate are:

Table 2. DF table with DR 12%

	$1/(1+r)^t$
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 processed (PVP) can be calculated by multiplying the cash flow each year by the DF per year, as shown in the following table:

Table 3. Calculation of payback time

Investment years	Castflow	DF	PVP
1	190.800.000	0,893	170.357.143
2	190.800.000	0,797	152.104.592
3	286.200.000	0,712	203.711.507
4	286.200.000	0,636	181.885.274
5	572.400.000	0,567	324.795.132
6	572.400.000	0,507	289.995.654
7	954.000.000	0,452	431.541.151

Source: processed data

From the table data above, it can be explained that the investment will return in the 4th year with a total return of Rp. 708.058.516, and the rest can be obtained in the 5th year for 2 months and 4 days with a value of Rp. 245.941.484. So in the 2nd and 4th months of the 5th year, all the capital invested by the community cultivating kele-kele honey has returned Rp. 954.000.000 with a total of 477 glodogan units. This means that the remaining 2 years and 10 months are a benefit. So the payback time for the investment is 4 years and 2 months, which is shorter than the estimated investment of 7 years. It can be concluded that the kele-kele cultivation business is profitable or worth continuing.

Net Present Value Analysis

To complete the analysis, an analysis of the time value of the money invested is carried out, where the method used is called net present value, namely by the analysis process of reducing the total present value to proceed with the present investment value, which can be seen through the calculation of the following table:

Table 5. Net Present Value calculation analysis table with DF 12%

Year to	CF (Rp)	DF	PVP (Rp)
1	190.800.000	0,893	170.357.143
2	190.800.000	0,797	152.104.592
3	286.200.000	0,712	203.711.507
4	286.200.000	0,636	181.885.274
5	572.400.000	0,567	324.795.132
6	572.400.000	0,507	289.995.654
7	954.000.000	0,452	431.541.151
Sum of Present Value Proceed			1.754.390.453
Sum Investment Amount			954.000.000
Net Present value Proceed			800.390.453

Source: processed data

The table above illustrates that Net Present Value Proceed (NPVP) shows a positive value of Rp. 800.390.453, where the amount of present value proceeds is greater than the total investment invested for 477 units of glodog/kele-kele honey broodstock confinement. This means that profitable investment is continued because the time value of money embedded today will be very beneficial in the next 7 years. The basic assumptions used for investment value decision-making when viewed from the NPV analysis side are that 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 equal to the NPV, then investment must be watched out for because it can be profitable and 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.

CONCLUSIONS AND RECOMMENDATIONS

1. Judging from the period of return on capital invested in the form of purchasing glodog/honey broodstock confinement imported from the sentence, it is profitable because the payback period is shorter than the estimated investment life, which is within 4 years and 2 months after the investment has returned. This means that the remaining time of 2 years and 10 months is an advantage for kele-kele honey cultivators.
2. Investment appraisal from the payback period aspect has not ensured the company's benefits in real terms. I just calculated the return on capital. For this reason, analysis is needed from another aspect, namely Net Present Value (NPV), which includes the calculation of the time value of money invested now for future value. Based on NPV analysis, the cultivation of kele-kele honey gives a positive value of Rp. 800.390.453. This means that investment in kele-kele honey cultivation is worth continuing.
3. The broad benefits obtained by people who cultivate kele-kele honey are the additional average income of around Rp. 300.000 to 2.500.000 in each month throughout the life of the investment. This means that the community can increase the coffers of income for family needs, in addition to increasing the variety of activities to grow the tourism village of Bongkasa Pertiwi village.

ADVANCED RESEARCH

This research still has limitations so it is necessary to carry out further research related to the topic "Management of Investment Feasibility in Strengthening The Trigona Bee Cultivation Organization in Bongkasa Pertiwi Village, Abian Semal District, Badung District" to perfect this research, as well as increase insight for readers.

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