THE FEASIBILITY INVESTMENT OF HONEY BEE CULTIVATION BUSINESS Trigona sp. IN LANDONO DISTRICT SOUTH KONAWE REGENCY
(Case Study of Madu Mas Forest Farmer Group)

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ABSTRACT

This study aims to analyze the financial aspects and the sensitivity of the Trigona sp. honey bee cultivation business in the Landono District, South Konawe Regency. This research was conducted from September 2021 to March 2022 using the case study method in the Madu Mas forest farmer group, with eight people used as informants. Research variables include informant identity and business feasibility analysis. The data analysis used is a quantitative analysis using investment assessment criteria including NPV, Net B/C, IRR, Payback Period, and sensitivity analysis. The results showed that the financial aspect obtained an NPV value of IDR40,139,762, with a discount factor of 14%, Net B/C of 1.94, an IRR value of 28.84%, and a Payback Period of 3 years four months so that the honey bee cultivation business declared financially viable. Based on the sensitivity analysis, the business is still feasible to run despite a 25% decrease in honey production and a 35% increase in operating costs. However, if there is a decrease in honey production by 25% and an increase in operational costs by 35% simultaneously, then the honey bee cultivation business is not feasible.

Keywords: financial feasibility; sensitivity; Trigona sp. bee

INTRODUCTION

Non-timber forest products (NTFPs) are forest resources that have an essential role in the welfare of the community around the forest (Sari et al., 2020). According to Minister of Forestry Regulation Number 19 of 2009 regarding the national non-timber forest product development strategy, there are five types of non-timber forest products (NTFPs) development priorities: rattan, bamboo, natural silk, etc. agarwood and honey bees. One of the non-timber forest products with high economic value and is a source of livelihood for rural communities is forest honey (Suhesti & Hadinoto, 2015). The type of bee that is quite potential to be cultivated is the honey bee Trigona sp. It has a distinctive honey and produces quite a lot of propolis (Sutarto & Nuryati, 2008).

Southeast Sulawesi produces non-timber forest products in the form of honey bees Trigona sp. still quite a bit. According to the Functional Extension Working Group of the Southeast Sulawesi Forestry Service, honey production in Southeast Sulawesi is only contributed by four districts: Bombana, Kolaka, Konawe, and South Konawe Regencies. Of the four regencies, the most significant contributor to honey production in South Konawe Regency with a total production of 829 Kg, Konawe Regency 340 Kg, Bombana and Kolaka Regencies each with 50 Kg. One of the sub-districts in South Konawe Regency as a place for bee cultivation honey is Landono District. The Madu Mas Forest Farmers Group is the first and largest group in cultivating honey bees.

Bee Trigona sp. is a stingless bee and has the advantage of a distinctive honey taste, namely sweet and sour and higher honey prices (Rosyidi et al., 2018). Cultivation business is carried out to meet the growing demand for honey products (Ichwan et al., 2016). Forming farmer groups can increase farm productivity through simultaneous farming management (Maulana, 2019). This business is part of the agricultural business, sensitive to environmental changes such as changes in weather and fluctuations in the price of components of production operating costs. These changes are
predicted to directly affect the feasibility of investments made by cultivators for the businesses established. Sensitivity tests are also carried out on environmental changes to determine the feasibility of a business when faced with uncertain conditions. The Madu Mas Forest Farmers Group, in its cultivation process, has several times been the object of research, such as research conducted by (Pratiwi et al., 2020) on productivity and efficiency analysis of marketing and research (Dharma et al., 2021), which describes the form and level of participation of farmer group members.

Research on feasibility studies is the basis for assessing whether investment activities are feasible (Hidayat, 2021). Research (Dianaekasari et al., 2016); (Noor et al., 2019); (Sari et al., 2020) used the R/C Ratio analysis tool and did not perform sensitivity. The purpose of this study was to determine the financial feasibility of the *Trigona* sp. honey bee cultivation business and business sensitivity to environmental changes that may occur in the future.

**MATERIALS AND METHODS**

The research was conducted using the case study method in the Madu Mas Forest Farmer Group, Landono Subdistrict, South Konawe Regency, from September 2021 to March 2022. The location of this research was determined purposively. The informants of this research are all members forest farmer group which amounted to 8 people. According to (Kasmir & Jakfar, 2012), the criteria commonly used to determine business viability are Present Net Value (NPV), Net Benefit-Cost Ratio (Net B/C), Internal Rate of Return (IRR), Payback Period (PP), and sensitivity analysis. According to (Kusuma & Mayasti, 2014), sensitivity analysis is done to see the sensitivity of the business to changes that may occur throughout the investment. Sensitivity analysis is done by changing the magnitude of the critical variables with a certain percentage that is already known or predicted. Then assessed, the sensitivity of changes in these variables impact the feasibility results (NPV, IRR, Net B/C) (Nurnalina et al., 2020).

**RESULTS AND DISCUSSION**

**Characteristics of Informants**

The characteristics of the informants in this study were divided into four characteristics, namely age, education, number of family dependents, and business experience, as shown in Table 1.

| Characteristics                        | Value | Average | Percentage |
|----------------------------------------|-------|---------|------------|
| Age (Years)                            | 15-64 | 8       | 43.8       | 100.0      |
| Education                              |       |         |            |
| Primary school                         | 1     |         |            | 12.5       |
| Junior High School                     | 3     |         | 37.5       |
| Senior High School                     | 3     |         | 37.5       |
| Bachelor                               | 1     |         | 12.5       |
| Number of Family Dependents (Soul)     | ≤ 4   | 8       | 3.8        | 100.0      |
| > 10                                   |       | 8       | 12.0       | 100.0      |

The cultivation business of The Madu Mas Forest Farmer Group is managed by cultivators who are still in their productive age, of which eight cultivators are 100% of productive age. In line with research results (Suyono & Hermawan, 2013), the age of workers in productive age has a positive relationship with labor productivity. The education level of cultivators is classified as secondary education level. Still, the level of education does not become an obstacle for cultivators in the development of beekeeping because they already have extensive knowledge gained from cultivation experience. According to (Tuwo, 2011), education affects how farmers think they can be more responsive. The number of family dependents is divided into small and large family dependents. The number of dependents of small families is around 1-4 people and more than four people, including the number of dependents of large families (Hardin, 2019). All cultivators have a relatively small number of family dependents, namely under four people. In addition to cultivation activities, cultivators also do other work (cattle and construction workers) to meet family needs. A study (Hanum, 2018) shows that the number of family dependents positively affects household consumption. The bee cultivator of Madu Mas Forest Farmer Group is dominantly experienced in carrying out cultivation activities.

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results showed that all members of the farmer group, namely eight people (100%), belonged to the category of business experience above ten years. According to (Purba & Khadijah, 2021); (Chiliya & Roberts-Lombard, 2012), business experience helps make decisions to achieve success.

### Analysis of Financial Aspects and Sensitivity

Analysis business carried out to determine the feasibility of the financial aspects of Madu Mas Forest Farmer Group. The results of the financial feasibility analysis of honey bee cultivation in Madu Mas Forest Farmer Group can be seen in Table 2.

#### Table 2. Results of financial analysis and sensitivity of honey bee cultivation in Madu Mas Forest Farmer Group

| Condition                      | Criteria | Result      | Unit       | Information   |
|--------------------------------|----------|-------------|------------|---------------|
| Normal                         | NPV      | 39.762.121  | IDR        | Feasible      |
|                                | Net B/C  | 1.94        | Ratio      | Feasible      |
|                                | IRR      | 28.84       | %          | Feasible      |
|                                | PP       | 3.4         | Years; Month | Feasible    |
| Decrease in Honey Production   | NPV      | 3.415.086   | IDR        | Feasible      |
| by 25%                         | Net B/C  | 1.11        | Ratio      | Feasible      |
|                                | IRR      | 15.56       | %          | Feasible      |
|                                | PP       | 7.44        | Years; Month | Feasible   |
| Increase in Operating Costs by | NPV      | 22.316.039  | IDR        | Feasible      |
| 30%                            | Net B/C  | 1.55        | Ratio      | Feasible      |
|                                | IRR      | 22.34       | %          | Feasible      |
|                                | PP       | 4.50        | Years; Month | Feasible   |
| Decrease in Honey Production   | NPV      | -13.485.355 | IDR        | Not feasible  |
| by 25% and Increase in         | Net B/C  | 0.76        | Ratio      | Not feasible  |
| Operational Costs by 30%       | IRR      | 8.11        | %          | Not feasible  |
| Simultaneously                 | PP       | 13.39       | Years; Month | Not feasible |

NPV is the difference between the total present value of benefits and the total present value of costs. Business can be feasible if the NPV value obtained is more significant than zero (Kristiawan et al., 2017). The analysis results show that the NPV value obtained at a discount factor of 14% is IDR39.762.121.-. This value indicates the honey bee cultivation business of Madu Mas Forest Farmers Group is worth working on. The NPV value generated by honey bee cultivation in the Madu Mas Forest Farmers Group is more significant than the research results (Dianaekasari et al., 2018), which only produces an NPV value of IDR31.121.886.-.

Net B/C is the ratio between positive net benefits (NPV+) and negative net benefits (NPV-), which compares the present value of benefits with current costs at an interest rate of 14%. Based on the analysis results, the Net B/C value is 1.94, which means that the honey bee cultivation business being carried out by The Madu Mas Forest Farmers Group is feasible to cultivate because the Net B/C value obtained is greater than one (Net B/C > 1). This is in line with research (Fitriyah et al., 2020) which explains that if the Net B/C value is more significant than one, the business is feasible to run.

IRR is used to determine the rate of return of business to some investments issued. The results of the analysis show that the IRR value is 28.84%. This shows that the investment in honey bee cultivation by the Madu Mas Forest Farmers Group can be declared feasible or profitable because the rate of return on investment capital obtained is greater than the prevailing interest rate of 14%. Similar research was also conducted by (Sari et al., 2020), where the research results show that the IRR eligibility criteria is 23.52% - 27.91% and is feasible.

The payback Period shows the time required for the cultivation business to return the investment capital that has been issued. It is known that the results of the calculation of the payback period for honey bee cultivation by the Madu Mas Forest Farmer Group are three years and four months. The payback period for this group's investment is slightly longer when compared to the results of the study (Elpawati, 2018), which only took 2.7 years. This is because at the beginning of the year, carrying out cultivation activities, the Madu Mas Forest Farmers Group only has 1-2 hives with a small number of stup boxes. The income earned is still relatively small.

Sensitivity analysis is used to determine the extent of honey bee cultivation. The Madu Mas Forest Farmer Group can withstand the present and future changes. Based on the sensitivity analysis results, honey bee cultivation of the Madu Mas Forest Farmer Group is still viable and profitable despite a 25% decrease in production and an increase in production operating costs of 35%.
However, if there is a decrease in honey production by 25% and an increase in operational costs by 35% simultaneously, the cultivation business is not feasible to run. Sensitivity analysis was also carried out on the study (Dewi, 2018) to changes in operational costs and income parameters by 5%.

CONCLUSION

Analysis of financial aspects based on investment feasibility criteria shows that this business is feasible to run with an NPV value of IDR 39,762,121,-, Net B/C of 1.94, IRR of 28.84%, and Payback Period of 3 years and four months. The honey bee cultivation business is still feasible and profitable, despite a 25% decrease in production and an increase in production operational costs of 35%. However, if there is a decrease in honey production by 25% and an increase in operational costs by 35% simultaneously, the cultivation business is not feasible.

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