

Financial Feasibility Of Royal Honey Sakah Bee Agrotourism

I Made Dicky Chandra Wibisana¹ and Ni Luh Made Indah Murdyani Dewi^{1,2}
Udayana University, Bali, Indonesia¹
Center of Excellence for Food Sovereignty, Udayana University, Bali, Indonesia²

Corresponding Author : I Made Dicky Chandra Wibisana

E-mail : dickych27@gmail.com

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ABSTRACT

BACKGROUND AND OBJECTIVES:

Royal Honey Sakah Bee Agrotourism is a beekeeping business established to educate the public about honeybee culture and increase the honey sales profits. However, over time the owner faced challenges in stabilizing honey production to meet sales demand. Therefore, a financial feasibility analysis is necessary to evaluate the viability of the investments made. This study aims to assess the feasibility and sensitivity of Royal Honey Sakah Bee Agrotourism.

METHODS:

Primary data were collected through interviews with key informants, while secondary data were obtained from relevant sources. Financial feasibility was evaluated using NPV, IRR, Net B/C Ratio, and Payback Period. Sensitivity analysis was conducted under three main assumptions, such as inflation rate, sales decline, and interest rate increase.

FINDINGS:

Royal Honey Sakah Bee Agrotourism is financially feasible with an NPV of IDR166,134,926; IRR of 21.61%; Net B/C Ratio of 1.09; and a Payback Period of 3 years and 9 months. The business remains feasible under 1.57% inflation and an interest rate increase from 7.5% to 12%. However, a 10% decline in sales would render it unfeasible and potentially result in future losses.

CONCLUSION:

Royal Honey Sakah Bee Agrotourism must maintain the quality of its honey, as well as the services and educational experiences it offers. It should also consider increasing the number of bee colonies and improving their care, alongside enhancing its promotion and marketing strategies. Through these efforts, it is expected that Royal Honey Sakah Bee Agrotourism can grow sustainably and avoid potential losses in the future..

Keywords: Financial; Bee; Honey; Agrotourism; Sensitivity

INTRODUCTION

Honey is one of the agribusiness products that has long been known to the general public globally, including in Indonesia. Although honey is widely known and favored by many people, it is still difficult for the public to obtain this product, especially authentic honey. Statistics Indonesia (BPS) (1) reported that honey production in Indonesia has been highly fluctuating from 2019 to 2023. In 2019, national honey production reached 498.2 thousand liters. The figure then drastically dropped to 51.34 thousand liters in 2020. In 2021, national honey production rose significantly to 189.8 thousand liters, and it increased again to 220.1 thousand liters the following year. However, in 2023, it fell drastically again to just 21.39 thousand liters. This high level of fluctuation indicates the ongoing difficulty in stabilizing honey production in Indonesia, which poses a challenge for honey beekeeping business owners. Instability in production affects honey supply availability and impacts sales, services, and customer experience particularly for honey bee farming businesses engaged in Agrotourism.

Royal Honey Sakah Bee Agrotourism is both a bee farming tourism site and a producer of pure honey, established in 2020. It is located on Jalan Raya Sakah, Gang Jeruk, Batuan Kaler Village, Sukawati District, Gianyar Regency. Originally, it was founded to promote proper beekeeping education and to market high-quality honey to the public through an educational tourism concept. One of its flagship honey products is kele-kele honey and nyawan honey. Kele-kele honey (also known as Trigona honey) is produced by stingless bees of the species *Trigona itama*. These bees are characterized by their small size and the absence of a sting. What sets Trigona honey apart is its darker color, sourer taste, and more watery texture, which come from its high propolis content. Propolis is a substance produced by honeybees from plant resins, collected from shoots, flowers, and bark, and contains various compounds including vitamins, minerals, enzymes, phenolic compounds, and flavonoids. The other product, nyawan honey, is made by the native Asian honeybee species (*Apis cerana*), commonly known as tawon in Javanese and nyawan in Balinese. This type of honey is the most common in the market and is characterized by its sweet taste and thick texture.

Aligned with the national data on honey production fluctuations, Royal Honey Sakah Bee Agrotourism also experiences similar conditions. Changes in its honey production volume reflect national dynamics. From 2022 to 2024, the business produced 24 liters of honey in 2022, increased to 28 liters in 2023, and rose again to 41 liters in 2024. This production instability resulted in the inability to meet honey demand, prompting the owner to collaborate with other beekeepers to supply honey to the Agrotourism business. This inability to meet demand reflects the findings of a study (3) which states that to fulfill its honey needs, Indonesia still needs to import honey, resulting in a trade deficit in honey exports and imports. Global honey exports reached 206,990.00 kg/year, while global imports amounted to 2,117,424.00 kg/year. The significant gap between exports and imports shows that domestic honey demand is increasing, but the local honey industry has not yet been able to meet this demand.

Similar conditions are found in a beekeeping business located in Kuapan Village, Tambang Subdistrict, Kampar Regency. Research showed that a decline in honey production occurred due to reduced forest areas, prompting communities to increase interest in beekeeping as a way to stabilize honey production. Another study reported the same issue in the beekeeping industry at the West Rinjani Forest Management Unit (KPHL) in West Nusa Tenggara Province. Honey production remains low compared to demand, making it necessary to increase production to meet high market needs. Overall, the instability of honey production is caused by many factors and remains a core issue for beekeeping businesses in Indonesia. Efforts to stabilize and increase production are urgently needed. Research adds that fundamental problems in developing Trigona

honey businesses relate to business and financial management, access to capital, and product marketing.

On the other hand, many efforts have been made in Indonesia to increase honey production volume. In a study (7) conducted in the Setapak Besar mangrove area, Trigona honey farming was developed using appropriate technology that utilizes mangrove forests as a bee forage resource. A similar effort was found in a study (8) conducted in Kepahiang Regency, Bengkulu Province, where integration between coffee plantations and surrounding beekeeping yielded 114% more honey than those outside of such integration systems

The difficulty in stabilizing honey production in various regions in Indonesia creates doubt among honey beekeeping business owners about developing their enterprises. This is particularly true for privately operated businesses like Royal Honey Sakah Bee Agrotourism. The labor and investments already put into the business raise the question: is beekeeping still financially feasible? Therefore, this study aims to address the owner's doubts and is intended to: (1) assess the financial feasibility of the Royal Honey Sakah Bee Agrotourism to determine whether the business is financially viable for operation and development, and (2) conduct a sensitivity analysis to predict the business's financial condition in the future under possible changes.

RESEARCH METHOD

This research was conducted at Royal Honey Sakah Bee Agrotourism, located in Batuan Kaler Village, Sukawati District, Gianyar Regency, Bali. The location was purposefully selected through a preliminary survey and interviews conducted at the research site. The location was chosen because Royal Honey Sakah Bee Agrotourism is a newly operating business that began in February 2020, and Batuan Kaler Village is planned to be developed into a tourism village in 2025. This presents a potential for development that could positively influence the growth of Royal Honey Sakah Bee Agrotourism located in the same village.

The data used in this research includes both quantitative and qualitative data, derived from primary and secondary sources. Quantitative data in this study includes initial investment, total expenditures, total revenues, fixed costs, variable costs, business cash flow, sales results, and product prices. Qualitative data was obtained through interviews with pre-selected key informants.

The data collection methods used were interviews and documentation. Interviews were conducted face-to-face with the data sources, involving direct questions and answers between the researcher and the informants (9). Documentation refers to the technique of collecting data by studying existing recorded materials. Etymologically, documentation (from the word *document*) means written materials (10). To obtain the required data, the researchers selected key informants who possessed the necessary knowledge and information. The chosen key informants were I Wayan Wahyudi, as the owner and manager, and Nyoman Mulyani, as the assistant manager of Royal Honey Sakah Bee Agrotourism. This study has an operational limitation in that it focuses solely on the financial aspect and does not consider other aspects. The financial data analyzed covers the period from 2020 to 2026, and all analyzed data were obtained from the selected key informants

Objective 1 will be analyzed using investment criteria indicators such as Net Present Value (NPV), Internal Rate of Return (IRR), Net Benefit Cost Ratio (Net B/C Ratio), Payback Period (PP), and sensitivity analysis. To determine the financial feasibility of the Royal Honey Sakah Bee Agrotourism business, an analysis will be conducted using NPV, IRR, Net B/C Ratio, and Payback Period. Net Present Value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a specific period. NPV can be formulated as follows (11):

$$NPV = \sum_{t=0}^n \frac{B_t - C_t}{(1+i)^t}$$

Explanation :

B_t = Benefit received per year
 C_t = Cost incurred per year
 i = Interest rate used
 t = Period in year- t
 n = Economic life of the project

Internal Rate of Return (IRR) is a method used to calculate or determine the interest rate at which the Net Present Value (NPV) equals zero. The IRR can be formulated as follows (12):

$$\sum_{t=1}^n (B_t - C_t)/(1+i)^t = 0 \text{ or } NPV = 0$$

Explanation :

B_t = Project benefit per year
 C_t = Project cost per year
 n = Economic life of the project
 i = Interest rate that causes $NPV = 0$

Net B/C Ratio is the ratio that compares the net positive benefits with the net costs to indicates the profitability of a project or investment. The formula is as follows (11) :

$$Net\ B/C = \frac{\sum_{k=0}^n \frac{B_t - C_t}{(1+i)^t}}{\sum_{k=0}^n \frac{C - B_t}{(1+i)^t}} \quad \begin{array}{l} \longrightarrow \text{ For } B_t - C_t > 0 \\ \longrightarrow \text{ For } B_t - C_t < 0 \end{array}$$

Explanation :

B_t = Benefit in year t
 C_t = Cost in year t
 n = Economic life of the project
 i = Interest rate used

Payback Period is the length of time required to recover the initial investment from the net cash inflows generated by the project. The formula is as follows (13):

$$PP = \frac{I_0}{Ab} \times 1 \text{ Tahun}$$

Explanation :

I_0 = Initial Investment

Ab = Annual Net Cash Inflow

Objective 2 will be analyzed using business sensitivity analysis based on assumptions projected to occur in the future. Sensitivity analysis is used to observe the effects of uncertainty, errors, or changes within Royal Honey Sakah Bee Agrotourism. This analysis uses parameters such as increases in operational costs and decreases in product sales. The sensitivity analysis assumptions used are as follows:

1. Royal Honey Sakah Bee Agrotourism experiences an operational cost inflation of 1.57% and a bank interest rate of 7.5% (Referring to Indonesia's inflation rate in 2024)
2. Royal Honey Sakah Bee Agrotourism experiences a 10% decline in sales with a bank interest rate of 7.5% (Referring to the interest rate of BPD Bali)
3. The interest rate on loans was increased to 12%

RESULTS AND DISCUSSION

Financial Feasibility Analysis

In this analysis, several assumptions were used to assess the financial feasibility of the business. These include: the economic life of the production is 7 years (from 2020 to 2026), the initial investment has a 7-year economic life, the interest rate used is 7.5% (BPD Bank rate in 2024), raw material purchases are assumed to match sales in the same year, the purchase price and revenue are assumed at the highest values, and salvage value is accounted for at the end of the 7th year.

Investment costs include all types of expenses incurred by the owner of Royal Honey Sakah Bee Agrotourism as initial capital to build the business. Investment in land and buildings constructed on privately owned land measuring 1,000 m² with a building size of 200 m² and a warehouse of 8x4 m² amounted to IDR136,400,000. Investment in bee colonies and feeding resources necessary for supporting production activities and demonstrating honeybee farming operations totaled IDR53,000,000. Investment in equipment and other materials to support production activities or enhance the aesthetics and comfort of Royal Honey Sakah Bee Agrotourism amounted to IDR82,361,200.

Operational costs refer to the expenses incurred by Royal Honey Sakah Bee Agrotourism in running its operational activities. These costs include employee wages, electricity and maintenance, transportation, and raw materials. Annual labor costs are IDR68,400,000 for four employees. Electricity and maintenance costs amount to IDR5,100,000 per year. Raw material costs vary each year depending on purchase demand, with the peak reaching IDR195,343,000.

Revenue at Royal Honey Sakah Bee Agrotourism is the total income generated from product sales during a one-year period. The highest product sales and revenue occurred in the third year, totaling IDR359,600,000. The lowest revenue was recorded in the fourth year at IDR330,400,000.

The daily operational expenses of Royal Honey Sakah Bee Agrotourism consist of raw material costs, labor, electricity, maintenance, and utilities. The highest operational expense is raw material procurement to meet honey sales demand. The lowest costs are electricity and maintenance, as electricity is rarely used for production, and maintenance is allocated from income as a preventive measure for colony and equipment upkeep.

After analyzing the income and expenses of Royal Honey Sakah Bee Agrotourism, the business's cash flow was obtained. It was found that the business incurred expenses totaling

IDR2,260,594,200 over a 7-year period, with a present value of IDR1,769,943,534. Revenue over the same period reached IDR2,588,633,833, with a present value of IDR1,936,078,460.

After calculating the investment, financing, and revenue of Royal Honey Sakah Bee Agrotourism as described in the previous section, the business budget structure was obtained and analyzed using financial feasibility criteria such as NPV, IRR, Net B/C Ratio, and Payback Period, with an applied annual interest rate of 7.5%.

Table 1
Investment Criteria Results of Royal Honey Sakah Bee Agrotourism

No	Investment Criteria	Analysis Result	Description
1	NPV	IDR166,134,926	Feasible
2	IRR	21.61%	Feasible
3	Net B/C	1.09	Feasible
4	PP	3.75	Feasible

Based on Table 1, Royal Honey Sakah Bee Agrotourism has a Net Present Value (NPV) of IDR166,134,926 at a 7.5% discount rate, which is a positive value. This indicates that the business is expected to generate a profit of IDR166,134,926 over the seven-year project life. This result is consistent with research (4) on a similar business, which produced a positive NPV of IDR121,239,464 at a 24% discount rate, and research (14) at the Halmahera Bee Center showing an NPV > 0 of IDR57,659,816 at a 7.5% discount rate. A positive NPV in the case of Royal Honey Sakah Bee Agrotourism means that the business is financially feasible.

The IRR value of 21.61% indicates that Royal Honey Sakah Bee Agrotourism offers a return rate of 21.61%, which exceeds the 7.5% interest rate of BPD Bank, thereby confirming the business is feasible. This aligns with research (15) The IRR value of 21.61% indicates that Royal Honey Sakah Bee Agrotourism offers a return rate of 21.61%, which exceeds the 7.5% interest rate of BPD Bank, thereby confirming the business is feasible. This aligns with research (16) on *Apis mellifera* honey bee farming, which reported an IRR of 75%. The size of the IRR percentage in various honey ventures depends on the discount factor (DF) used in each financial analysis (4)

The Net B/C Ratio from the investment criteria analysis is 1.09, which means that for every IDR1.00 of cost incurred by Royal Honey Sakah Bee Agrotourism, it generates IDR1.09 in revenue. A Net B/C Ratio greater than 1 supports findings from research (17) on honeybee farming in Sipatuhu Village, Banding Agung District, South Oku Regency, which showed a Net B/C of 6.94 at an 18% discount rate. This is also aligned with research (18) showing a Net B/C of 1.75 in a honeybee farming business in Sukadana Village, North Lombok Regency.

The Payback Period (PP) was calculated to determine the time required to recover the investment in Royal Honey Sakah Bee Agrotourism. According to Table 1, the PP is 3.75, meaning the business will take 3 years and 9 months to fully recover the invested capital.

Sensitivity Analysis

Based on the assumptions previously formulated and projected to occur in the future, the following are the results of the sensitivity analysis:

Table 2
Sensitivity Analysis of Royal Honey Sakah Bee Agrotourism Based on the Established Assumptions

Assumption	NPV	IRR	Net B/C	PP	Description
1	IDR124,470,578	24.52%	1.06	1.66	Feasible
2	-IDR38,007,679	2.09%	0.98	6.89	Not Feasible
3	IDR69,939,817	22.74%	1.04	5.44	Feasible

Based on the data, under the first assumption involving a 1.57% increase in operational costs due to inflation, Royal Honey Sakah Bee Agrotourism shows a Net Present Value (NPV) of IDR124,470,578, an Internal Rate of Return (IRR) of 24.52%, a Net B/C Ratio of 1.06, and a Payback Period (PP) of 1.66 years. This indicates that under the first assumption, the business is still considered feasible because it has a positive NPV, an IRR higher than the applied interest rate, a Net B/C greater than 1.00, and a PP shorter than the project's economic life. This finding is consistent with research (19) on a fish cracker processing business in Serunyan Regency, which remained feasible despite raw material price increases of 5%, 10%, and 15%.

Under the second assumption, the results show a negative NPV of -IDR38,007,679, an IRR of 2.09%, a Net B/C Ratio of 0.98, and a PP of 6.89 years, indicating that the business is not feasible if there is a 10% decline in sales. This is demonstrated by the negative NPV, an IRR lower than the applied interest rate, and a Net B/C Ratio below 1.00. Although the PP remains shorter than the project's economic life, a 10% sales decline would still result in financial losses for Royal Honey Sakah Bee Agrotourism in the future. This is aligned with research (20) on the Strawberry Highland Tourism Garden, where financial feasibility was initially confirmed, but a 10% decrease in ticket sales rendered the business infeasible according to its sensitivity analysis.

Under the third assumption, the business shows an NPV of IDR69,939,817, an IRR of 22.74%, a Net B/C Ratio of 1.05, and a PP of 5.44 years. This means that Royal Honey Sakah Bee Agrotourism remains feasible if the interest rate increases to 12%, as the analysis still shows a positive NPV, an IRR higher than the assumed interest rate, a Net B/C Ratio above 1.00, and a PP below the economic life of the business (7 years). Although the PP remains below the project's economic life, this result contradicts research(21) on the development of Dipterocarp plant enterprises, which became infeasible when the interest rate increased from 6.78% to 14%. However, Royal Honey Sakah's sensitivity analysis shows that the business remains feasible even if the interest rate rises from 7.5% to 12%. This is in line with research (22) which confirmed that a Vannamei shrimp farming business in Muara Satu Subdistrict remained feasible at the same 12% interest rate.

CONCLUSION

The results of the financial feasibility analysis for Royal Honey Sakah Bee Agrotourism indicate that the business is feasible to operate. This is demonstrated by the calculated values of NPV, IRR, Net B/C Ratio, and Payback Period, all of which meet the criteria for a financially viable investment. The results of the sensitivity analysis show that Royal Honey Sakah Bee Agrotourism remains feasible under two out of the three formulated assumptions. However, the assumption involving a decline in sales has the potential to result in losses, as shown by the negative NPV, an IRR lower than the applied interest rate, and a Net B/C Ratio below 1.00.

RECOMMENDATIONS

Based on the analysis results, the researcher provides the following suggestions to the owner and management of Royal Honey Sakah Bee Agrotourism in order to support business development and avoid potential future losses. Royal Honey Sakah Bee Agrotourism should continue its beekeeping and honey sales operations by maintaining the quality of its honey, as well as the services and educational experiences provided. There should also be reconsideration regarding increasing the number of bee colonies and improving their care in order to stabilize and enhance honey production volume, which in turn can lead to optimal profits. In addition, Royal Honey Sakah Bee Agrotourism needs to enhance its promotion and marketing efforts through social media and implement online sales to prevent potential declines in sales in the future.

This study focused solely on analyzing the financial feasibility of Royal Honey Sakah Bee Agrotourism from a financial perspective. Therefore, the researcher recommends that future studies examine the impact of Batuan Kaler Village's transformation into a tourism village in 2025 on businesses located within the village—such as Royal Honey Sakah Bee Agrotourism—by considering not only financial aspects, but also social, legal, and environmental dimensions in the future.

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AUTHOR CONTRIBUTIONS

1	I Made Dicky Chandra Wibisana	
	Institutions	Undergraduate Student of Agribusiness, Faculty of Agriculture, Udayana University. PB Sudirman, Dangin Puri Klod, West Denpasar District, Denpasar City, Bali, Indonesia.
	Contributions	Coordinated data collection, data analysis, data interpretation, and preparation of the research publication.
	Homepage	https://pddikti.kemdiktisaintek.go.id/detail-mahasiswa/L8MQjgw6ILRPZGm0YVCsokAuhns4okQfjIXgb3jCKgcKYKP3Ry8clyWb2N8iaFzkhHcDw==
2	Ni Luh Made Indah Murdyani Dewi S.P.,M.Agb.	
	Institutions	Lecturer, Agribusiness Undergraduate Program, Faculty of Agriculture, Udayana University. PB Sudirman, Dangin Puri Klod, West Denpasar District, Denpasar City, Bali, Indonesia.

Contributions	Guided and supervised the student in conducting research, analyzing data, interpreting results, and preparing the research publication.
Homepage	https://sinta.kemdikbud.go.id/authors/profile/6795486

GRAPHICAL ABSTRACT

