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Financial Feasibility Analysis of Crystal Guava Cultivation in Bantarsari Village, Bogor

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ABSTRACT

Bantarsari Village, Rancabungur Sub-district, Bogor Regency, is known as the National Crystal Guava Village. However, as long as this business has been running, there has never been an analysis of financial feasibility. For this reason, this study was made with the aim of analyzing the financial feasibility of crystal guava cultivation in Bantarsari Village based on indicators of NPV, IRR, Net B/C, PP and sensitivity analysis to a 5% decrease in price and 10% decrease in production. The results showed that this cultivation is financially feasible with an NPV value of IDR. 187,308,181, IRR of 20%, Net B/C of 1.41, and PP for 3 years and 7 months; even in the scenario of a 5% decrease in selling prices and 10% production, the business remains feasible. Therefore, based on the results of this study, it is known that the crystal guava cultivation business in Bantarsari Village is financially feasible to run because it is financially profitable, and has the resilience to business risks such as a decrease in selling prices and a decrease in production.

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1. INTRODUCTION

As part of a tropical country, Indonesia is rich in various types of plants, both vegetables and fruits that have various benefits both in terms of nutritional content and economy. One of the most famous fruits is crystal guava, a fruit with the Latin name *Psidium Guajava* that was first discovered in 1991 in Kao Shiung-Taiwan district and introduced to Indonesia by the Taiwan Technical Mission. This plant can grow in various regions, including Bengkulu Province (North Bengkulu), West Java Province (Bogor, Depok, Majalengka, Kuningan, Subang, Sukabumi, Sumedang), DIY. Yogyakarta (Gunung Kidul), Papua Province (Jayapura City), and West Papua Province (Manokwari) (PR Directorate General of Horticulture, 2023).

According to data from the Central Bureau of Statistics (2024) on fruit production from 2021 to 2023, national guava production fluctuated, reaching 422,491 tons in 2021, increasing to 472,686 tons in 2022, and decreasing to 404,654 tons in 2023. West Java Province, as the main production center, experienced a similar trend with production of 69,249 tons (2021), increasing to 79,961 tons (2022), and slightly decreasing to 78,091 tons (2023). Despite fluctuations, West Java remains consistent as

the largest contributor to national guava production with a contribution of around 19.3% in 2023.

The nutritional content in 100 grams of crystal guava fruit is quite high, namely 0.9 grams of protein, 0.3 grams of fat, 12.2 grams of carbohydrates, 14 mg Calcium (Ca), 28 mg phosphorus, 1.1 mg iron, 25 SI vitamin A, 0.02 mg vitamin B1, 87 mg vitamin C, 86% water with a total of 49 calories. Dried guava seeds contain 14% volatile oil, 15% protein, and 13% starch (Amelia et al., 2024).

One of the villages in Bogor Regency known as the National Crystal Guava Village is Bantarsari Village. This village has been cultivating crystal guava since 1989, with a land area of 3,000 square meters with a total of 500 crystal guava trees that are actively bearing fruit. The guava fruit can be harvested after about six months and two weeks from the appearance of flowers. Each period, Bantarsari Village is able to produce 150 kg of crystal guava, with a selling price of IDR 10,000 per kilogram, and generates a turnover of around IDR 15,000,000 per period. Although the turnover generated is quite large, farmers also need to incur costs for purchasing fertilizers, plant medicine, pesticides, and costs for clearing the land.

Guava produced in Bantarsari village is classified into several grades. Grade A, which has the best quality, is sold at a higher price to consumers, reaching IDR15,000 per kg and is marketed to large supermarkets through middlemen. Grade B is priced at IDR12,000 per kg and Grade C at IDR6,000 per kg which can be sold directly to local consumers. However, guava farmers need to anticipate the risks they face, such as disease attacks that can damage trees and the risk of crop failure. In addition, there is a fundamental problem in the crystal guava cultivation business, namely whether the business is feasible to develop and can generate profits in accordance with the business objective of making a profit.

To find out whether a business is worth running or not can be done by conducting a business feasibility study. Business feasibility study or known as business feasibility analysis is an evaluation process carried out to review whether the business is feasible to run and profitable, or it can be detrimental. The main purpose of business feasibility analysis is to prevent losses and avoid wasting resources (Gandhy & Sutanto, 2017). Theoretically, a business feasibility analysis covers several aspects, namely legal, market and marketing, technical and technological, management and human resources (HR), financial, environmental, and economic and socio-political aspects.

Of all the aspects of a business feasibility study, this research will only focus on the financial feasibility of a business, because the main objective of a business is to seek maximum profit, the financial aspect is the main thing to do, for that in this study, the financial aspect was chosen in the analysis to find out whether this business is financially feasible to run and develop. This aspect analyzes the financial condition of a business, including how much profit can be obtained, how long it takes to return capital, and various other financial factors (Rusmayandi et al., 2023) .

To measure the financial feasibility of crystal guava cultivation in Bantarsari village, it is carried out by analyzing using techniques such as Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Net Benefit-Cost Ratio (Net B/C) (Wilistanti & Patra, 2024). Based on previous research, such as that conducted by (Datundugon et al., 2020), it is known that crystal guava cultivation in the village is feasible with analysis techniques using market aspects and financial aspects using NPV, IRR, Net B/C, PP and Break Even Point (BEP) because it meets the specified investment feasibility criteria. Similar research by (Novitasari & Syarifah, 2020; Sihombing et al., 2022) shows similar results using NPV, NET B/C, Gross Benefit Cost Ratio, IRR, and PP analysis tools, where crystal guava cultivation is feasible because it meets the criteria. In addition, research conducted by (Gandhy & Sutanto, 2017) used NPV, IRR, PP, BEP, and sensitivity analysis of decreasing selling prices and decreasing production. Other research conducted by (Saikhu et al., 2023) uses the R/C Ratio, Net B/C, Production

BEP, Price BEP and Payback Period (PP) values which show that it is feasible and profitable to run.

Based on the results of previous research and the absence of a financial feasibility analysis conducted in Bantarsari Village as the National Crystal Guava Village in Bogor Regency, the researcher was encouraged to evaluate the financial feasibility of crystal guava cultivation. This study aims to evaluate the financial feasibility of crystal guava cultivation in Bantarsari Village using NPV, IRR, Net B/C, and PP analysis tools to determine whether crystal guava cultivation in the village is feasible and profitable.

2. RESEARCH METHOD

2.1. Type of Research

This research uses a descriptive method with the aim of describing the conditions of crystal guava cultivation in Bantarsari village. The research technique used was descriptive quantitative with a case study approach. The case study approach was applied to obtain an in-depth understanding of the financial feasibility of crystal guava cultivation in the research location. According to (Aminah, 2022), the case study method is research that is carried out intensively and in detail on an organization, institution, or certain symptoms with a narrow area or subject.

2.2. Time and Place of Research

This research was conducted in Bantarsari Village, Bogor Regency, West Java, which is the National Crystal Guava Village for three months. The location selection was done purposively with the consideration that this village has been cultivating crystal guava since 1989 and has an area of 3,000 square meters with 500 crystal guava trees that are actively bearing fruit but have not conducted a business feasibility analysis on its financial aspects. This purposive location determination method is in accordance with the opinion of (Gumilang et al., 2024) which states that purposive sampling techniques are carried out with certain considerations that are relevant to the research objectives.

2.3. Data Type and Source

The data used in this study consists of primary and secondary data. Primary data was obtained directly from the research location through interviews with respondents selected based on the researcher's considerations, namely as stakeholders in crystal guava cultivation. One respondent was the initiator of crystal guava cultivation, while the other was a native crystal guava farmer from Bantarsari Village. Primary data collected included agricultural practices, crystal guava cultivation costs, and total income from crystal guava cultivation. The data presented is based on the assumptions of the researcher and farmers, which are supported by relevant records. Secondary data were obtained through literature studies sourced from books, journals, and related articles available on the internet (Gumilang et al., 2024).

2.4. Data Analysis Method

The data analysis carried out in this study uses a financial feasibility approach and sensitivity analysis with analytical tools including:

a. Net Present Value (NPV)

NPV calculation considers the time value of money on the cash flow that occurs, namely by calculating the difference between the present value of cash inflow and expenditure on investment (Sunardi et al., 2022) . A similar opinion was also conveyed by (Handayu, 2020), which explains that NPV is a method that calculates the difference between the present value of an investment and the present value of future net cash receipts. NPV has three main criteria, namely (Gandhy & Sutanto, 2017) : (a) A business is considered viable if the NPV is greater than zero (NPV > 0). (b) A business is at the Break Even Point (BEP) if the NPV equals zero (NPV = 0). (c) A business is considered not viable if the NPV is less than zero (NPV < 0).

b. Internal Rate of Return (IRR)

Internal Rate of Return (IRR) is one of the analytical methods used to measure the discount rate or calculate the interest rate that results in a net present value (NPV) equal to zero (Silviani et al., 2024). A similar opinion was conveyed by (Kundrat et al., 2022) who explained that IRR is a discount rate (DR) that results in NPV equal to 0. The unit resulting from the calculation of IRR is in the form of a percentage (%). Like other financial feasibility analysis methods, IRR also has assessment criteria, namely (Sihombing et al., 2022): (a) A business is considered viable if the IRR value is greater than the interest rate. (b) At the breakeven point (BEP), the IRR value is equal to the interest rate, which means the business is neither profitable nor costly. (c) A business is considered unviable if the IRR is less than the interest rate.

c. Payback Period (PP)

Payback Period is a method to assess the financial viability of a business by measuring how long it takes to recover the initial investment. In simple terms, PP is a ratio that compares the initial investment with the cash inflow, the result of which is in the form of time units (Ermawati & Hidayanti, 2022). The Payback Period has the following criteria: (a) It is acceptable if PP is less than the economic life of the project (PP < Economic Life). (b) Can be rejected if PP is greater than the economic life of the project (PP > Economic Life).

d. Net Benefit Cost (NET B/C)

Net Benefit Cost (NET B/C) is a ratio that compares positive net benefits with negative net benefits (Hardini & Gandhy, 2020). Net B/C describes the comparison between the costs incurred and the benefits to be obtained. The eligibility criteria for NET B/C are as follows: (a) The business is considered viable if the NET B/C value is greater than 1. (b) It is at break even point when the NET B/C value is equal to 1. (c) The business is rejected if the NET B/C value is less than 1, because this condition indicates that the costs incurred are greater than the benefits obtained.

e. Sensitivity Analysis

Sensitivity analysis is a financial modeling technique that aims to assess the impact of changes in key input variables on the results of financial models in business feasibility studies (Putra & Sakinah, 2024). This analysis is carried out by calculating the IRR, NPV, B/C ratio, and *payback period* in several possible change scenarios, so that it can be seen at what level the project is still feasible (Wulandari et al., 2017).

In this study, sensitivity analysis was used to analyze the factors affecting the level of income in Bantasari Village under the condition that the selling price of crystal guava in the market fell by 5% and the second condition that the production level of crystal guava fell by 10%. These conditions have a significant likelihood of occurring, given the fluctuations in fertilizer prices that have led to increased input costs for crystal guava cultivation. Additionally, there are risks of pest and disease attacks on trees and fruits, the possibility of crop failure due to weather conditions that could reduce crystal guava production, and the threat of market price fluctuations that could affect crystal guava selling prices. These factors could lead to the two conditions being studied. By conducting sensitivity analysis, decision makers can identify risks and uncertainties in investment projects.

3. RESULTS AND DISCUSSIONS

Bantarsari Village, Rancabungur Sub-district, Bogor Regency is one of the rural areas with the majority of the population working as farmers. The village with an area of 3.41

km² has a population of 7,728 people (Handayu, 2020). This village is known by its nickname as the National Crystal Guava Village, due to its success in cultivating this superior commodity. On an area of 3000 meters, Bantarsari Village can produce up to 1 ton of crystal guava, which reflects the great potential in the development of agribusiness, especially crystal guava. Cultivated crystal guava can be harvested twice a month and begins to bear fruit at the age of 2-3 years (Sumbodo et al., 2023).

Crystal guava cultivation is classified as a horticultural business that has high economic value if managed sustainably with a mature financial approach. This potential also opens up opportunities for further study from the aspect of financial feasibility as a basis for consideration in investment and sustainable agribusiness development. Crystal guava cultivation requires careful preparation, starting with the preparation of ideal land, namely flat or slightly sloping land with sufficient sunlight (Adriani et al., 2024) . The land must be cleared of weeds and previous crop residues, then processed through the process of plowing and applying basic fertilizer in the form of manure. The next stage is the selection and planting of seedlings with the ideal planting distance, which is 3x3 meters or 4x4 meters (Rusmayandi et al., 2023).

After planting, the plants enter the maintenance stage which includes regular watering, weeding, fertilizing, and pruning for establishment and production. In addition, plants are also given growth boosters and fruit regulators for faster flowering and uniform fruiting. Crystal guava plants generally start flowering at the age of 7-12 months, and are ready to harvest about 3-4 months after flowering, depending on care and climatic conditions. Harvesting is done by picking ripe fruits, characterized by light green skin, smooth texture, and a distinctive aroma. One well-cared crystal guava tree can produce 2-5 kg of fruit per harvest season (Adriani et al., 2024). Harvested crystal guava fruits are classified by quality (grade A, B, and C), which affects the selling price. *Grade* A will usually be directly accommodated by middlemen, while *grades* B and C are sold to the surrounding community (Sumbodo et al., 2023) .

3.1. Production Cost

Production costs in crystal guava cultivation can be classified into several types, namely investment costs incurred at the initial stage when starting crystal guava cultivation, as well as fixed costs and variable costs. By definition, production costs are costs incurred by investors or business owners in the early stages of business establishment to prepare all the needs for the business to operate (BPS Bogor Regency, 2024) . The following presents details of investment costs in crystal guava cultivation in Bantarsari Village.

Table 1 . Investment Cost of Crystal Guava Cultivation

No.	Component	Qty.	Unit	Unit Price	Total	Durability (Months)	Total
1	Land	3000	Meter	IDR 150,000	IDR 450,000,000	-	-
2	Lawn Mower	1	Unit	IDR 800,000	IDR 800,000	60	IDR 13,333
3	Pesticide Tank	1	Unit	IDR 200,000	IDR 200,000	60	IDR 3,333
4	Hanging Scales	1	Unit	IDR 95,000	IDR 95,000	36	IDR 2,639
5	Hoe	3	Unit	IDR 60,000	IDR 180,000	60	IDR 3,000
6	Machete	3	Unit	IDR 55,000	IDR 165,000	60	IDR 2,750
7	Guava Picker Iron	2	Unit	IDR 30,000	IDR 60,000	60	IDR 1,000
8	Bucket	3	Unit	IDR 45,000	IDR 135,000	36	IDR 3,750
	Total Price				IDR 451,635,000	Total	IDR 29,806

Source: Data processed, 2025

Based on the following table, it is known that the largest investment cost component is for land needs. The land used in Bantarsari Village is 3000 square meters, with a total cost of IDR. 450,000,000. The estimated price is based on land purchases

made in 1989. The choice of land is an important factor, as fertile land will provide great benefits to cultivators by increasing the quality and yield of crystal guava.

In addition, the investment also includes the purchase of a lawn mower and a pesticide tank that serves to clear weeds and protect the plants from pests. The total investment cost required for crystal guava cultivation reaches IDR. 451,635,000 with an estimated total depreciation of IDR. 29,806.

Table 2 . Fixed Costs of Crystal Guava Cultivation

No.	Component	Quantity	Unit	Unit Price	
1	Tax	1	Year	IDR	288,000
2	Packaging Wages	5	People	IDR	120,000
3	Depreciation	-	-	IDR	29,806
Total Price				IDR	437,806

Source: Data processed, 2025

In addition to investment costs, there are also fixed costs. Fixed costs are expenses that are still incurred by business actors, both when production activities take place or not (Gandhy, Koen, et al., 2025) . In Bantarsari Village, fixed costs incurred by farmers include tax payments of IDR. 288,000 per year. This payment is made as a form of obligation for a business license in Indonesia, in this case in the form of Land and Building Tax (PBB).

In addition to taxes, fixed costs also include wages for the labor of 5 people who pack the harvested guava. The last component of fixed costs is asset depreciation. Based on the calculation results, it is known that the total fixed costs incurred in crystal guava cultivation reached IDR. 437,806.

In calculating production costs, the next component to consider is variable costs, as shown in Table 3.3. Variable costs are costs that change according to the amount of production produced. In crystal guava cultivation, the total variable costs incurred amounted to IDR. 2,735,000. This cost includes the purchase of crystal guava seeds, fertilizers, pesticides to prevent pest attacks, insecticides, plant boosters, sacks, bags, labor wages, and other needs. Of all these components, the largest cost was used to purchase crystal guava seeds, which amounted to 500 seeds at a total cost of IDR 1,500,000. All of these costs are incurred by farmers during the cultivation process, from planting to harvesting.

Table 3 . Variable Costs of Crystal Guava Cultivation

No.	Component	Quantity	Unit	Unit Price		Total	
1	Crystal Guava Seeds	500	Fruit	IDR	3,000	IDR	1,500,000
2	Manure	40	Sacks	IDR	10,000	IDR	400,000
3	NPK Chemical Fertilizer	10	Kilogram	IDR	25,000	IDR	250,000
4	Urea Fertilizer	4	Kilogram	IDR	10,000	IDR	40,000
5	Tares Pesticide	3	Liters	IDR	40,000	IDR	120,000
6	Insecticides	2	Liters	IDR	20,000	IDR	40,000
7	Plant Booster	2	Kilogram	IDR	55,000	IDR	110,000
8	Plastic Sacks	5	Fruit	IDR	1,000	IDR	5,000
9	Plastic Bags	4	Pack	IDR	5,000	IDR	20,000
10	Farmer Wages	1	Year	IDR	250,000	IDR	250,000
Total Price						IDR	2,735,000

Source: Data processed, 2025

Total production costs are obtained from accumulating fixed costs with variable costs, so it is known that the total production cost of crystal guava cultivation in Bantarsari Village is IDR. 3,172,806. With these costs, farmers are able to produce around 1 ton of crystal guava every month. Therefore, the cost of production of crystal guava cultivation is IDR. 3,173 per kilogram.

3.2. Revenue Analysis

The harvested crystal guavas from Bantarsari Village are classified into three grades, namely grade A, B, and C. Of the total production in one harvest, it is known that grade

A crystal guava accounts for 15%, grade B for 35%, and grade C for 50%. This grade difference certainly affects the selling price, as each reflects the quality of the fruit. Grade A, which has the best quality, is sold at the highest price compared to other grades. The following is a breakdown of the total income from crystal guava cultivation based on grade classification:

Based on the table 3.4., it is known that the amount of grade A fruit in a single harvest is relatively small. This is due to the high quality standards for grade A, as this grade of fruit is intended to be sold to middlemen and distributed to supermarkets. Meanwhile, grade B and C fruit are marketed to the local community. Grade A fruit to be sold to supermarkets is priced at IDR. 15,000 per kilogram, while grade B is IDR. 12,000 and grade C is IDR. 6,000. Thus, if it is assumed that the total revenue from the sale of crystal guava in one year reaches IDR 226,800,000. Meanwhile, the total production costs for one year amounted to IDR. 76,147,333. Thus, the total profit obtained from crystal guava cultivation in one year is IDR. 150,652,667.

Table 4 . Revenue Analysis of Crystal Guava Cultivation

No.	Commodities	Number of Trees	Harvest Yield Per Month (Kg)	@	Yield (Kg)	Selling Price/Kg	Total
1	Grade A Crystal Guava	500	900	15%	150	IDR 15,000	IDR 2,250,000
2	Grade B Crystal Guava			35%	350	IDR 12,000	IDR 4,200,000
3	Grade C Crystal Guava			50%	500	IDR 6,000	IDR 3,000,000
Total Revenue per Month							IDR 9,450,000
Revenue per-Year							IDR 226,800,000
Yearly Production Cost							IDR 76,147,333
Advantages							IDR 150,652,667

Source: Data processed, 2025

3.3. Net Present Value

The financial feasibility analysis in this study uses several indicators, namely NPV, IRR, PP, NET B/C, as well as sensitivity analysis to a 5% decrease in selling price and a 10% decrease in production quantity. NPV is one of the methods in financial feasibility analysis used to measure the difference between the value of benefits to be obtained and the costs to be incurred (Gandhy, Koen, et al., 2025). The following table presents the NPV calculation:

Table 5 . NPV Calculation of Crystal Guava Cultivation

Year-	Reception	Cost	Year Value	NPV
0	-	IDR 451,635,000	(IDR 451,635,000)	(IDR 451,635,000)
1	IDR 226,800,000	IDR 76,147,333	IDR 150,652,667	IDR 142,461,151
2	IDR 226,800,000	IDR 76,147,333	IDR 150,652,667	IDR 134,715,036
3	IDR 226,800,000	IDR 76,147,333	IDR 150,652,667	IDR 127,390,105
4	IDR 226,800,000	IDR 76,147,333	IDR 150,652,667	IDR 120,463,456
5	IDR 226,800,000	IDR 76,147,333	IDR 150,652,667	IDR 113,913,434
NPV of the Project				IDR 187,308,181

Source: Data processed, 2025

The NPV analysis of crystal guava cultivation uses a discount rate (BI Rate) of 5.75%, based on Indonesia's macroeconomic conditions published by Bank Indonesia in 2025, where the BI Rate is the standard reference for investment analysis. The economic life of the crystal guava cultivation business used in this study is 5 years, taking into account the characteristics of the crystal guava plant.

The total revenue during the period refers to Table 3.5., which amounted to IDR. 226,800,000. Based on the calculation results, the NPV value of crystal guava cultivation is IDR. 187,308,181. This NPV value is positive, which means that the benefits of the business are greater than the costs. Therefore, according to the financial feasibility criteria based on NPV, crystal guava cultivation is declared feasible to run.

3.4. Internal Rate of Return

Internal Rate of Return (IRR) is one of the important indicators in financial feasibility analysis. By definition, IRR is the rate of return on investment from a project that makes the net present value (NPV) equal to zero (Gandhy, Qodriah, et al., 2025). In this study, the IRR value of crystal guava cultivation in Bantarsari Village is 20%. This value indicates that the project is capable of generating a higher rate of return than the discount rate used, which is the BI Rate of 5.75%. This discount rate was selected based on data published by Bank Indonesia in 2025 as the standard reference for investment analysis. The IRR calculation was performed using the economic lifespan of the crystal guava cultivation business, which is 5 years.

Based on the IRR eligibility criteria, the project is declared feasible to run because IRR > BI Rate. With an IRR value of 20%, this indicates that any funds invested in the crystal guava cultivation business are able to provide an annual return of 20%. This means that crystal guava cultivation in Bantarsari Village can provide annual returns four times higher than the national discount rate. So that the IRR value above 15% is already categorized as very attractive, considering that in crystal guava cultivation there are great risks such as weather and fluctuating market prices. For this reason, an IRR value of 20% indicates high investment attractiveness, especially for private investors or farmer cooperatives.

3.5. Net Benefit Cost

Net Benefit Cost (Net B/C) is the ratio between the present value of total benefits to the present value of total costs. In simple terms, this ratio describes the comparison between the benefits obtained and the costs incurred (Hasugian et al., 2020). In the research on crystal guava cultivation in Bantarsari Village, a Net B/C value of 1.41 was obtained. This means that every IDR.1 of costs incurred will generate benefits or revenues of IDR. 1.41.

In accordance with the feasibility assessment criteria, a business is declared feasible if the Net B/C value is more than one, indicating a fairly high capital efficiency. For small businesses such as those in Bantarsari, this value means that the profit margin can cover seasonal fluctuations in operational costs such as fertilizers and pesticides. Thus, the value of 1.41 illustrates that the crystal guava cultivation business is not only able to cover all operational costs and initial investment, but also provides additional profit.

3.6. Payback Period

Payback period is also part of the financial feasibility analysis, where PP is used to measure how long it takes to return the initial investment. If the payback period is faster than the economic life of the business, then the project can be declared feasible (Gandhy, Qodriah, et al., 2025).

Table 6 . Payback Period of Crystal Guava Cultivation

Year-	Reception	Cost	NPV	Effect on Initial Investment
0	-	IDR 451,635,000	(IDR 451,635,000)	(IDR 451,635,000)
1	IDR 226,800,000	IDR 76,147,333	IDR 142,461,151	(IDR 309,173,849)
2	IDR 226,800,000	IDR 76,147,333	IDR 134,715,036	(IDR 174,458,814)
3	IDR 226,800,000	IDR 76,147,333	IDR 127,390,105	(IDR 47,068,709)
4	IDR 226,800,000	IDR 76,147,333	IDR 120,463,456	IDR 73,394,748
5	IDR 226,800,000	IDR 76,147,333	IDR 113,913,434	IDR 187,308,181

Source: Data processed, 2025

Based on the calculation results in table 3.6, it is known that the investment payback period (PP) is 3 years and 7 months. This value is declared feasible, because is

below the predetermined economic life limit. With an initial investment of IDR. 451,635,000 and a fixed annual income of IDR. 226,800,000, this business is considered feasible.

Based on the overall results of the financial analysis that has been carried out with NPV, IRR, NET B/C, and PP indicators, it can be concluded that this crystal guava cultivation business is financially feasible, because it meets all the established feasibility criteria. This result is in line with the findings from (Sumbodo et al., 2023) which states that crystal guava cultivation is a feasible business to run.

3.7. Sensitivity Analysis

Sentitivity analysis in this study was conducted with two main assumptions, namely when there is a 5% decrease in selling price, and when there is a 10% decrease in the amount of production. The purpose of this analysis is to determine the extent to which the feasibility of the crystal guava cultivation business can still be maintained in unstable conditions or experiencing significant external changes.

a. Crystal guava selling price drops 5%

In fluctuating economic conditions, there is a possibility of a decrease in selling prices. In this scenario, it is assumed that there is a 5% decrease in selling prices, so that the price of crystal guava becomes, grade A IDR. 14,250, grade B IDR. 11,400, and grade C IDR. 5,700 with a total production of 1 ton. The results of the analysis showed that the annual revenue decreased to IDR215,460,000, with fixed costs of IDR76,147,333, resulting in a profit of IDR133,312,667. This decrease causes a decrease in profit of IDR 17,340,000 compared to normal conditions.

Despite the decline in selling prices and profits, the crystal guava cultivation business in Bantarsari Village is still considered financially viable, because all indicators still meet the feasibility criteria. This change also has an impact on the financial viability indicators, namely:

Table 7 . Effect of a 5% decrease in the selling price of Crystal Guava

Financial Criteria		Value
NPV	:	IDR 139,213,342
IRR	:	16%
NET B/C	:	1,31
Payback Period	:	4 years and 8 months

Source: Data processed, 2025

b. Production Down 10% and Prices Down 5%

The second condition in the sensitivity analysis assumes a 10% decrease in production and a 5% decrease in selling price. This condition can occur due to technical cultivation factors, unfavorable weather, or economic instability. In this scenario, the amount of production drops from 1 ton to 90 kg per month, with the selling price of each grade also decreasing by 5%, the same as in the previous scenario. Based on the analysis, the total annual revenue is IDR193,914,000, while the annual production cost remains at IDR76,147,333, resulting in a profit of IDR117,766,667. This profit is IDR32,886,000 lower than the optimal condition. The impact on financial viability indicators is as follows:

Table 8 . Production Quantity Down 10% and Selling Price Down 5%

Financial Criteria		Value
NPV	:	IDR 47,833,150
IRR	:	10%
NET B/C	:	1,11
Payback Period	:	4 years 9.5 months

Source: Data processed, 2025

In the sensitivity scenario, despite a 10% decrease in production and 5% decrease in selling price, the project was still financially viable. This indicates that the crystal

guava enterprise has resilience to agronomic and market risks. This is important in tropical agriculture like Indonesia, where rainfall and pests are highly volatile. Therefore, despite the decline in revenue and profitability, the crystal guava farming business in Bantarsari Village is still considered financially viable, as all indicators still meet the feasibility criteria.

4. CONCLUSION

Based on the results of the analysis, it is known that the income obtained from crystal guava cultivation in one year amounted to IDR. 226,800,000. Based on the results of the financial feasibility analysis it is known that this business is feasible to run because it meets all the criteria of financial feasibility with an NPV value of IDR. 187,308,181.30; IRR value of 20%; Net B/C value of 1.41%; and PP value for 3 Years 7 months. In addition, the results of the Sentitivity analysis with two conditions, namely the selling price fell 5% and the second condition the amount of production fell 10% and the price fell 5%. With the same analytical tools using NPV, IRR, Net B/C, and PP. The first condition is when the selling price decreases by 5%, this causes a decrease in profit of IDR. 17,340,000 but is still feasible because all criteria of financial feasibility can be met. The second condition is when the amount of production decreases by 10% and the selling price decreases by 5%, resulting in a considerable decrease in profits, namely IDR. 32,886,000. Based on the results of the financial feasibility analysis, it is known that all criteria of financial feasibility are met and it can be stated that this business is feasible to run because it is financially profitable both under normal conditions and under conditions of a 5% decrease in selling price and a 10% decrease in production quantity and 5% price. It is suggested that farmers improve fruit quality and implement basic financial and risk management practices, while village governments facilitate access to capital, support training and marketing initiatives, and encourage partnerships with cooperatives or BUMDes. A limitation of this study is that it only looked at financial aspects and did not cover technical, social, or environmental aspects. For future research, more research is needed on business feasibility studies that involve non-financial aspects.

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