

BUSINESS ANALYSIS OF CERTIFIED COCOA (THEOBROMA CACAO) SEED NURSERIES IN NORTH SUMATRA PROVINCE (CERTIFIED COCOA (THEOBROMA CACAO) SEED BUSINESS ANALYSIS IN NORTH SUMATRA PROVINCE)

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Abstract

This study aims 1) to find out and analyze how to determine the criteria for certified seeds and 2) to find out and analyze the difference in income levels of certified cocoa seed nursery farms in North Sumatra Province. This research was conducted at seed breeders located in Deli Serdang Regency and Pematang Siantar City. This area was chosen because in these two areas there are certified cocoa seed breeders in the province of North Sumatra. The number of respondents is 5 certified seed breeders who have met several predetermined criteria. The research method used in this study was a survey method, data collection was carried out on January to March 2023. The objectives of this research are answered quantitatively by using the analysis of Total Revenue, Nett Revenue, R/C Ratio and B/C Ratio. The results of the study showed that the cocoa nursery farming carried out provided benefits to all cocoa seed breeders. In the feasibility analysis it is known that the cocoa nursery farming business shows that the cocoa nursery business has received an appropriate assessment of PT. Sahabat Sejati, CV. Prince Agung, CV. Putera perkasa and CV. Dharma Nusantara but the nursery business carried out by CV. Wana Bhakti received an unworthy rating.

Keywords: *analysis; cocoa seeds; appropriateness; certification; farming business;*

1. INTRODUCTION

Cocoa is an export commodity that contributes to increasing Indonesia's foreign exchange. One of the main supplying countries for world cocoa is Indonesia after Ivory Coast (38.3%) and Ghana (20.2%) with a percentage of 13.6%. World demand for cocoa is increasing from year to year. However, if you look at data from the Central Statistics Agency (BPS), from 2017 to 2021 Indonesia's cocoa production from large plantations continues to decline, this is due to the condition of old cocoa plants so that productivity is very low. Wijaya (2020) also explained that the decline in cocoa production was also caused by CPB and VSD pest attacks which until now had not been completely resolved, Kuswardani RA (2023) explained that Agro-ecosystem management efforts are urgently needed to suppress the population and intensity of attacks by plant-disturbing organisms and reduce farmers' dependence on the use of chemicals in the cultivation of cocoa, coffee and tea plants. Another thing is also caused by the change in land use because the government in recent years has continued to boost production of palm oil, rice, corn and soybeans. Meanwhile, land for plantations is increasingly limited, as a result cocoa plantations are subject to land conversion. This condition has caused the area and production of cacao to decrease. The Central Statistics Agency (BPS) reports that cocoa production in Indonesia is 706,500 tons in 2021. This number is down 0.97% compared to the previous year which amounted to 713,400 tons, the lowest cocoa production was in 2017 amounting to 590,684 tonnes which was also the lowest in the last 5 years (Ditjenbun, 2021).

Cocoa plantations in North Sumatra Province in 2021 which are cultivated by the people with an area of 54,467.00 ha consisting of immature plants (TM) 12,857.00 ha, yielding plants

(TM) 36,799.00 ha, old mature plants (TTM) 4,811.00 ha, with a total production of 36,310.00 tons of dry beans with a productivity of 986.71 kg/ha/year. These smallholder cocoa plantations are cultivated by 79,503 households (Plantation Office of North Sumatra, 2022). One of the factors that need to be considered in cocoa cultivation is the use of superior and certified seeds. The cocoa plant is an annual plant, errors in using seeds will have a negative impact on production, even though it is treated with good technical culture it will not give the desired results, so that the capital spent will not return due to losses in farming. To avoid this problem, it is necessary to select good cocoa seeds. The sustainability of the supply of quality and certified seeds is inseparable from the intervention of cocoa seed growers/companies who need substantial business capital to process cocoa seeds according to the standards set by the seed certification agency. The sustainability of business activities to provide superior and certified cocoa seeds is also determined by the feasibility level of the cocoa seed nursery business, therefore this research was conducted to analyze the certified cocoa seed nursery business in North Sumatra Province.

2. RESEARCH METHOD

2.1. Location and Time of Research

This research was conducted at several cocoa seed nursery producers, namely CV. Wana Bhakti is located in Tanjung Morawa, KPT. True Friends are located in Tanjung Morawa, CV. Putra Agung is located in Tanjung Morawa, CV. Dharma Nusantara is located in Pematang Siantar City, and CV. Putra Perkasa is located in Patumbak, Deli Serdang Regency. The research was conducted from January to March 2023.

2.2. Type and Source of Data

The data used in this research are primary data and secondary data. Primary data is a data source that directly provides data to data collectors. Primary data sources were obtained through interviews with research subjects and by observation or direct observation in the field, namely cocoa seed nursery producers in North Sumatra Province. While secondary data is a data source that does not directly provide data to data collectors, for example through other people or through documents. Secondary data sources are complementary data sources that function to complement the data required by primary data. Of the total cocoa seed nursery producers that were sampled in this study, there were 5 (five) producers.

2.3. Method of collecting data

Data collection is an important activity for research activities, because the collection of data will determine the success or failure of a research. So in the selection of data collection techniques must be careful. The data collection techniques used in this study are as follows:

a) Interview

Interview is a data collection technique by asking questions directly by the interviewer to the respondent, namely the cocoa seed nursery producer, and the producer's answers are recorded or recorded. While the purpose of the interview is to construct about people, events, activities, organizations, feelings, motivations, demands and concerns, reconstruct expectations in the future, verify, change and expand information from other people. The interviews in this study were used to find out what was related to the research, namely the analysis of certified cocoa seed nurseries.

b) Observation

Observation is a data collection technique by making direct observations on the object of study. Observation is selecting, changing, recording, and coding a series of behaviors and situations related to the organization, according to empirical goals. Observations that are meant in this data collection technique are pre-research observations, during research and

post-research which are used as auxiliary methods, with the aim of observing how cocoa seed nurseries are carried out.

c) Literature review

Literature study is carried out to enrich knowledge about various concepts that will be used as a basis or guide in the research process. Researchers also use literature study in data collection techniques. Literature study in this data collection technique is a type of secondary data that is used to assist the research process, namely by collecting information contained in the Directorate General of Plantations, BBPPTP Medan, North Sumatra Plantation Service, and BPS data. The purpose of this literature study is to find facts and know the concept of the method used.

2.4. Population and Sample

In this study the population referred to is the number of companies or franchise businesses that carry out or produce certified cocoa seeds, namely 5 companies in North Sumatra.

Furthermore, to determine the sample to be used in research using purposive sampling or Judgmental sampling technique. The selected companies or franchise businesses are companies that carry out cocoa seed nurseries and apply for seed certification to Center for Seeding and Protection of Plantation Plants (BBPPTP) Medan with 5 (five) companies.

2.5. Data analysis method

To find out business income, it is calculated by subtracting the cocoa seed nursery business revenue from the business costs that have been incurred. Business analysis is an analysis to find out the process of spending business results as a whole. Production occurs due to a combination of natural factors, labor, and business capital with the following formula:

$$NR = TR - TC$$

Information:

NR = Net Revenues (net business income Rp/year)

TR = Total Revenues (total business revenue Rp/year)

tc = Total Cost (Total business cost Rp/year)

To calculate business income by multiplying the amount of production with the selling price of cocoa seeds ready for distribution with the formula, as follows:

$$TR = P \times Q$$

Information:

TR = Business Acceptance

P = Price Production

Q = Result Production

Revenue Ratio Analysis on business by comparing revenue with production costs. The level of profit obtained from cultivating the seeds is by looking at the comparison between the amount of income obtained from the sale of cocoa seeds ready for distribution with expenses (Cost). The method used to determine business efficiency with the formula, as follows:

$$\frac{R}{C} \text{ Ratio} = \frac{\text{Penerimaan}}{\text{Biaya}}$$

From the formula above, it can be seen that the criteria for the R/C Ratio are:

If the R/C Ratio > 1 then the business is said to be efficient

If the R/C Ratio = 1 then the business experiences BEP (Break Even)

If the R/C Ratio < 1 then the business is said to be inefficient

Income Ratio Analysis or Benefit and Cost Ratio (B/C Ratio) is also called PI (Profitability Index), which is a comparison of the benefits or profits obtained by a business with the costs incurred in that business in the future. In general B/C can be formulated as follows

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$$\frac{B}{C} \text{ Rasio} = \frac{\pi}{TC}$$

B/C = Benefit and Cost Ratio

π = Profit (benefit)

TC = Total Cost (Total Cost)

Business or business is said to be feasible if the π/C Ratio value > the prevailing bank interest rate. The value of the B/C ratio is one of the investment decision tools, because the value of the B/C ratio is greater than the prevailing bank interest rate, indicating that it is more profitable for entrepreneurs to invest their funds in business activities rather than saving at the bank (saving). (Fitriadi and Nuralina, 2008)

3. RESEARCH METHOD

Directorate General of Plantations, PBT domiciled at the Center for Plantation Germination and Plant Protection (BBPPTP) according to the work area, PBT domiciled at the provincial seeding UPTD and/or provincial Regional Apparatus Work Unit (SKPD) officials who carry out the supervisory and certification functions of seeds. Certification carried out by seed producers who have received a certificate from the Quality System Certification Agency must report the results of the certification to the central UPT and provincial UPTD. Field technical checks were carried out on hatcheries and on the performance of cocoa plants in polybags. Inspection of the hatchery is carried out in accordance with the quality standards of cocoa seeds from seeds in polybags, namely, seed age 3-12 months, seed height at least 30 cm, leaf color green, leaf number at least 6, stem diameter at least 0.5 cm and free from plant-disturbing organisms. Certification of cocoa seeds in the form of polybags is carried out if the cocoa seeds meet the criteria for ready-to-plant seeds according to the propagation technique used. The work steps carried out on seed certification in polybags consist of two stages, namely document inspection and technical/field inspection.

a. Document check

- 1) Seed production business license;
- 2) Seed origin documents (DO/Certificate);
- 3) Certificate of quality of seeds resulting from laboratory tests (if self-seeded);
- 4) Documents on the existence of human resources owned;
- 5) Documents/records of hatchery maintenance activities

b. Technical/Field Examination

Technical/field inspection takes a maximum of 2 days to complete. Inspections were carried out on hatcheries and on the performance of cocoa plants in polybags. Examination of the nursery is carried out in accordance with the garden standards in table 12. Examination of plant performance is carried out with the following working stages:

- 1) Examine and observe the truth of the variety and performance of seeds;
- 2) Check and count the number of beds;
- 3) Examine and count the number of seeds examined;
- 4) Determine the sample plots in the beds;
- 5) How to set an example:

Business Analysis of Certified Cocoa Seed Nursery

Tabel 1. Analisa usaha pembibitan CV Wana Bhakti

No	Uraian	Biaya
	Biaya:	
1	Benih	Rp 500
2	Pupuk (NPK/UREA)	Rp 900
3	Pestisida	Rp 500
4	Polibag	Rp 100
5	Paranet	Rp 33
6	Alat Siram	Rp 60
7	Selang	Rp 39
8	Wadah	Rp 80
9	Upah Kerja	Rp 94
10	Upah Isi Polibag	Rp 50
11	Upah Nyusun Polibag	Rp 50
12	Upah Tanam	Rp 60
	Cost Per unit	Rp 2.466
	Total Cost	Rp 123.296.500
	Produksi:	
	Jumah Produksi (batang)	50.000
	Harga Jual per batang	Rp 5.000
	Total Penerimaan (TR=P x Q)	Rp 250.000.000
	Net Revenue/Pendapatan bersih	Rp 126.703.500
	R/C Ratio=Penerimaan bersih/Biaya	1,03
	Benefit Cost Rasio (B/C Rasio= π/TC)	2,03
	Kelayakan usaha (Suku bunga Bank Acuan 4.25%)	Usaha tidak layak karena Nilai B/C lebih kecil dari suku bunga BANK

Sumber: data kuesioner (diolah)

Cocoa nursery costs are all expenses that apply to the cocoa nursery business which is the object of this research. Factors that become costs in the cocoa nursery business include equipment costs, labor costs and other production input costs. From table 1 it can be concluded that the amount of costs incurred by CV, Wana Bhakti for a cocoa nursery business for 1 year with a capacity of 50,000 seedlings is Rp. 123,296,500. With a selling price of Rp. 5000 per stick, it can be seen that the Total Revenue (TR) value is Rp. 250,000,000, the Nett Revenue (NR) value is Rp. 126,703,500 and the R/C Ratio value is 1.03 and the B/C Ratio value is 2.03. When compared to the value of the B/C Ratio which is smaller than the prevailing bank interest rate (4.25%), the nursery business carried out by CV. Vana bhakti is unworthy.

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Table.2 . PT Sahabat Sejati nursery business analysis

No	Uraian	Biaya
	Biaya:	
1	Benih	Rp 1.000
2	Pupuk (NPK/UREA)	Rp 25
3	Pestisida	Rp 13
4	Polibag	Rp 123
5	Paranet	Rp 26
6	Alat Siram	Rp 25
7	Selang	Rp 8
8	Wadah	Rp 15
9	Upah Kerja	Rp 27
10	Upah Isi Polibag	Rp 16
11	Upah Nyusun Polibag	Rp 50
12	Upah Tanam	Rp 60
	Cost Per unit	Rp 1.387
	Total Cost	Rp 277.350.000
	Produksi:	
	Jumah Produksi (batang)	200.000
	Harga Jual per batang	Rp 15.000
	Total Penerimaan (TR=P x Q)	Rp 3.000.000.000
	Net Revenue/Pendapatan bersih	Rp 2.722.650.000
	R/C Ratio=Penerimaan bersih/Biaya	9,82
	Benefit Cost Rasio (B/C Rasio= π/TC)	10,82
	Kelayakan usaha (Suku bunga Bank Acuan 4.25%)	Usaha Layak karena Nilai B/C lebih besar dari suku bunga BANK

Source: questionnaire data (processed)

From the table. 2 it can be concluded that the costs incurred by PT. True Friends for a cocoa nursery business for 1 year the capacity of 200,000 seedlings is Rp. 277,350,000. With a selling price of Rp. 15,000 per stick, it can be seen that the Total Revenue (TR) value is Rp. 3,000,000,000, the Nett Revenue (NR) value is Rp. 2,772,650,500 and the R/C Ratio value is 9.82 and the B/C Ratio value is 10.82. When compared to the value of the B/C Ratio which is greater than the prevailing bank interest rate (4.25%), the nursery business that is being carried out by PT Sahabat Sejati is feasible.

Table.3 . Analysis of CV Putera Agung's nursery business

No	Uraian	Biaya
	Biaya:	
1	Benih	Rp 1.000
2	Pupuk (NPK/UREA)	Rp 25
3	Pestisida	Rp 13
4	Polibag	Rp 123
5	Paranet	Rp 26
6	Alat Siram	Rp 25
7	Selang	Rp 8
8	Wadah	Rp 15
9	Upah Kerja	Rp 26
10	Upah Isi Polibag	Rp 16
11	Upah Nyusun Polibag	Rp 50
12	Upah Tanam	Rp 60
	Cost Per unit	Rp 1.386
	Total Cost	Rp 277.200.000
	Produksi:	
	Jumah Produksi (batang)	200.000
	Harga Jual per batang	Rp 15.000
	Total Penerimaan (TR=P x Q)	Rp 3.000.000.000
	Net Revenue/Pendapatan bersih	Rp 2.722.800.000
	R/C Ratio=Penerimaan bersih/Biaya	9,82
	Benefit Cost Rasio (B/C Rasio= π/TC)	10,82
	Kelayakan usaha (Suku bunga Bank Acuan 4.25%)	Usaha Layak karena Nilai B/C lebih besar dari suku bunga BANK

Source: questionnaire data (processed)

From table.3 it can be concluded that the costs incurred by CV. Putera Agung for a cocoa nursery business for 1 year the capacity of 200,000 seeds is Rp. 277,200,000. With a selling price of Rp. 15,000 per stick, it can be seen that the Total Revenue (TR) value is IDR 3,000,000,000, the Net Revenue (NR) value is IDR 2,722,800,000 and the R/C Ratio value is 9.82 and the B/C Ratio value is 10.82. When compared to the value of the B/C Ratio which is greater than the prevailing bank interest rate (4.25%), the nursery business carried out by CV. The High Son is worthy.

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Table.4 . Analysis of CV Putera Perkasa's nursery business

No	Uraian	Biaya
	Biaya:	
1	Benih	Rp 650
2	Pupuk (NPK/UREA)	Rp 28
3	Pestisida	Rp 67
4	Polibag	Rp 125
5	Paranet	Rp 18
6	Alat Siram	Rp 9
7	Selang	Rp 240
8	Wadah	Rp 50
9	Upah Kerja	Rp 50
10	Upah Isi Polibag	Rp 500
11	Upah Nyusun Polibag	Rp 100
12	Upah Tanam	Rp 55
	Cost Per unit	Rp 1.892
	Total Cost	Rp 189.200.000
	Produksi:	
	Jumah Produksi (batang)	100.000
	Harga Jual per batang	Rp 15.000
	Total Penerimaan (TR=P x Q)	Rp 1.500.000.000
	Net Revenue/Pendapatan bersih	Rp 1.310.800.000
	R/C Ratio=Penerimaan bersih/Biaya	6,93
	Benefit Cost Rasio (B/C Rasio= π/TC)	7,93
	Kelayakan usaha (Suku bunga Bank Acuan 4.25%)	Usaha Layak karena Nilai B/C lebih besar dari suku bunga BANK

Source: questionnaire data (processed)

From table 4 it can be concluded that the costs incurred by CV. Putera Perkasa for a cocoa nursery business for 1 year the capacity of 100,000 seeds is Rp. 189,200,000. With a selling price of Rp. 15,000 per stick, it can be seen that the Total Revenue (TR) value is IDR 1,500,000,000, the Net Revenue (NR) value is IDR 1,310,800,000 and the R/C Ratio value is 6.98 and the B/C Ratio value is 7.98. When compared to the value of the B/C Ratio which is greater than the prevailing bank interest rate (4.25%), the nursery business undertaken by CV Putera Perkasa is feasible.

Table.5 . Analysis of CV nursery business. Archipelago Dharma

No	Uraian	Biaya
	Biaya:	
1	Benih	Rp 650
2	Pupuk (NPK/UREA)	Rp 28
3	Pestisida	Rp 67
4	Polibag	Rp 125
5	Paranet	Rp 18
6	Alat Siram	Rp 9
7	Selang	Rp 240
8	Wadah	Rp 50
9	Upah Kerja	Rp 50
10	Upah Isi Polibag	Rp 500
11	Upah Nyusun Polibag	Rp 100
12	Upah Tanam	Rp 55
	Cost Per unit	Rp 1.892
	Total Cost	Rp 189.200.000
	Produksi:	
	Jumah Produksi (batang)	100.000
	Harga Jual per batang	Rp 15.000
	Total Penerimaan (TR=P x Q)	Rp 1.500.000.000
	Net Revenue/Pendapatan bersih	Rp 1.310.800.000
	R/C Ratio=Penerimaan bersih/Biaya	6,93
	Benefit Cost Rasio (B/C Rasio= π/TC)	7,93
	Kelayakan usaha (Suku bunga Bank Acuan 4.25%)	Usaha Layak karena Nilai B/C lebih besar dari suku bunga BANK

Source: questionnaire data (processed)

From table . 5 it can be concluded that the amount of costs incurred by CV. Dharma Nusantara for a cocoa nursery business for 1 year the capacity of 100,000 seeds is Rp. 189,200,000. With a selling price of Rp. 15,000 per stick, it can be seen that the Total Revenue (TR) value is IDR 1,500,000,000, the Net Revenue (NR) value is IDR 1,310,800,000 and the R/C Ratio value is 6.98 and the B/C Ratio value is 7.98. When compared to the value of the B/C Ratio which is greater than the prevailing bank interest rate (4.25%), the nursery business carried out by CV. DharmaNusantara is worthy. Based on the data that has been presented, it shows that the factors that support the feasibility of farming are not only in terms of finance but can be influenced by the management of the company, as stated by Aydra et al, (2020) that the management aspect is said to be inadequate because farming does not yet have good financial records or bookkeeping of sales made. Farming businesses that do not yet have an organizational structure can also affect the feasibility of their farming business.

4. CONCLUSIONS AND SUGGESTIONS

4.1. CONCLUSION

Based on the results of the research that has been done, it can be concluded that:

1. The total cost spent on starting a cocoa nursery varies according to the size of the business scale. The smallest cost is found in the CV Wana Bhakti business of Rp. 123,296,500 and the biggest cost is in the PT.Sahabat Sejati business of Rp. 277,350,000 .

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2. The cocoa nursery business provides benefits to all business actors with the smallest profit obtained by CV, Wana Bhakti of Rp.126,703,500 and the largest profit obtained by CV Putera Agung of Rp. 2,722,800,000 .
3. The nursery business carried out by PT. True Friends, CV, Putera Agung, CV Putera Perkasa, CV. Dharma Nusantara is considered feasible while what is done by CV. Wana Bhakti is considered inappropriate.

4.2.Suggestions

From the results of the research that has been done, the researchers suggest a number of things, namely:

- a.Business actors should have complete records regarding the use of costs and proceeds of revenue so that business actors can truly know the income derived from their farming business.
- b.It is necessary to carry out further research by adding the criteria for the data analysis method so that the calculation results obtained are getting better.

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