

Analysis of Citra Water Apple Business in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District

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Abstract: This study aims to identify the cultivation technique of citra water apple farming system, to determine the production cost component in the farming system, and to analyze the feasibility of the citra water apple farming system. The analytical method used is descriptive quantitative analysis that researchers describe the condition variables: revenue volume businesses citra water apple cultivation in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District. To determine the cost of the components can be seen by analyzing the feasibility citra water apple using a calculation Analysis of Acceptance and Expense Balance (R/C Ratio) and Break Even Point (BEP) with descriptive analysis method is direct interview to farmers in the study site. Respondents in this study are all existing citra water apple farmers in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District. The samples were 25 families using Simple random sampling method. The result of this research shows that the citra water apple farming system in the research area is economically beneficial for the farmers which is 11,557,027 rupiah and from the business feasibility aspect is the type of activity that is feasible to be cultivated and developed because the value of Revenue Cost Ratio is 1.66.

1 INTRODUCTION

Citra water apple farming is much in demand by farmers as a livelihood which is a source of farmer income. The prospect of farmers working on citra water apple farming can increase farmers' income. It can also increase the nutritional value of food. Because citra water apple contains many proteins, carbohydrates, fats, vitamin A, and vitamin C is good for the health of the body.

Farmers in the implementation of farming has a goal that is how farming is done will be able to provide benefits by using resources well-owned in order to obtain high income so as to meet daily needs. Therefore, analysis of citra water apple farming system needs to be done by farmers in implementing their farming in order to know the amount of income.

arise. The results of the observations then made scenarios that support and create a flow problem. The second stage is the stage of data analysis by analyzing the costs of production and business acceptance with the income analysis approach. Then analyzing the breakeven point of the cashew water business with the Break Even Point (BEP) analysis approach in terms of both price and production, then analyzed the feasibility of the business. The third stage is the interpretation of the data by interpreting the results of the predictive values of each variable and comparing it with previous theories and research results. Interpretations may prove the theory, opposed to theory and developed a new theory as a reference on the research results. The next stage is to draw conclusions, which this stage to conclude the results achieved and recommend to the relevant parties.

2 RESEARCH METHODS

2.1 Research Procedure

The design of this study was first performed by observing to study the problems or difficulties that

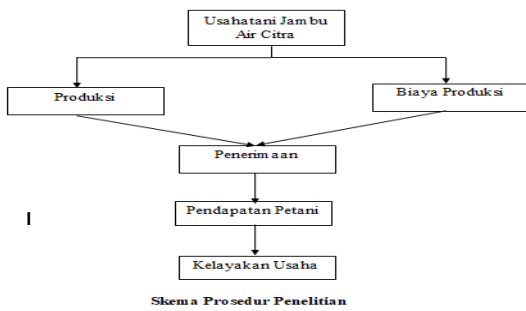


Figure 1.

2.2 Parameters Observed

Parameters observed in this study include: farmer family data, data analysis of citra water apple farming system consisting of variable costs, fixed costs and income and feasibility of the farming.

2.3 Type and Scope of Research

The type of this research is descriptive quantitative research that is the researcher who describes the variable condition that is the amount of income obtained by the citra water apple business actor and the feasibility of the business.

The scope of this research is in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District. The method used in this study were interviews to farmers citra water apple by using a questionnaire that had been made in advance. The research location is taken purposively (intentionally) on the basis that one of the areas that have great potential in the development of farming, especially citra water apple, in addition to the scale of farming citra water apple is owned by local farmers relative a lot.

2.4 Data Collection Technique

Data collection conducted in this research are:

1. Observation, which is a direct observation of the citra water apple farming system in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District.
2. Questionnaires and interviews, the retrieval of data by dividing the questionnaire or a list of questions to the farmers as well as communicate directly with respondents to obtain the necessary data.

2.5 Population and Sample

Population in this research is all farmer of jambu air citra that exist in Hamlet II Paya Salit Desa Semikat

Island Sirapit District of Langkat Regency. The number of population as many as 45 families and the number of samples in the set as many as 25 families using Simple random sampling method, where the sample characteristics are homogeneous, the treatment in the farm and the variables will be examined the same. It is the same with Bailey's theory that states for research using statistical analysis, the minimum sample size of 30 (Hassan, 2002).

2.6 Data Analysis Method

Analysis of the data used to determine the income of citra water apple are:

$$\Pi = TR - TC \tag{1}$$

$$TR = P_y \cdot Y \tag{2}$$

$$TC = FC + VC \tag{3}$$

Explanation:

Π : The level of income or profit in the citra water apple business n Hamlet II Paya Salit Village, Pulau Semikat, Langkat District.

TR : Total business revenue

TC : Total cost

FC : Fixed cost

VC : Variable cost

Y : Production obtained in a business

P_y : Price Y

Analysis of Acceptance and Expense Balance (R/C Ratio). To view the relative advantages citra water apple business is done by calculating the value of the balance between revenue and costs. The balance value is derived from the ratio of the total acceptance of the fee or can be derived from the ratio of acceptance of cash costs. The value of a counter can be calculated by:

$$\frac{R}{CRatio} = \frac{TotalRevenue}{TotalCost} \tag{4}$$

By criteria ::

1. $RCR > 1$: feasible (profitable).
2. $RCR = 1$: break even point.
3. $RCR < 1$: not feasible (unprofitable)

3 RESULTS AND DISCUSSION

3.1 Research Result

3.1.1 Farmers Characteristics of Respondent Farmer's Age

The respondents were aged between 23-60 years old. Distribution of respondents by age and percentage can be seen in Table 1.

Table 1. Distribution of farmer's age of respondents in 2017.

Age Group (Year)	Number of people	Percentage (%)
21-30	2	6,67
31-40	8	26,67
41-50	17	56,67
51-60	3	10,00
Total	30	100,00
Average: 42 years		

Source: Primary Data (processed), 2017.

Based on Table 1, it can be seen that most respondents are at the age of 41-50 years (56.67%) and are at least in the range of 21-30 years (6, 67%). This shows that the average age of respondents is still at productive age.

Education and Experience Level. Farmers of respondents are divided into five groups based on the level of education that is not finished primary school, graduated from elementary school, graduated from junior high school, graduated from high school, and graduated degree. In the following table it can be seen that the level of education of respondent farmers is quite varied with the most respondents take high school and equivalent as many as 12 people (40%).

A total of 6 people graduated from elementary school, and 4 people were able to graduated degree. The formal education of the respondent farmers is not very influential because all the respondent farmers get informal education that is training and counseling conducted by farmer group and local government.

Table 2. Distribution of farmers' level of education in 2017

Level of education	Number of people	Percentage (%)
primary school	6	20,00
elementary school	8	26,67
high school	12	40,00
graduated degree	4	13,33
Total	30	100

Source: Primary Data (processed), 2017.

Citra water apple farmers have different experience and not too long in developing the commodity of citra water apple because it is classified as new kind of fruit plants in Indonesia. The following distribution of farmers' experience can be seen in table 3.

Table 3. Distribution of farmers' experiences in 2017.

Level of education	Number of people	Percentage (%)
1 year	8	26,67
2 years	16	53,33
3 years	4	13,33
4 years	2	6,67
Total	30	100
Average: 2 years		

Source: Primary Data (processed), 2017.

Land Size, Land Status, and Number of Trees Based on the number of plants owned by respondents in table 4 it is known that most of the respondent farmers have the number of trees 1-200 trees reach 17 people (70.83%). The age of trees planted by farmers is generally over 2 years old.

Table 4. Distribution of the number of plants owned by farmers of respondents in 2017.

Level Education	Number of people	Percentage (%)
12-100	8	26,67
101-200	11	36,67
201-300	5	16,67
>301	6	20,00
Total	30	100
Average: 229 trees		

Source: Primary Data (processed), 2017.

Based on the land ownership status of the farmers, the respondents are differentiated into the farmers who process their own land, the farmers who cultivate

the land belonging to the same lease land and the farmers who process the land of people (profit sharing).

Farmers who worked on their own land amounted to 20 people, but there is 1 person who also worked on rented land. In addition there are 4 people who work on the land of others with the terms of profit sharing where all expenses borne by the tiller. This shows that the ownership of the land of the respondents is high so that the farmers can more easily take decisions in cultivation. The farmers' land area ranges from 0.016 to 0.7 hectares. It is seen that most of the farmers that is 50 percent have cultivated land with an area of between 0.1 - 0.3 hectares. The grouping of farmers based on cultivated area can be seen in Table 5.

Table 5. Distribution of farmers of respondents by land area

Cultivated Land Area	Farmers Respondents	
	Number of people	Percentage (%)
< 0,1 ha	7	23,33
0,1-0,3 ha	17	56,67
>0,3 ha	6	20,00
Total	30	100
Average : 0,24 ha		

Source: Primary Data (processed), 2017.

Farming Status. Based on the status of farming in table 10, it is known that most farmers of respondents do citra water apple farming as a side business that is 22 people (91.67%). Respondents who made the citra water apple as the main livelihood is only 2 people (8.33%).

Table 6. Distribution of farmers respondents based on farming status

Cultivated Land Area	Farmers Respondents	
	Number of people	Percentage (%)
< 0,1 ha	1	4,16
0,1-0,3 ha	1	4,16
>0,3 ha	22	91,66
Total	24	100

Source: Primary Data (processed), 2017.

The household income of farmers is derived from the income of farming and income outside the farm. Revenue outside the farm can come from off-farm employment, income of other family members coming from outside the farm, outside assets and other farming. Farmers of respondents generally have income outside the farm which reaches Rp 2.000.000

per month as many as 18 people (75%). The main work done by farmers consists of civil servants, laborers, entrepreneurs and farmers.

3.1.2 Cost of Revenue, Total Cost and Revenue Farming Citra Water Apple Regional Research

Admission Fee, total cost and income of citra water apple farming system in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District can be explained in table 7 below. Business income obtained from the number of fruit multiplied by the unit price and from the seeds sold as much as 229.27 seeds with the price per seed of Rp. 10,000.

The total cost of the business consists of cash costs and calculated costs. The cash cost consists of purchasing fertilizers, labor costs outside the family, and paying taxes. While the calculated costs consist of labor costs in the family, depreciation costs, and land rent.

3.2 Discussion

3.2.1 Constraints Faced in Citra Water Apple Farming

Farmers in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District faced various obstacles in implementing citra water apple farming system. Most of the problems lie with the cultivation sector.

Problems in the upstream subsystem is the availability of labor, the family members there tends reluctance because it is busy with their individual activities. Farmers only do this farming activities as a side job so that when taken into account the use of labor is still less efficient. Farmers who only do maintenance activities when they are spare plants causing plants to be unkempt, crop failure, dead, and the end of many farmers stopped as in the first year of production of this citra water apple in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District.

The use of labor has an impact on the increase in cash costs that must be issued by farmers who are still limited capital. At the beginning of the event often occurs the theft of plants up to hundreds of trees and fruit when going to harvest. The cultivation subsystem has many problems because the plant is so sensitive that cultivation must be tightly controlled. The use of inputs such as intensive labor leads to high costs and also ultimately makes the selling price high.

Farmers do cultivation without training so farmers do it with an estimate of personal experience alone. Complaints that often arise from farmers are pests and

diseases. Fruit does not have a layer of wax as told before so farmers are not ready. Because the fruit field is easily attacked by pests. The level of pest attack is very high when the farmer late to do the packaging of fruit. Conversely wrapping fruit when the fruit is still too small also makes fruit to fall out.

Fertilization done by farmers is less causing the growth of plants disturbed. The high price of non-subsidized fertilizer is one of the causes of the lack of fertilizer which resulted in low yields other than because farmers' crops generally have not entered the productive age of 2-10 years.

The cost of drugs to treat diseases tend to be high because of the variety of pests and diseases encountered. The lack of key inputs that directly affect fertilizers and medicines causes far-reaching crop yields. The problem of the off-farm subsystem, the problem faced is the low selling price due to the low quality of the crop. The harvest is strongly influenced by the physical appearance of the fruit, such as the color and smoothness of the fruit skin. The color of the fruit is too old due to poor wrinkling mistakes. Unscheduled harvests lead to overproduction but the bad consequences of the fruit sale price have been reduced.

The marketing of this fruit resulted in many farmers began to rely on the sale of transplanted seedlings. In the field seen some farmers tend to focus on grafting graft so that the harvest is low. The farmer cuts the fruit on the transplanted portion so that the nutrients are focused on root growth. Transplants should only be done when the plants are grown, which is around the age of two years. Young breeds cause the transplant plants to die more easily. The price of citra water apple seeds in the market reaches Rp 10,000-Rp15 000.

3.2.2 Analysis of the Income of Citra Water Apple Farming System

The analysis of farming is done by calculating the level of income and R / C ratio of cashew water farming system. Respondent analysis of cashew water farming system done in this research is 30 people. The farming analysis conducted refers to the concept of income over the cost of cash costs and total costs.

Cash costs can be interpreted as costs incurred in cash such as the cost of purchasing production facilities, the cost of labor outside the family and taxes. The total cost is the cash cost plus the calculated cost. Calculated costs are expenses that are not in cash such as fees for family labor use, depreciation of equipment and the cost of counterparts for land or lease of land.

The analysis of farm income is useful to give an idea of the advantages or disadvantages of a farm that is calculated based on the amount of revenue earned less the cost incurred. Analysis of farm income includes an analysis of revenue on cash costs and income analysis over total costs. In the cost component, the costs incurred by the farmers consist of cash costs and costs are taken into account. Analysis of farm income is done by comparing respondent farmers based on plant age.

3.2.3 Farming Costs Structure

Expenditure or expense is the entire sacrifice of economic resources in the units of money (rupiah) required to produce the product within a production period. Production cost is all expenses incurred to produce a commodity or product either in cash or taken into account. The cost of farming is divided into cash costs and calculated costs. The calculation of cash costs includes the cost of cutting the harvest payments, the purchase of fertilizers, medicines, fruit wrappers, family labor and other costs such as tax costs. Calculated costs or non expenses include depreciation expenses and counterpart fees for family labor, and land. The balancing cost for land or land rent is included in the cost is taken into account because the average farmer has his own land. Depreciation cost of equipment in each used by farmers have the same value because the comparable farming is a farm which in the same cultivation technique so that the equipment used for farming is relatively the same.

3.2.4 Cash Cost

The cash cost of the citra water apple farming system used in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District include :

- a. Seeds
Seeds of plants used are the result of grafting seedlings that where the price of the seedlings transplanted citra water apple are Rp 10.000.00
- b. Fertilizer
The use of fertilizer in citra water apple farming is manure, artificial fertilizer (NPK Mutiara, Phonska, KCl). The amount of fertilizer used by farmers of respondents in 2017 per hectare can be seen in the following table.

Table 7. Use of fertilizer per stratum age per hectare per year

No.	Type Fertilizer	Total	Value (Rp)
1.	Manure (sack)	1.416,67	9.916.690
2.	NPK (kg)	633,83	7.605.960
3.	KCL (kg)	288,89	3.466.680
Total		2.339,39	20.989.330

Source: Primary Data (processed), 2017.

The results showed the use of fertilizers is very varied and not patterned, it is because the farmer does not follow the standard fertilization given during counseling. Many farmers do not follow the counseling because they are busy with their main work.

Manure is purchased from animal breeders such as goats, buffalo, and chickens that are scattered around the research area. Artificial fertilizers such as NPK, Phonska, and KCl are purchased from kiosks of agricultural production facilities. The cost of manure reached Rp 7 000 per sack while the pearl NPK fertilizer reached Rp 12 000 per kg, Phonska Rp 3 000 per kg, and KCL Rp 12 000 per kg. Artificial fertilizer prices are cheaper when purchased per bag which weighs about 50 kg where there are pieces to Rp 2000 per kg. The fertilizer cost reached Rp. 20,989,330 or approximately 41.05% cash cost incurred by farmers. The use of fertilizer in the field is still less than the standard of fertilization is the cause of nutrient deficiency crops so that the harvest is less than the maximum.

- c. Plastic Packaging and Styrofoam Nets
Fruit wrapping costs is Rp. 4.700.000,00 or 7,42% cash costs incurred by farmers.

- d. Families of Labor Affairs
The cost of labor is divided into two parts, namely labor in the family and labor outside the family. the use of labor is mostly in the weeding stage that is equal to 247.24 HOK or about 32.61% total HOK. This is because the citra water apple requires a lot of nutrients and fertilizers that many participate in improving the growth of weeds in the vicinity so that farmers should often weeding plants in order to make efficient use of fertilizer is very expensive because there is no fertilizer subsidy. Labor outside the family that is used by the respondent amounted to 121.66 HOK farmers for a year with an average wage per day Rp 36. 302.72 for eight hours of work requires a fee

of Rp 4.730.772,76 per hectare per year or reaches 6,15% cash costs.

Table 8. Cash cost incurred by citra water apple farmers

Description	Total	Unit	Unit Price (Rp)	Value (Rp)
Installment Cost of Seed	350	seeds	5000	1.750.000
NPK	633,83		12.000	7.605.960
KCL	288,89	kg	12.000	3.466.680
Medicine Package	46,52	liter	200.000	9.304.000
Labor Purification	91,3	HOK	50.000	4.565.000
Pruning Fertilization	5,31	HOK	50.000	265.500
	11,04	HOK	50.000	552.000
Spraying	9,87	HOK	50.000	493.500
Wrapping	6,3	HOK	50.000	315.000
Harvesting	00,00	HOK	50.000	-
Total Cost of Family Affairs				6.191.000
Tax				350.000
				33.367.640
Tota Cash Fees				0

Source: Primary Data (processed), 2017.

In the table above can be seen that cash business cash citra water apple cost of Rp. 33,367,640, - consisting of installment costs in the purchase of seeds amounting to Rp. 1.750.000,00 NPK fertilizer of Rp. 7.605.960,00 KCL fertilizer as much as 288.89 kg of Rp. 3.466.680,00 the use of drugs 46.52 liters of Rp.9.304.000,00 Labor costs from outside the family in terms of cleaning, pruning, fertilization, spraying, packaging, and harvesting of Rp. 6.191.000,00 and the tax payment fee of Rp. 350.00.-.

3.2.5 Calculated Costs

Costs are calculated on a citra water apple farming imagery used in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District cover depreciation of agricultural equipment, labor in the family, and land lease are taken into account. Land owned by farmers in this village has an area of 0.005 ha to 0.7 ha.

The cost of land rent per hectare per year reaches Rp 7,000,000. The land used is owned by the farmers and some of the land is cultivated with profit sharing so this cost does not include the cash cost. Depreciation cost of equipment in each used by farmers has the same value because the comparable farming system is the same guava farming (homogeneous) or farming in the same cultivation techniques so that the equipment used for farming is relatively the same. Tools that are mostly owned by farmers are hoes, sickles, cutting scissors, fruit scissors, scissors, and machetes. The cost of depreciation of farm equipment owned by farmers is computed using the straight-line method. Calculation of the value of depreciation of agricultural equipment can be seen in table 9.

Table 9. Depreciation value of agricultural equipment

Farming tools	Total	Unit Price (Rp)	Value Time (Rp)	Economic Age (Years)	Depreciation per year (Rp)
Hoe	1	50.000	750	5	9.850
Sickle	1	30.000	750	5	5.850
Cengkrong	1	20.000	750	5	3.850
scissors cuttings	1	50.000	0	2	25.000
Fruit Scissors	1	25.000	0	2	12.500
Scissor	1	10.000	0	2	5.000
Machete	1	50.000	750	5	9.850
Total Cash Cost		235 000			71.900

Source: Primary Data (processed), 2017.

The calculated cost in the citra water apple farm in the research area consists of depreciation cost of Rp. 71.900, labor cost of the family (HOK) of Rp. 3.500.000 and land rent of Rp. Rp. 7,000,000. For more details can be seen in table 10 below.

Table 10. Costs calculated on the citra water apple farming system

Component	Cost (Rp)
Depreciation costs	71.900
Family Labor (HOK)	3.500.000
Land rent	7.000.000
Total	10.571.900

Source: Primary Data (processed), 2017.

3.2.6 Reception Farming

Acceptance of received farming is the multiplication of total crop yield and the selling price received. Reception of farmers comes from the production of citra water apple farming system. Acceptance of citra water apple farming system in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District in 2017 is Rp. 55,505,167 from fruit receipt and seed receipt of Rp. 53,212,500 and Rp. 2,292,667. Acceptance of seedlings is obtained when plants are grafted. Transplantation reduces the productivity of the fruit because the fruit will have to be removed so that the roots can grow.

Table 11. Average acceptance of citra water apple farming in 2017

Description	Total	Unit	Unit Price (Rp)	Value (Rp)
Fruit	2128,5	kg	25.000	53.212.500
Seeds	229,27	Seeds	10.000	2.292.667
Total Revenue				55.505.167

Source: Primary Data (processed), 2017.

3.2.7 Farming Income

Farm income will be profitable if the difference between revenue and expenditure is positive. Revenue is divided into revenues over cash costs and total cost revenues. Revenue on cash costs is derived from a reduction in total revenue by cash disbursements. Revenue on total costs is derived from the reduction in total revenue and total expenditure.

Table 12. Revenue of citra water apple farming 2017

Description	Value (Rp)
Total Revenue	55.505.167
Total Entire Cost	43.948.140
Revenue on cash costs	22.137.527
Revenue on total cost	11.557.027

Source: Primary Data (processed), 2017.

Table 12. shows the production value (revenue) generated from the business in this research area of Rp. 55.505.167, - per one cycle. Citra water apple is sold fresh. The total cost resulting from the sum of fixed costs and variable costs is Rp. 43.948.140. The results of the data from Table 12 show the net income received by the farmers of the citra water apple

business obtained from the total receipts less the total cost / total cost is Rp. 11,557,027 per cycle.

By looking at the criteria of assessment that a business is profitable if a price level multiplied by the amount of citra water apple production exceeds all costs, it can be ensured that the citra water apple business is feasible to develop. At the level of efforts to maximize profits are usually realized through improvements in technical efficiency.

3.2.8 Farming Efficiency

Hernanto's (1989) opinion, one measure of farm-based income efficiency is the calculation of Revenue and Cost Ratio (R / C Ratio). Overall value of R / C cash and R / C total of this business is 1.66 and 1.30. Citra water apple farming in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District is feasible to be cultivated (shown) as indicated by the R / C Ratio > 1, the average value is 1.66. It means with the sacrifice (production cost) of Rp. 1.00 then the farmer will get the revenue (production value) of Rp. 1.66. With reference to this situation, the citra water apple farming system in the research area is feasible and provides benefits even to be developed or implemented. For more details can be seen in table 13.

Table 13. Efficiency of citra water apple farming 2017.

Description	Value (Rp)
Total Revenue	55.505.167
Total Entire Cost	43.948.140
Revenue on cash costs (A-B)	22.137.527
Revenue on total cost (A-D)	11.557.027
R/C rasio over cash charge (A/B)	1,66
R/C rasio over total costs (A/D)	1,3

Source: Primary Data (processed), 2017.

4 CONCLUSIONS

Based on the analysis of farm income done to the farmers of respondents in Hamlet II Paya Salit Village, Pulau Semikat, Langkat District, it can be concluded:

1. Citra water apple farming in the research area is an activity that is economically still profitable for farmers that is Rp.11.557.027, -. Overall, the citra water apple farm has an income value on cash cost and revenues at a positive total cost.
2. In terms of the feasibility of citra water apple farming system is a kind of activity that deserves

to be cultivated and developed because the value of Revenue Cost Ratio 1.66.

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