A Financial Analysis of The Farming Business of Manalagi Apple (A Case Study in Junggo Village, Bumiaji District, Batu City, East Java)

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***Abstract*. This study aims to determine the amount of production and income of apple farming varieties from a financial perspective. The results of the study showed that the initial investment in the farming of a Manalagi apple was IDR 20,335,000, and the average production cost per year is IDR 26.263.742.50. Monoculture manalagi apples developed in Junggo village based on the results of the NVP analysis was IDR 162,805,964.65. So, the NVP value is more than zero, which means it is feasible to be developed. Break-Even Point (BEP) value was IDR 845 per kg, smaller than the average price at the farm level of IDR 3,000 per kg. If the capital for planting comes from a loan, and it needs to be repaid in the 9th to 5th month, and the amount of loan required for capital is approximately IDR 200,000,000 with a B / C ratio of 4.37 more than one. So, it is feasible for further development.**

Keywords: financial analysis, farming, manalagi apples

INTRODUCTION

The capital investment in an apple farm needs to be based on careful economic calculations. This is because the farm requires a considerable amount of capital, especially in the early years in which the risk of farming is quite high. [1] The analysis result from Puji Santoso and his colleagues in 2016 showed that this BEP achieved IDR 38,916,000, and the farmland was 45,034,000 rupiah. This BEP value is reached at a minimum scale of), 164ha (rice fields), and 0.390ha (farmlands). This means that if farmers cultivate apple plants with an area of more than the minimum scale, they would have gained profit and if less than the minimum scale of the determined farm area, they would incur losses. The production costs of farming tend to increase from year to year ([2].

Agricultural products can influence other sectors and have an important meaning in the export sector as well. Besides, compared to other sectors, agricultural sectors in Indonesia have unique characteristics, such as a source of livelihood and employment opportunity for the majority of the population in Indonesia [3]. In addition, agriculture also produces food that has an essential meaning, not only in daily livelihoods but also in the food stability of the Indonesian people [4].

Apples in Indonesia are only produced in 3 places. They are located in Batu city, Poncokusumo, Malang regency, and Nongkojajar, Pasuruan regency. Nongkojajar accounts for 40% of the needs of the local Apple in the country. The rest is fulfilled by Batu and Poncokusumo [5].

There is a problem related to financial aspects consisting of the analysis of cost and income. The financing aspects correlate to project development that will or is being carried out as well as the benefits obtained. These aspects will begin by taking into account the financing aspects from the smallest activities up to the largest ones. Thus, it can be estimated whether or not community members need financial assistance partly in carrying out their farming business or the entire farming activities must be borne to the fund provider [6].

METHOD

This research was carried out qualitatively by collecting primary and secondary data. Primary data were obtained directly through the interview with apple farmers. Secondary data were obtained from agencies and previous studies that were relevant to this research. The obtained secondary data were used as supporting data of the primary ones. The research was carried out in 3 stages; preparation (area and the number of samples determination), implementation (primary and secondary data collection), and data analysis [7], [8].

RESULTS

Based on the results of primary and secondary data collection, the financial analysis of the development of apple farming can be noticed in the following tables.

Table 1. Distribution of land use in Junggo village, Bumiaji District, Batu city in 2016/2017

No.	Type of Land Use	Area (Ha)	Percentage (%)
1.	Housing	130,000	25.65
2.	Yards	214,000	42.23
3.	Moor	96,000	18.94
4.	Plantation	2,000	0.40
5.	Tomb	60,000	11.84
6.	Forest	4,765	0.94
	Others		
	TOTAL	506. 765	100,00

Source: Junggo Village Office, 2017

Table 2. Variety of incomes in IDR per capita in Junggo village, Bumiaji District, Batu city in 2016/2017

No.	Type of Income	Village Income Percapita
1	Agriculture Sector (Plants)	IDR 9,123,010,000.-
2	Plantation Sector	IDR 79,800,000.-
3	Forestry Sector	-
4	Livestock Sector	IDR 1,786,688,450.-
5	Revenue Sector	IDR 11,438,273,450.-
6	Total population	4,514
7	Average	IDR 2,533,954.-

Source: Junggo Village Office, 2017

Table 3. Agricultural products and productivity per hectare (Ha) in Junggo village, Bumiaji District, Batu city in 2016/2017

No.	Plant Type	Width (Ha)	Production (Ton)	Production Average (Ton / Ha)
1.	Apple	95	1427	15
2.	Garlic	5	27	5
3.	Red onion	10	52	5
4.	Potato	20	125	6
5.	Cabbage	5	25	4

Source: Junggo Village Office, 2017

Table 4. Types of people job in Junggo village, Bumiaji District, Batu city in 2016/2017

No.	Type of job	Total	Percentage (%)
1.	Farmer owner	350	15.36
2.	Cultivators	330	13.17
3.	Farmworkers	600	26.34
4.	Breeder	943	41.16
5.	Traders, etc.	85	3.97
	Total	2308	100,00

Source: Junggo Village Office, 2017

Table. 5 Costs for production facilities (in millions) of Manalagi apple monocultures of 1 ha. in Junggo village, Bumiaji District, Batu city in 2016/2017

No	Age (year)	Production Facilities: Seeds (IDR)	Manure (IDR)	Artificial fertilizer (IDR)	Pesticide (IDR)	Tools (IDR)	Border (IDR)	Total (IDR)
1.	1	5,070	2,300	1,217.8	1,250	1,890.7	-	11,728.5
2.	2		2,000	2,411.6	1,447.7		-	5,859.3
3.	3		2,000	327.6	4,550		2,529.2	9,406.8
4.	4		2,300	781.2	13,208			16,289.2
5.	5		2,300	467.2	4,666			7,433.23
6.	6		2,000	2,457	12,982.2			17,439.8
7.	7		1,420	6,300	10,028.7			17,748.7
8.	8		2,050	8,497	2,721.7			13,268.9
9	9		2,300	7,151	6,364.8			15,914.6
10.	10		2,300	17,068.8	10,891.4			30,260.2
11.	11		2,300	20,562.8	1,040			23,902.8
12.	12		2,385	17,639.2	4,242.2			24,266.4
13.	13		2,080	6,132.9	5,774.6			13,987.5
14.	14		2,300	3,134.9	8,405.3			13,840.2
15.	15		665	6,775.9	15,366			22,806.9
16.	16		4,660	6,678	5,886.4			17,224.4
17.	17		2,300	10,827.6	7,044.5			20,172.1
18.	18		2,000	4,631.3	12,340.4			18,981.7
19.	19		2,300	1,379.7	3,215			6,895.4
20.	20		530	2,748.9	5,356			8,634.9
Total		5,070	42,490	127,191.45	136,782.2	1,890.7	2,529.2	314,453,550
Average			2,124.5	6,359,572.5	6,839.11			15,797,677.5

Table 6. Wage for labor in 1 Ha of Manalagi Apple development in Junggo village, Bumiaji District, Batu city in 2016/2017

No	Age (Year)	Total (IDR)
1.	1	3,366,800
2.	2	1,411,500
3.	3	881,750
4.	4	2,083,750
5.	5	2,505,250
6.	6	2,793,750
7.	7	2,445,250
8	8	3,360,250
.9	9	5,423,000
10.	10	4,562,000
11.	11	5,373,500
12.	12	4,424,000
13.	13	4,658,000
14.	14	4,693,500
15.	15	4,301,000
16.	16	4,682,500
17.	17	4,028,000
18.	18	4,824,750
19.	19	4,091,000
20.	20	6,273,500
	Total	76,183.300
	Average	3,809,315

Table 7. The initial investment cost for the development of Monoculture Manalagi Apple in Junggo village, Bumiaji District, Batu city in 2016/2017

No	Price Details	Unit (IDR)	Volume	Unit	Value (IDR)
1.	Production Facilities				
	• Seeds	6,000	1100	Pohon	12,600,000
	•Manure	1,250	1400	Pikul	1,750,000
	total	-	-	-	14,430,000
2.	Labor	4,000	370	HKSP	1,480,000
	• Land Processing	4,000	230	HKSP	920,000
	• Holes Making for Plants				2,400,000
	total				
3.	Agricultural Buildings	-	-	-	2,500,000
	• Fence	-	-	-	600,000
	• Guard House				3,100,000
	total				
4.	Equipment				
	•Scissors	20,000	8	Buah	160,000
	•Water containers	125,000	2	Buah	250,000
	• Hoes	12,000	6	Buah	75,000
	total				485,000
	Total Investment				20,335,000

Source: Pimer data 2017

Table 8. Cash Flow from the development of Monoculture Manalagi Apple per 1 Ha in Junggo village, Bumiaji District, Batu city in 2016/2017

No	Age (Year)	Production (Ton)	Revenue (IDR) Million	Production Cost (IDR) Million	Revenue (IDR) Million
1	0	0.0	-	20,335	-20,335
2	1	0.0	-	21,095.3	-21,095.3
3	2	1.62	4,850	13,270.8	-8,410.8
4	3	3.19	9,570	16,288.55	-6,718.55
5	4	12.85	38,550	24,372.95	14,177,050
6	5	17.35	52,050	15,938.5	36,111.5
7	6	25.37	76,110	26,233.55	49,876.45
8	7	25.91	77,730	26,193.95	51,536.05
9	8	36.51	109,530	22,632.15	107,280.4
10	9	44.84	134,520	27,239.6	108,157.8
11	10	49.66	148,980	40,822.2	110,763.7
12	11	48.68	146,040	35,276.3	106,969.6
13	12	47.22	141,660	34,690.4	112,184.25
14	13	45.61	136,830	24,645.75	103,266.3
15	14	42.60	127,800	24,533.7	90,192.1
16	15	41.10	123,300	33,107.9	93,053.1
17	16	40.32	120,960	27,906.9	87,279.9
18	17	39.16	117,480	30,200.1	83,093.55
19	18	37.63	112,980	29,796.4	87,279.9
20	19	35.68	107,040	16,986.4	90,053.6
21	20	34.58	103,740	8,634.9	82,831.6
		629.88	1,889,640	532,474.85	1,357,165.15
		31.49	94,482	26,623,742.5	67,858,257.5

Source: Data Primer 2017

Table 9. Value of Break Even Point (BEP) of Monoculture Manalagi Apple per 1Ha of Apple Entrepreneurs in Junggo village, Bumiaji District, Batu city in 2016/2017

No.	Information	Value
1	Average Cost (Kg)	26,623,742.50
2	Average Production (Kg)	31.49
3	BEP (IDR)	845

Source: Primary data 2017

Based on the results of the analysis, as stated in table 5, it could be seen that the amount of costs incurred for production facilities for 20 years is Rp. 315,453,550.- or an annual cost average is Rp. 15,797,677.50, -. Moreover, the cost of production facilities, such as fertilizers, both artificial fertilizers, and manure, are relatively balance compared to the use of insecticides and pesticides. The price of plant chemical has a slight rise. That is one of the reasons for the cost increase. The labor costs from year to year (Table 6) tends to experience fluctuations, one of which is caused by the use of labor for farmland maintenance and fruit packaging, which was not really required. Manalagi apples do not have to be wrapped because the packaging will prevent sunlight from reaching the surface of the apple skin. Consequently, the process of color forming is, which is an important process is hampered. Labor wages are based on productive workdays or male equivalent working days (HKSP), which is IDR. 4,000.- per person per day.

The cost of leasing land is IDR. 6,000,000.- per year. One way to increase revenue is by increasing production and minimizing the use of production facilities. While production is the result received by farmers at the time of harvest.

In table 7, it can be seen that farming of Manalagi apples with an area of 1 hectare can be planted 1,000 apple trees with an average spacing among the trees of 3 x 3 meters. The total initial investment is IDR. 20,335,000.- used for production facilities including agricultural equipment, seeds, fertilizers, water tanks, fences, etc. The crop yields continue to increase from the fourth year to the peak, the tenth year, that is equal to IDR. 148,980,000.-. Then they decrease to the 20 years of age because the results of this revenue are still needed for production costs and labor wages in which the plant increasingly require more intensive care, so they automatically require a lot of operational costs.

Total income for 20 years is IDR. 1889,640,000. (Table 8) or an average of IDR. 94,482,000. While production costs fluctuate depending on the age level of the plant. The biggest production cost occurred in the 11th year after the 10th year experienced the highest production cost of IDR. 35,276,300. - This fee is used to maintain production so that it does not experience a sharp decline, especially with the increase of plant age.

To find out the minimum price of Manalagi apple production so as not to suffer a loss, break-even prices are needed by implementing the Break-Even Point analysis (Table 9). This table shows the break-even price of the Manalagi apple commodity with an average production of 31.49 kg, which is worth Rp. 845.-. Break-even prices are smaller than prices at the farm level, so the cultivation of the Manalagi apple plant is beneficial for Manalagi farmers. Thus, the exploitation of Manalagi Apple in the village of Junggo is profitable and feasible to be developed.

CONCLUSIONS

Based on the results of analysis and discussion of financial analysis, the development of Manalagi Apple cultivation in Junggo Village, Bumiaji District, Batu City, East Java can be summarized as follows:

First, the 1 hectare of Manalagi apples in monoculture for 20 years costs IDR 532,474,850.- with an average production cost of IDR 26,623,742.50 while the revenue obtained is IDR 1,889,640,000.- or an annual average is of IDR. 94,482,000. Incomes received per year are IDR. 67,858,257.50.-

Second, apple planting of 1 hectare for 20 years is financially feasible and profitable to cultivate. Revenue that has been cut by maintenance and related facilities has an NPV value of IDR 162,805,964.65. So the value of NPV> zero, meaning that it is worth working on. Calculation of IRR = 41.48% with the condition of the bank interest rate difference of only 1.5%, so the investment in the Manalagi apple farming business using small land width is feasible and profitable although only little profit is gained due to 40% of bank interest. The break-even price with an average production of 31.49 Kg is IDR 850 smaller than the average price at the farm level of IDR 3000. The capital will be return in the 5th to 9th year, so for the following year the farming will be the B / C ratio of 4.37> 1 meaning profitable and feasible to develop.

Further research can still be focused on the cultivation of Manalagi apple variety in other villages by using this research as a basic guideline.

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