FARMING ANALYSIS OF THE JUAI-PUMPKIN IN THE JUAI VILLAGE, BALANGAN, SOUTH KALIMANTAN

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Abstract

Organic Farming System is an alternative to overcome soil fertility and environmental damages, and a anticipation of the high price of fertilizer and chemical drugs are needed in farming activities. But so far there are still many farmers who have not adopted these technologies in farming includ apple farmers in Bumiaji, Batu. This study aims to analyze factors affecting profit of organic apple farming, risk of organic apple farm production, and factors that influence decision of apple farmers in implementing decline organic farming systems. The study was conducted in Bumiaji, Batu for 5 months from October 2011 to February 2012, using quantitative and qualitative approaches with a sample size of 50 farmers. The results showed that variables that significantly affect benefits of organic apple farming and price of seed, fertilizer prices, price of herbicides, and labor costs. The most significant factor is the seed price. Analysis of the risk of production showed that price of seeds, prices fungicide, herbicide prices suggested the small effect on production of organic apples, while output prices and climate have considerable influence on the production of organic apples. Meanwhile, prices of manure, insecticides, labor and pest and disease did not significantly affect the risk of organic apples production. Analysis land area, number of family members, farm experiences and income significant factor in farm decision to implement organic farming systems. The variables that have the greatest influence farmer's decision is the apple farm income. While the age and education of farmers had no effect on the decision of farmers to adopt organic farming systems.

Keywords: benefits, organic apples, production decisions of farmers, risks

INTRODUCTION

Horticultural development is one of the aspects of agricultural development, covering the aspects of social structure change and the accelerated economic growth. Horticultural development must therefore be able to endorse or support these aspects of development, such as expanding employment, improving technology, and economic outcomes for the benefit of community.

Indonesia is an agrarian country, where most of the population work in the agricultural sector. Therefore the agricultural sector occupies a very important priority in national development.

According to Mubyarto (1987), in the stage of Indonesia development, the agricultural sector is the top priority, since the agricultural sector has a very dominant position in the economy. About 70% of the population lives by farming, national income of agricultural output reached 40%. The results of the farm include 14% of the total value of Indonesia's exports.

The scale of farming and the number of commodities cultivated by farmers depends on condition of farmers and its environment, climate, availability of capital and the ability of farmers to manage their farm business (Anonymous, 1965).

One of the good horticultural commodities commercially developed and agribusiness oriented is the pumpkin fruits that have become a local superior commodities, it has a significance contribution in improving the farmer households economics. The development of the pumpkin farming system suggest the bright prospect because it can support efforts to increase farmer income and socio-economic improvement. Economic attractiveness of the Juai Pumpkin farming lies in the high of its economic and social values.

The Juai village have horticultural farming , namely the Juai-pumpkins, the pumpkin productivity at this location can still be improved by way of good cultivation practices, fertilizer application, pest and diseases control, fruit harvest and post harvest handlings and management of fruit marketing to the consumer. Pumpkin is a type of vegetable crops, but its fruit can also be processed into processed products such as "dodol", "kolak", syrup, sauces and others. Pumpkin fruit contain the complete

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nutrition such as carbohydrates, proteins, and vitamins (Yudo Sudarto, 1993).

Juai pumpkins generally is growing and producing optimally in an area that has an altitude of 200 – 600 m above sea level. This plant requires an ideal growing environment, air temperature 15°C - 35°C, optimum temperature 27°C, wet climate type to dry, with annual rainfall of 1200 - 2500 mm per year and it is distributed evenly throughout the year, gets enough sunlight or open spaces. The Juai Pumpkin plants have shallow roots, so that its optimal growth needed the fertile soil, loose, and contains a lot of soil organic matter. Various soil conditions suitable for the cultivation of Juai Pumpkins. However the most good soil is the humus rich soil with a topsoil of 25 cm.

The Juai Pumpkin plants have high enough tolerance to the soil acidity (soil pH), i.e. in the range of pH 4.5 - 7.5. An important thing to note in the site selection of pumpkin gardens is the soil is not flooded permanently, as this can cause the plant's roots to rot and the pumpkin plants die. Pumpkin farm in the Juai village are suitable to give an extra income for rural communities. The purpose of this research is to analyze the revenue, income and profits of Pumpkins Juai farming for the one period of cropping.

RESEARCH METHODE

This research was conducted in the Juai village, Balangan Regency, South Kalimantan. The research methods used is a survey method and direct field observations to collect primary data and secondary data. The respondents are farmer who do farming the Juai pumpkins. Determination of the number of respondent is conducted by the Systematic Random Sampling, as much as 45 farmers who do farming the Juai Pumpkins.

Data Analysis

Data that have been collected are analyzed to determine the revenue, income, profits and levels of the economic feasibility of pumpkin farming cultivated by farmers. Farming revenue is the total fruit yield multiplied the selling price of the fruit.

According to Boediono (1983), to calculate the revenue is used formula: TR = Py x Qy ; (TR = Total Revenue; Py = selling price of fruits; Qy = Quantity of fruit yield).

To calculate the farming income is used formula: I = TR - TEC ; (I = Income; TR = Total Revenue; TEC = Total Explicit Cost).

To calculate the farming profit is used formula: π = TR – TC; (π = Profit; TR = Total Revenue; TC = Total Cost).

For analysis the economic feasibility of pumpkin farming, it is used method of Revenue Cost Ratio (RCR):

RC Ratio = TR/TC

RCR = Revenue-Cost Ratios; TR = Total Revenue; TC = Total Cost total. When the RC-ratio > 1, meaning that it is economically feasible the pumpkin farming is cultivated; RC-ratio = 1, meaning the pumpkin farming experience the balance (break even point); RC ratio < 1, meaning that the pumpkin farming is economically not feasible.

RESULTS AND DISCUSSION
Respondent Characteristics

The low level of farmer education and lack of farmer experiences in farming are significantly affect the farming income. The Juai villagers education levels can be seen in Table 1.

Table 1. Education level of Farmer

No.	Education level	Persons	Percentage (%)
1	Elementary school	28	62,22
2	Junior high school	14	31,11
3	Senior high school	3	6.11
		45	100

From Table 1 above it can be seen that the majority of farmers were still very low education of primary graduate school of 62%. It is very influential on the level of income from the farming of the Juai pumpkins.

Landholding Size

The cultivating land size are ranged between 6 -70 'borong' (about 2 ha). While the land ownership in the pumpkin farming are two kinds, namely 37 farmers cultivate their owned land and 8 farmers were tenants.

Cost Analysis of Pumpkin Farming

Explicit cost is cost expended by farmers in the production process, such as the cost of the production inputs, land tax costs, non-family labor costs and the land rent. While the implicit costs are costs that are not real expended by farmers in the process of production, but it still accounted for, for example the cost of depreciation of farm tools and equipments, cost of capital, the cost of owned seeds (or seeds from a season ago) and the family labor costs.

Table 2. Cost of production inputs in the Juai Pumpkin farming system

No.	Cost	Total (units)	Price (Rp)	Value (Rp)	Average (Rp)	(%)
1	Seed	5 ltr	7.500	375.000	8.333,33	2.71
2	Fertilizer					
	Urea	2.885 kg	1.500	4.327.500	96.166,67	31,24
	SP36	2.760 kg	2.000	4.520.000	122.666,67	39,85
	KCl	840 kg	1.750	1.470.000	32.666,67	10,61
	NPK	175 kg	4.500	787.500	17.500	5,68
3	Pesticides					
	Furadan	48,50 kg	4.500	218.250	4.850,00	1,57
	Matador	13,00 btl	12.500	162.500	3.611,11	1,17
	Gandasil	10,00 bks	7.500	75.000	1.666,67	0,54
	Darmabas	4,00 bks	12.000	50.000	1.111,11	0,36
	Sevin	4,00 bks	25.000	100.000	2.222,22	0,72
	Diazinon	800,00 cc	100	80.000	555,56	0,58
	Bambu ijo	5,00 btl	5.000	25.000	177,78	0,18
	Spain	4,00 btl	2.000	8.000		0,06
	Total			13.851.250,00	307.805,55	100,00

Table 3. Total explicit cost in the Juai Pumpkin farming system

No.	Cost	Total (Rp)	Average (Rp)	(%)
1	Production Inputs	13.261.700,00	249.704,44	12,62
2	External Labor	91.700.000,00	2.037.777,78	87.24
3	Land Rent	149.999,99	3.333.815,33	0,14
	Total	105.111.699,99	2.335.815,33	100,00

Cost of Production Inputs

The production inputs in the pumpkin farming in the Juai village are seeds, fertilizer and pesticides. Costs expended for this production inputs is Rp 13.851.250 or farmers average Rp 307.805. Data about the cost of the production inputs are presented in Table 2.

From Table 2 it can note that a percentage of the cost of the production inputs which is the biggest cost of fertilizer 87%, which are 40% for SP36 fertilizer, 31% for Urea, 11% for KCl and 6% for NPK fertilizer. While the remaining 10% is the cost of pesticides, which are 1% for Furadan, 1% for Matador, 0.7% for Sevin , 0.58% for Diazinon, 0.54% for Gandasil, 0.36% for Darmabas, 0.18% for Bamboo-Ijo, and 0.06% for Spain and 2.71% for the seeds.

Cost of Land

Cost of land includes the land tax paid farmers for one year. Agriculture land in Juai Village are not liable to land tax, so the cost of land is not involved in the analysis of farming.

Land Rent

The cost of the land rent are included into the explicit cost for farmers who rent land for farming pumpkins about Rp 37.500,00/ha/growing season. Whereas for land owner farmers, land leases are incorporated into the implicit cost.

Cost of Labor

The types of farming activities that require outside labor (non-family labor) are slashing with the cost of Rp 67.555, number of labor 380 manpower; the planting cost of Rp 5.133, the number of labor 33 manpower; the weeding cost of Rp 963.822, the amount of labor 619 manpower; the fertilizazion cost of Rp. 5.133, the number of labor 52 manpower; pest and disease control costs of Rp 31.422, the number of labor 101 manpower; harvest costs of Rp 320.288, the number of labor 2.059 manpower; and the transportation cost of Rp 765.111, the number of labor 3,173 manpower.

The farming activities requiring the family labor are the slashing costs of Rp 179.022, the number of labor 160 manpower; the weeding costs of Rp. 259.7333, the number of labor 1.7344 manpower; the fertilizer costs of Rp. 24,000, the number of labor 135 manpower; pest and disease control costs of Rp 2.644, the number of labor 8 manpower; and the transportation cost of Rp. 100.222, the number of labor of 451 manpower.

Total explicit cost.

The total explicit cost of Rp 105.111.699, the farmer average of Rp 2.335.815 in the growing season of 2006 (Table 3).

The cost of seed (seedlings) including the explicit costs (for purchased seeds), or including the implicit costs (for the owned seed); rate of interest is estimated from the explicit cost plus the cost of family labor , multiplied by 18% (rate of interest), divided by 12 months, and then multiplied by the growing period of pumpkins (3

Table 4. Implicit cost in the Juai Pumpkin farming system

No.	Cost	Total (Rp)	Average (Rp)	(%)
1	Family labor.	4.446.517,43	98.812,70	27,87
2	Capital	6.415.096,49	142.557,70	40,20
3	Seed	3.255.000,00	71.666,67	20,21
4	Depreciation of tools	232.070,09	7.179,35	2,02
5	Land rent	1.547.000.00	34.377,78	9,69
	Jumlah	15.895.738,82	354.594,20	100,00

months). The capital rate of interest of Rp 6.415.036 or farmer average Rp 142.557. The cost of the tools depreciation is inserted into the implicit cost because it is not a real farmer, the tools are purchased several years ago.

Total Implicit Cost of Juai Pumpkin Farming

Total implicit cost amounting to Rp 15.895.738 or farmer average Rp 354.594 on planting season of 2006 (Table 4).

The capital rate of interest of Rp 6.415.036 or farmer average of Rp 142.557. Cost of tools depreciation including the implicit costs, these tools are purchased several years ago.

Analysis of Revenue and Farming Income

The farming revenue is obtained from the multiplication of total fruit yield and the selling price of the pumpkin fruit. Total of pumpkin fruit 51.781 kg, farmers average 1.150 kg. Pumpkin prices per kilogram ranging between Rp 5.500 to Rp 7.000. Total farm revenue amounting to Rp 332.125.000 or farmer average Rp 7.380.555. Revenue of farming can be increased by means of selling pumpkins at a time when the price is high or pumpkin fruit sold directly to the market, all of marketing costs are paid by farmer. The selling price of a pumpkin fruit in the market Rp 8.000 - Rp 10.000. Farm income is the difference between explicit cost and total revenues (Table 5).

Table 5. Farmer income in Juai Pumpkin farming system

No.		Average (Rp)
1	Revenue	7.380.555,56
2	Total Explicit Cost	2.334.815,56
	Income	5.044.740,00

From Table 5 can be known that farming income of Juai Pumpkin is amounting to Rp 227.013.300. The average farmer's income of Rp 5.004.740. These farming income can be increased through two ways, i.e., increasing revenue and reducing the explicit costs; or increase fruit yield by implementing the "Sapta-Usahatani" (The seven best practices), namely the fertilizer application, pest and diseases control, the use of highyield seeds, good farming practices, post-harvest handlings and pumpkin fruit marketing.

Analysis of Farming Profit

Profit of pumpkin farming is obtained from the difference between the revenue and the total cost (the explicit costs + implicit costs). The average profit of pumpkin farmer amounting to Rp 4.690.145.

The feasibility of farming is known from the Cost - Revenue Ratio (RCR), which is the total cost divided by revenue. The analysis of the average RCR of the pumpkin farming in the Juai village 2.74.

Table 6. Farmer profit in Juai Pumpkin farming system

No		Average (Rp)
1	Revenue	7.380.555,56
2	Total Cost	2.690.409,75
	Profit	4.690.145,81

Table 7. Feasibility (RC ratio) of Juai Pumpkin Farming System.

No		Average (Rp)
1	Revenue	7.380.555,56
2	Total Cost	2.690.409,75
	RC ratio	2,74

From Table 7 is known the value of RC-ratio = 2.74, meaning that each cost Rp 1.00 generate revenue amounting to Rp 2.74, and profit of Rp 1.74. The Juai Pumpkins farming is economically feasible, i.e. RC-ratio > 1. The Juai Pumpkins farming is economically feasible to be cultivated, and it is a great potential to be developed.

There are some problems faced by farmers in developing pumpkins farming, namely the variability of the selling price received by farmer. This is due to their limited market informations, especially about the fruit price. The local collectors buy pumpkin fruits with a low price.

Farmer-owned capital is very influential in the development of this pumpkins farming. Farmer-owned capital constraints and the high price of production inputs, so that the farmers can not carry out farming based on its recommendations. In addition with a little capital, farmers cannot cultivate land more

widely.

In addition to the two things mentioned above, there are also worthy of note, namely local government policies that less considered the pumpkins farming, farming policies still prioritized the rubber farming.

Results of analysis showed that the land area of 17.5 - 52.5 "borong" are most feasible, the RCR value is highest. The management of farming on this land-size is more use of outside labor so that the result is better.

CONCLUSIONS

1. Cost of the pumpkin farming include the explicit costs of Rp 2.335.815, the implicit costs of Rp 354.594, and the total costs of Rp 2.690.409.
2. Production of pumpkin fruits by a farmer is 1.150, the price ranges Rp 5.750 - Rp 7.000, so farming revenue amounting to Rp 7.380.555.
3. Income of pumpkin farming in a single production process amounting to Rp. 5.044.740, the profits of Rp 4.690.145.
4. The Pumpkin Farming in the Juai village of economically profitable, the RC-ratio = 2.74.

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