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Factors Affecting the Income Curly Red Chili Farmers in Bocek Village, Karangploso Sub-District, Malang Regency

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Abstract: Bocek Village. once produced 1.650 tons of red chillies in 2017. However. the problem that farmers often complain about is price fluctuations. which affect farmers' income. Other factors are land area. production yields. and production costs. The purpose of this study was to analyze the level of income. feasibility and factors that influence red chili farming income. This research is a descriptive-quantitative study with a population of 207 farmers and a sample of 37 farmers determined through simple random sampling through a questionnaire instrument and analyzed using the revenue formula (total revenue = production obtained x selling price). production cost formula (total cost = fixed cost + variable cost) . the revenue formula (revenue = total revenue – total cost). and the feasibility formula (R/C). The results of the study stated that the average level of red chili farming income at the research location was 129.609.150 per year. This was obtained from an average total revenue of 178.647.297 and an average total production cost of 49.038.147 per season or per year. Furthermore. the results of this farming feasibility assessment were declared feasible based on the value of the ratio of revenues and production costs of 3.64> 1.

Keywords: Acceptance; Farming; Feasibility; Production cost; Income; Red chili

Introduction

The agricultural sector plays an important role in Indonesia. This is because the agricultural sector is directed to meet the needs of domestic food and industry; increasing exports; open job opportunities; increasing farmers' income; and encourage equal distribution of business opportunities. support environmental sustainability (Rostikawati et al., 2023). The real activity of the agricultural sector is the provision of food, industrial raw materials and sources of household income, especially farmers, in rural areas, (Arifin, 2021) the greater the adsorption capacity and efficiency (Paputungan et al., 2023).

The agricultural sector consists of several sub-sectors namely food, horticulture, plantations, fisheries, animal husbandry and forestry (Arifin et al., 2022). The horticulture sub-sector has an important role in helping the community's economic growth because of its considerable development as a support for the government's efforts to increase farmers' income, reduce unemployment, and reduce imports. Potential and opportunities for cassava development are still very broad along with development of companies in livestock, processed food, and other industries. Added value of cassava commodities resulting from development of downstream industries (processed products) is far higher than upstream industries (primary products), so that development paradigm in agriculture sector in future should be directed towards product expansion including its waste. And farmers through interview using a quistionaire input output was analyzed by regression with the cobb-Douglas production function (Unta et al., 2020).

Vegetables are one of the products from the horticulture sub-sector. One part of the vegetables that has a fairly high price in the market and is much needed by the community is red chili. Therefore, it is not surprising that its circulation volume is on a large scale in the market.

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Curly red typically, chili is employed as a spice in food preparation, as well as in industrial goods, pharmaceuticals, and cosmetics. One kind of plant that is grown in the tropics is the red chili plant. People in the community have a taste for and habit of eating processed meals that are hot and produced with red chilies. Karangploso Agricultural Extension Center (BPP), is working to resolve the issue. One of these is to purchase red chilies at a discount to the going rate and turn them into dry goods in the hopes of giving the farmers a little additional money. There are various varieties of dried products made from processed chilies, including chili paste, powder, and oil. Water quality is influenced by rock pass ability and rainfall.

Fluctuations in the price of red chilies continue to occur from time to time, thus affecting the income of the red chili farming community in Bocek Village. Price is considered as one of the factors that determine farmers' income, because if the price of a product in the market is low, then the purchase price from farmers is also low. This will certainly affect the profits to be obtained by farmers, while the cost of planting production continues to increase (Asriani, 2019).

In addition to the issue of price fluctuations other things that are also a factor affecting the income of people who do farming, including red chili farming, are land area and production yields. The logic that is built is that the wider the land used as a production container, the greater the amount of product that will be produced (Rahim, 2017). It's just that, in Bocek Village, the area of land cultivated by farmers is uncertain (BPS Kabupaten Malang, 2021). When the red chili farming area decreases, it will affect the production results that will be obtained by farmers in Bocek Village, and when red chili production decreases, the farmers' income will also decrease (Nurmawati et al., 2022).

Method

This research was conducted in Bocek Village, Karangploso District, Malang Regency on 20 December 2022 – 19 February 2023. The study population. according to Sugiyono (2015), is the overall area (generalization) of an object or subject in which it has the characteristics and qualities determined by the researcher to be studied and concluded. The population referred to in this study were all red chili farmers in Bocek Village, Karangploso District, Malang Regency, totaling 207 farmers shows that the instrument result is reliabel, therefore able to use (Rashifah et al., 2023).

Research sample reference Sugiyono (2015) constitute part or part of the population. In other words, the number of samples is determined based on the number of existing population. So, the sample to be used in this study were some curly red chili farmers in Bocek Village, Karangploso District, Malang Regency totaling 37 people out of 207 big red chili farmers.

The number of samples is obtained by calculating based on the Slovin formula as follows:

$$n = \frac{N}{1+N\,(e)^2} \quad (1)$$

Information:
n = Sample size;
N = Population size; and
e = Significance level (using 15% or 0.15).

The following is the completion of the sample calculation based on the formula above:

$$n = \frac{207}{1+207\,(0.0225)}$$

$$n = \frac{207}{5.6575}$$

$n = 36.5$ (Rounded up to 37 people)

There is a certain technique in taking and determining the sample which is called the sampling technique. The sampling technique that researchers will use in this study is probability sampling with simple random sampling. Sugiyono (2015) states that the simple random sampling technique is a sampling technique that is carried out randomly without regard to strata in the population with the respondent's criteria as red chili farmers in Bocek Village, Karangploso District, Malang Regency. The analysis metode uses path analysis (Astriawati et al., 2023).

Acceptance Analysis

According to Suratiyah (2015), in general the calculation of revenue from a farm can be done using the following formula:

$$TR = Y\ x\ Py \quad (2)$$

Information:
TR = Total Revenue;
Y = Obtained production; and
Py = Price.

Production Cost Analysis

Production costs in this study consist of fixed costs and variable costs, to calculate the total cost of production (total cost) can be obtained by adding up fixed costs (fixed costs) with variable costs (variable costs) where the formula is as follows (Agung, 2017).

$$TC = FC + VC \quad (3)$$

Information:
TC = Total cost
FC = Fixed cost
VC = Variable cost

Revenue Analysis

Suratiyah (2015) states that income can be calculated by using the following formula:

$$Pd = TR - TC \quad (4)$$

Information:
Pd = Income;
TR = Total revenue and
TC = Total cost

Feasibility Analysis

After carrying out a number of analyzes above, the next analysis is to determine whether the business is feasible or not. This can be done by using a formula *revenue cost ratio* (R/C).

The analysis of revenue cost ratio (R/C) is an analysis to see a comparison between income and expenses which aims to find out whether farming in this case red chili farming in Bocek Village, Karangploso District, can be said to be feasible or not. The following is the formula for revenue cost ratio:

$$R/C = \frac{TR}{TC} \quad (5)$$

Information:
R/C = Comparison or ratio between receipts and expenses (costs)
TR = Total revenue; and
TC = Total cost

The results of these calculations can be seen using the following benchmarks: R/C > 1, the business is worth pursuing because it is profitable; R/C < 1, the business is not worth trying because it is detrimental; and R/C = 1, break even effort. This means that the business must be reconsidered (Arifin et al., 2021).

Result and Discussion

Production Results (Total Harvest and Production Results)

The table 1 shows that the majority of respondents admitted to harvesting red chili farming 7 times in one planting. namely 27 people or with a percentage of 73%. Furthermore, the table above also shows that the average curly chili production is 6 tons per year or per season.

Table 1. Total Harvest and Yield of Red Lombok Production Per Year in Village

Variable	Information	Number of People	Percentage (%)
Harvest Amount in One Plant	5 times	1	2.7
	6 times	3	8.1
	7 times	27	73.0
	8 times	6	16.2
	Total	37	100.0
Production Result	The average production yield is 6 ton per year		

Production Costs (Fixed Costs and Variable Costs)

Based on Table 2 the fixed costs included in this study include: land rent and value added tax. The average cost of renting land incurred by red chili farmers in Bocek Village, Karangploso District is 2.716.216 per season or per year and the average cost of value added tax (VAT) from the sale of these agricultural products is 1.965.120 per season or yearly. The average total fixed costs in curly red chili farming that should have been incurred by the farmers in this study amounted to 4.681.336 per one season or per year. Business experience, raw materials and labor had a significant effect on stick business income (Ekalypta et al., 2018).

Table 2. Average Fixed Costs and Variable Costs of Red Lombok Farming in Bocek Village

Description		Average Expenses (Rp)
Fixed Cost		
Land lease		2.716.216
Value-Added Tax		1.965.120
Total Fixed Costs		4.681.336
Variable Cost		
Nursery		1.679.459
Fertilizer (Chicken Coop)		1.524.649
Labor:	a. Land Cultivation 1 (Rotary Tractor)	735.135
	b. Land Cultivation 2 (Denial & Fertilization)	4.256.757
	c. Planting	2.129.730
	d. Pest Eradication	20.378.378
	e. Harvest	5.529.730
Pesticide (Neem Oil, Bactocyn and Pefoc)		7.298.649
Irrigation		824.324
Total Variable Cost		44.356.811
Total Fixed Costs + Variable Costs		49.038.147

Furthermore, Table 2 above shows that the variable costs in red chili farming in this study include the following costs: breeding, chicken manure, labor (field 1 and 2, planting, pest control, and harvesting), pesticides, and irrigation . The average cost incurred by farmers for nurseries is 1.679.459 per season or per year; the average cost of fertilizer is 1.524.649 per season or per year; the average cost of cultivating land 1 (tractor) is 735.135 per season or per year; the average cost of cultivating land 2 (cropping and fertilizing) is 4.256.757 per season or per year; the average planting cost is 2.129.730 per season or per year; the average cost of eradicating pests is

20.378.378 per season or per year; the average cost of harvesting is 5.529.730 per season or year; the average cost of pesticides is 7.298.649 per season or per year; and the average cost of irrigation is 824.324 per season or per year. Thus. the overall average variable costs incurred by the farmers studied in this study amounted to 44.356.811 per season or per year. Corporate farming Production factory technical efficiency (Iskandar et al., 2022).

Therefore, the calculation of the total production costs of red chili farming in the study as shown in Table 2 above is 49.038.147. The total cost of production (total cost) of curly red chili farming in this study was obtained by adding up fixed costs (fixed costs) with variable costs (variable costs). Thus. a total fixed cost of 4.681.336 plus a total variable cost of 44.356.811 results in a figure of 49.038.147.

Selling Price

Table 3 shows that the majority of respondents reported that the results of their red chili farming had a selling price of Rp. 30,000, namely as many as 31 people or with a percentage of 83.8% (Budi et al., 2020).

Table 3. Selling Price of Red Lombok in Bocek Village

Variable	Information	Number of People	Percentage (%)
Selling Price	30.000	31	83.8
	35.000	6	16.2
	Total	37	100.0

Income

The income referred to in this study is the average net income from the results of red chili farming per season or per year. As is known. to calculate net income is by subtracting total receipts with total production costs. Table 3 below is the red chili farming acceptance table in Bocek Village. which is the location of this study.

Table 4. Average Income of Red Lombok Farmers in Bocek Village

Description	Magnitude (Rp)
Total Revenue	178.647.297
Total Cost	49.038.147
Total Income	129.609.150

The average net income of the respondents (red chili farmers per year or season) is calculated using the Microsoft Excel application and data is obtained which states that overall the respondents are stated to be profitable because the average total income from these farms far exceeds the average total production costs incurred. they spend per season or per year. The average total income of farmers is 178.647.297 per season or per year and the average total production cost is 49.038.147 per season or per year. That is the average total income of farmers is 129.609.150 per season or per year with an average land area of 5.811 meters or about half a hectare more.Thus. the average curly chili farmer at the study site can be said to be profitable. Analyzed using the Analysis of Variance at the 5% (Ishartati et al., 2022).

Red Lombok Farming Feasibility

The feasibility analysis of red chili farming in this study was calculated using the Revenue Cost Ratio (R/C) formula. The following is the feasibility data for red chili farming in question:

Table 5. Feasibility of Red Lombok Farming in Bocek Village

Description	Information	Magnitude (Rp)	Average Eligibility Score
R/C	Total Admissions	178.647.297	3.64 (RC > 1 or worthy)
	Total Cost of Production	49.038.147	

Table 5 shows that based on the feasibility assessment of red chili farming in Bocek Village using the Revenue Cost Ratio (R/C) formula or the ratio between total revenue and production costs (cost). data was obtained stating that the average business of these farmers was stated it is worth continuing because it is profitable. This is because the average R/C calculation results are 3.64 > 1. The economic aspect had the lowest sustainability index compared to the ecological and social aspects (Khuswati et al., 2022), and significant relationship to positive matter og covid-19 (Yuniarti et al., 2023).

Factors Influencing Red Lombok Farming Income in Bocek Village, Karangploso District, Malang Regency

There are a number of factors that affect the income of red chili farming in Bocek Village, namely: land area, selling price, production costs and production yields. This means that the four factors have played an important role in the analysis of curly chili farming income at the study site. First, land area can be a factor affecting the income of curly red chili farmers at the study site where the larger the area of land managed in a farm. the greater the production yield at each harvest. Vice versa. Second, the selling price is also a factor that greatly affects the income of a farm, because if the market price is low, the income will also be low. Third, production costs are another factor that greatly affects income. Experimental research was conducted. The greater the production costs incurred. then it will reduce revenue. Fourth, the production results of a farm can affect income, because with abundant production results. it will increase farmers' income. The findings of this study indicate that the average red chili farmers in Bocek Village are declared profitable where the average

income they earn is 129.609.150 per season or per year with an average land area of 5.811 meters or about half a hectare more. Value of biomass that support integrated agriculture in the future (Rozi et al., 2019).

Furthermore, the results of the assessment of the feasibility of farming were declared feasible based on the value of the ratio of income and production costs of 3.64> 1. The average red chili farmers who were declared profitable and feasible to continue farming were influenced by a number of factors. Soybean is one of crop which many conduction (Riduan et al., 2022) namely: land area, price sales, production costs and production results. First, the land area factor can affect the income of red chili farmers at the research location. because the results of data collection through questionnaires stated that the average area of land managed by 37 research respondents reached 5.811 meters or more than half a hectare. If referring to the opinion of including a fairly large or moderate land area because it is between a land area of 0.5 -1.0 hectares. This relatively large land area has an effect on the production yields obtained by chili farmers at the study site. Theoretically, Isfrizal et al. (2018) stated that land area is a factor that influences the increase in agricultural yields, especially villagers whose main activities are farming depend on managed agricultural land. Thus, the land area can be an indication of the amount of income received. That is the larger the area of land managed, the greater the possibility of production results obtained, so that in the end it can affect the income or profits of farmers. Thus, it can be said that the influence of land area on farmer income is very positive. Students understanding of several tropics is still low (Juita et al., 2023).

Second, the selling price is also a factor that greatly affects the income of chili farming at the research location, because if the market price is low, the farmer's income will also be low. That is the high or low income of farmers depends on the selling price of agricultural products in the market. The findings of this study indicate that the selling price of red chili as obtained from the questionnaire is in the price range of IDR 30.000 – IDR 35.000. The selling price is the selling price in 2022. The selling price of red chilies is relatively stable, even quite high that year, allowing farmers to get significant profits in each harvest. According to Juita et al. (2023), if the selling price of agricultural products is high, the income of farmers will also be higher. Conversely, if the selling price of agricultural products is low, the farmer's income will also be low. The high or low selling price depends on the demand in the market. If the demand is high. the price will also be high (Pradnyawati et al., 2021). Therefore, it can be said that if the demand is high and the selling price is also high in the market. the income will also be higher. This is also said Arifin (2021) in his research that in the context of usahatani cayenne pepper nurseries in Dilem Village, Kepanjen District. Malang Regency, one of the driving or supporting factors is the high demand in the market. Determinant which weed species had a significant (Farida et al., 2022).

Third, production costs are also a very important factor that can affect the income of farmers who do curly red chili farming at the study site. Of course there are several variables that can be explained which are still included in variable costs or variable costs. Variable costs or variable costs are basically costs that are directly related to output. These costs will increase as the production process increases and decreases as the production process decreases (Atpriani et al., 2018). Variable costs or variable costs are the most determining income in this study as is the cost of fertilizer. The selection of chicken manure is relatively cheap. which is around IDR 12.000/sack. That is. by choosing chicken manure which only requires fertilizing once at the beginning of land management. farmers can reduce one of the production cost variables.

According to Arifin et al. (2021) fertilizer can be said to affect the income of farmers. because plant growth and development will be determined by the fertilizer given. According to him. good fertilizer is fertilizer according to what has been recommended by the Department of Agriculture. either in the form of chemical or compost and organic. Chicken manure contains high nitrogen (Bhoki et al., 2021). The function of nitrogen for plants or plants is as a basic material for strengthening protein elements and the formation of chlorophyll substances. so that it will strengthen plant parts to become very green. increase the number of leaves and their size. In fact. if the provision of nitrogen combined with biochar will increase plant development and increase the ratio of plant shoots (Arifin et al., 2022). In addition, students gave positive respond to teaching materials.

In addition, red chili farmers in the study area generally chose combinative pesticides or a mixture of fungicides and insecticides at relatively affordable prices. namely between 36.000 – 67.000/200 ml. Meanwhile, only some farmers choose pesticides priced at 75.000/200 ml. This means that chili farmers tend to choose the use of combinative pesticides at relatively low prices. The types of pesticides in question include: Neem Oil, Bactocyn and Pefoc, utilizing existing experience of raising livestock and increasing cost of medicine and vaccines (Wibowo et al., 2020) and Rice consumption in Indonesia has risen the population increasing rapidly (Pudjiastuti et al., 2021).

Conclusion

The results of the study stated that the average level of red chili farming income at the research location was

129.609.150 per year. This was obtained from an average total revenue of 178.647.297 and an average total production cost of 49.038.147 per season or per year. Furthermore. The results of this farming feasibility assessment were declared feasible based on the value of the ratio of revenues and production costs of 3.64> 1.

Author Contributions

Z. Arifin, contributed to research ideas, research theory development, research funding, manuscript collection and revision and related to journal publishing. R.A Novitawati and F. Mutiara contributed research funding, sample preparation, data collection and verification data of data analysis methods. All authors discuss the results of the research and contribute to the final manuscript.

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Conflicts of Interest

The authors declare no conflicts of interest in preparing this article.

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