

Fesiability And sensitivity study of big chilli farm busiess in jember regency

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1 Feasibility and Sensitivity Study of Big Chilli Farm Business in Jember Regency

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Abstract

This study aims to determine the feasibility and sensitivity of big chili farm business in Jember Regency. Chili is one of the horticultural plants that have high economic value, in spite of chili farm business also has a high risk, since the price of the chili was involatile. Using the case study type of research, primary data were obtained from 120 respondents of big chilli farmers in Wuluhan and Ambulu Districts. Sampling was done by the Multistage Cluster Sampling Method. Data analysis used R/C Ratio analysis and sensitivity analysis. The results showed that: 1) Big chilli farmbusiness in Jember Regency had an R/C Ratio of 3.37, so this farm business is feasible to be cultivated; 2) Big chilli farmbusiness had no loss if the maximum production cost increase was less than 237%, ceteris paribus. Likewise, a decrease in production or a decrease in selling prices up to 70.29%. This finding could be additional information to enlarge farmer's big chili business.

Keywords: Feasibility, Sensitivity, Farm Business, Big Chili, Jember

Introduction

Big chili is one of the important types of vegetables that are commercially cultivated in tropical countries, including Indonesia. Chili is one of the horticultural plants that have high economic value. The area of planting is extensive because it can be cultivated in the lowlands and highlands, so that many farmers in Indonesia grow big chili (Ameriana, 1998). Although chili can grow both in the highlands and lowlands, but, chili plants are not resistant to rain, especially when flowering, because the flowers will easily fall.

Chili includes national superior commodity and source of vitamin C. Various species of chili that have been domesticated, but only *Capsicum annum* L (big chili) and *C. frutescens* L (cayenne pepper) which have high economic potential (Nofita, et al, 2015). Most Indonesians consume chili in the form of fresh ¹ dried or processed.

¹ Chili farm business also has a high risk. This is due to unstable or very volatile chili prices. This fluctuating price is caused by its inelastic demand on the one hand and on the other hand its unstable supply due to the uneven distribution of production throughout the year in all regions. In one area the price of chili is very high and in another area the price is very cheap.

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Chili farm business has high economic value, as well as high risk. The main risk of chili is price risk. This price is still the biggest risk that must be borne by farmers. Farmers always face very volatile prices, while the prices of inputs such as seeds, fertilizers, pesticides, and mulch can always be increase gradually (Setiadi, 2006). However, at certain times the price of chili can rise sharply so that it can provide added value for farmers. This price increase usually caused by seasonal disturbances and certain big holidays, such as Eid al-Fitr, Eid al-Adha, and New Year. Chili prices generally increase in October-December and February-April, this is in line with the fact that in those months frequent heavy rains that cause production to decline while demand tends to increase.

This research "Feasibility and Sensitivity Study of Big Chili Farming in Jember Regency" aims to find out the amount of Total Cost, Total Revenue, Total Profit, Farming Feasibility, and Sensitivity of the Big Chili Farm which it works on. This research is very use⁸ for farmers to better understand their farm business. In addition, this research is also useful for Dinas Tanaman Pangan, Hortikultura, dan Perkebunan Kabupaten Jember in determining policies in the field of horticulture, to improve the living standards of farmers.

Research Method

Place and Time of Research

This research was conducted in Ambulu Subdistrict and Wuluhan Subdistrict, Jember Regency, East Java Province from May to July 2018. The consideration of the selection of the two districts is because both are the main centers of the Big Cube Farm Business in Jember Regency.

Data Types and Sources

This type of research used in this research is a case study. Case study is an in-depth study of a certain characteristic of the object of research "(Nazir, 2013). Sources of data obtained from primary and secondary sources.

1. Primary data is data obtained from respondents of big chili farmers through direct interviews using questionnaire instruments as a tool that has been prepared in advance,
2. Secondary data is data obtained from related agencies or agencies, such as the Dinas Tanaman Pangan, Hortikultura, dan Perkebunan Kabupaten Jember, Central Statistics Agency (BPS) and libraries that support research activities.

Method of Collecting Data

Data collection methods are techniques or ways that researchers can use to collect data (Riduwan, 2014). There are several types of data collection methods, namely Questionnaire, Interview⁵, Observation, Test, Documentation (Arikunto, 2003), and also Literature Review (Nazir, 2013). Data collection methods used in this study are observation, interviews, questionnaires, and literature study.

Sampling Method

This research was conducted using Multi Stage Cluster Sampling (Singarimbun and Effendi, 2011). The steps in this Multi Stage Cluster Sampling study are:

1. Determination of sample areas at the district level is done by the method of purposive sampling, in which the selection of sample areas is determined based on consideration of whether the area is the Big Chili center area or not. The main centers of Big Chili in Jember are in Wuluhan and Ambulu

Districts (Purnama Sari, 2014; BPS, 2018). Based on the above, this research is focused in Wuluhan Subdistrict and Ambulu Subdistrict.

2. Determination of sample areas at the sub-district level is also done by purposive sampling method. Purposive sampling is a technique to determine research samples with certain considerations aimed at making the data obtained later more representative (Sulistiyanto, 2010). The consideration is that the selection of the sample area is determined based on the consideration of whether the area is the Big Chili center area or not. From the Wuluhan District and Ambulu District each has 4 villages. The details are as follows:
 - Ambulu, 4 Villages: Sumberejo, Sabrang, Andongsari, & Pontang.
 - Wuluhan, 4 Villages: Kesilir, Tanjungrejo, Ampel, & Tamansari.
3. Sampling at the farm level uses snowball sampling. Snowball sampling is a sampling technique that starts small in number, then the sample is asked to choose its friends to be sampled. And so on, so that the number of samples is getting more and more. Like a snowball that rolls, the longer the greater (Sugiarto, et. al., 2003). From each village 15 farmers were selected as respondents. So that from the two sub-districts, 120 respondents collected Big Chili Farming.

Data Analysis Method

This research was analyzed quantitatively using Analysis of Return/Cost Ratio (R/C Ratio) and Sensitivity Analysis.

R/C Ratio Analysis

The steps in the R / C Ratio analysis are as follows:

1. Calculate the Total Cost. Costs in the producer perspective are all expenses that must be borne by producers to produce a production (Firdaus, 2012; Suratiah, 2015). To calculate the Total Cost (TC) obtained by adding up the Fixed Cost (FC) with the Variable Cost (VC) using the formula:

$$TC = TFC + TVC$$
 Description:
 TC = Total Cost
 FC = Total Fixed Cost
 VC = Total Variable Cost
2. Calculate the Income. Income is the difference between Total Revenue (TR) and Total Costs (TC) and is expressed using the formula (Soekartawi, 2006):

$$Pd = TR - TC$$
 Description:
 Pd = Income
 TR = Total Revenue
 TC = Total Cost
3. Calculate R/C Ratio. R/C is an abbreviation of Return/Cost Ratio, also known as the ratio between revenue and costs. R/C is a comparison between revenue and total costs, expressed using the formula (Soekartawi, 2006). From the results of this analysis, it can be seen how much revenue the farmers will get from each rupiah spent by farmers in the red chilli farming, with the following conditions:
 - a. $R/C > 1$, the big chilli farming is efficient, so that the business is feasible.
 - b. $R/C = 1$, then the big chilli farming is equal, so that the business does not gain profit.
 - c. $R/C < 1$, then the big chilli farming has a loss, so the business is not feasible.

Farm Business Sensitivity Analysis

Sensitivity analysis is an analysis to see the effects that will occur due to changing circumstances. Sensitivity analysis needs to be done to see to what percentage a decrease in price or increase in costs incurred can result in changes in business eligibility criteria from feasible to improper (Kadariah, et al, 1999).

Sensitivity analysis is done by looking for some replacement values in the components of costs and benefits that still meet the minimum investment eligibility criteria (Gittinger, 1986). In agriculture, changes that occur in business activities can be caused by four main factors, namely changes in product selling prices, delays in business operations, rising costs and changes in production volume.

Result and Discussion

Total Cost of Big Chili Farmbusiness

The total cost of a big chilli farm is the total production cost of a big chilli farmbusiness² which is incurred by the farmer, from seeding, planting preparation to being ready for sale. These costs include the cost of renting land, seeds, fertilizers, pesticides, tractors, labor, including post-harvest costs and others. The average total cost of big chili farming per hectare in Jember Regency was 52,423,938 (see Table 1), most of the costs were used for labor (43.49%), land rent (14.45%), and fertilizer amounting to 11.95%.

Total Revenue of Big Chili Farmbusiness

² In principle, revenue is the amount of money obtained from the sale of production output. Total Revenue of big chili farming is the total revenue calculated from the multiplication between the price of big chili, in Rp, and the quantity of output sold, in kg. From the results of the study, Big Chili Farm Business is able to produce an average production of 12,948 kg per hectare and an average selling price of Rp13,918, - so that the average total revenue per hectare is IDR180,210,264 (see Table 1).

Table 1: Total Cost, Revenue, Profit, and R/C Ratio of Big Chili Farm Business

No.	Description	Unit	Big Chili
1.	Total Cost	Rp	53,532,193
2.	Production	Kg	12,948
3.	Price	Rp	13,918
4.	Total Revenue	Rp	180,210,264
5.	Profit	Rp	126,678,071
6.	R/C Ratio	-	3.3664

² *Profit of Big Chili Farm Business*

Profit is the difference between total revenue and total cost. From the results of the study, the Big Chili Farm Business was able to produce an average total revenue per hectare of IDR180,210,264 and an average total cost per hectare of IDR53,532,193. So that the average total profit per hectare is IDR 126,678,071.

R/C Ratio Analysis of Big Chili Farmbusiness

In addition to being measured by absolute value, efficiency³ is also analyzed. One measure of efficiency is revenue for each rupiah spent (revenue-cost ratio or R/C ratio). R/C ratio is an analytical

method to measure business feasibility by using revenue and cost ratios. Business feasibility analysis is used to measure the rate of business return in implementing a technology.

From the results of the study, the Big Chili Farm Business was able to produce an average total revenue per hectare of Rp180,210,264 and an average total cost per hectare of Rp53,532,193. So the R/C Ratio is 3.37. R/C ratio value greater than one indicates that Big Chilli farming is feasible. This means that for every Rp1,000, - the total costs incurred to run a big chilli farm will provide a total revenue of Rp3,366. This result supported the research of Firdaus and Suherman (2019) which showed that big chilli produces the highest returns, followed by melon, chilli, watermelon, and beans. So this farming could be the first priority to be developed by farmers rather than other commodities, although big chilli requires the need for the highest cost, followed by melon, chilli, watermelon and tomatoes.

Sensitivity Analysis of Big Chili Farm Business

Sensitivity analysis is done by increasing total production costs or reducing selling prices. It turns out, big chili farm business does not experience loss and no profit (profit equal to zero) or at the Break Event Point (BEP) position if the increase in production costs is 237%, ceteris paribus. Thus, if the increase in production costs is less than 237%, then the big chilli farmbusiness is in a position to get profits. Likewise, if there is a decrease in production up to 70.29% or a price decline of 70.29%.

Conclusion

From the results of research and discussion conclusions can be arranged as follows:

1. Big Chili Farm Business have an R/C Ratio of 3.37 (R / C ratio > 1), so this farm business is feasible to be cultivated.
2. Big Chilli Farm Business does not get a loss if there is an increase in the maximum production cost of less than 237%, ceteris paribus. Likewise, a decrease in production or a decrease in selling prices up to 70.29%.

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