

# Cocoa Farming and Analysis of Economic Community Farmers E State in East Java

*By* Pawana Nur Indah

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### Abstract

Cocoa (*Theobroma cacao*) is one of the important agricultural commodity in the development of the plantation sub-sector, among others, to meet the needs of domestic as well as export commodity foreign exchange earner of the country. In East Java, cocoa is a strategic commodity to raise the dignity of the people by increasing the income of farmers and plantation growing regional economic centers. Cocoa plantations developed Rakyat (PR), Country Estates (PTPN) and estate plantations (PBS). Cocoa crop acreage in East Java in 2010 covering an area of 54 007 hectares divided into 23 634 Ha Smallholder, PTPN 26.480 ha, and 4,543 ha PBS. (Disbun East Java, 2010). Number of farmers in East Java 49 144 households, this study was conducted to determine the characteristics of cocoa farmers and farmers' income derived from cocoa farming, so that can know the feasibility of the business. The research was conducted in East Java with 100 respondents cocoa farmers of the people, using the survey method. The results showed that cocoa farming is still done with traditional cultivation levels are all management is done by family members and neighbors. Tinkat farmers with average land holdings of 1.56 ha to contribute 53.95 percent of total household income. In addition to the cocoa farming feasibility level analysis shows the value of the ratio B / C at 3, '13. Meaning that cocoa farming financially viable. In the analysis of the level of welfare because farmers are not prosperous farmer income for 1 Year <1 nishaf (85 Gram).

**Keywords:** Characteristics, Farming System and Cocoa

### 1 INTRODUCTION

Cocoa (*Theobroma cacao*) is one of the important agricultural commodity in the development of the plantation sub-sector, among others, to meet the needs of domestic as well as export commodity foreign exchange earner of the country. In East Java, cocoa commodity is a strategic commodity to elevate the dignity of the people by increasing the income of farmers and plantation centers of regional economic growth. Commodity developed on Perkebunan Rakyat (PR), Perkebunan Besar Negara (PTPN) and Perkebunan Swasta (PBS). Cocoa crop acreage in East Java in 2010 covering an area of 54 007 hectares divided into 23 634 ha Plantations, 26.480 ha PTPN, and 4,543 Ha PBS. (Disbun East Java, 2010).

Centers on Smallholder cocoa plantations in East Java area of 23 634 ha consisting of 3,852 hectares Madison County, Pacitan 3,619 ha, 3,093 ha of Psychology, Blitar 2,544 ha, and 18 other districts such Ponorogo in East Java, Malang and others - others. Smallholder cocoa production amounted to 5,877 tons, with an average productivity of 795 kg / ha / year of dry beans. Conditions old cocoa plants / damaged (TT / TR) covering 870 hectares, immature (TBM) covering an area of 15 375 ha, and the plant produces (TM) covering an area of 7,389 Ha. From the above conditions, there is hope of interest for the production of cocoa in East Java with the availability of the generating plant. (Disbun East Java, 2010)

According to Arifin (2009: 34), In order to improve the re-productivity of cocoa in East Java until 2010 then continued as development activities, rehabilitation, and intensification of cocoa. It is also to provide employment opportunities for farmers through breeding efforts were done, with seeds and polybag, labor and manure assisted province. The execution was carried out nursery farmers (poor) around the center of development. Intensification of activities aimed at improving the productivity and quality of cocoa which in turn can increase the income of farmers in East Java. On the other hand rehabilitation activities carried out to improve crop plants are old / damaged, as well as activities to foster the development of new centers of cocoa in East Java. Cocoa development activity is very interested in the community because of commodity prices in five years is relatively stable, it is not known fruiting season and cocoa cultivation techniques are relatively easy and requires a lot of shade so that farmers planted between crop that has been there before.

Cocoa quality is affected by many factors such as the level of manufacturer, type of cocoa, soil conditions, height, rainfall and others. But the most decisive is the cocoa bean fermentation process, because the failure of the fermentation process can not be fixed on the next process. In the fermentation will be determined kenampaan cocoa taste, bitter taste reduction, and Sepat on seeds. Similarly, the existence of a chain that is long enough before being exported, which allows the mixing of various quality cocoa beans. It also will reduce the competitiveness of our cocoa abroad, not even rule out the possibility of Indonesian cocoa exports in Restore or rejected (Susanto, 2005:72).

Farming in East Java is an area of land that has potential to be developed. Although cocoa plantation farming is still not evenly distributed throughout the districts in East Java. Therefore, it needs to be analyzed

cocoa farming in East Java and how kedaan economic levels of cocoa farmers in East Java.

attention to the problems above it is necessary to do research on the analysis of cocoa farming and economic levels smallholders in eastern Java.

## RESEARCH METHODOLOGY

### Research Sites

The study was conducted in East Java producing cocoa production centers are local people of the southern zone and the central zone , which comprises the southern zone of the district : Malang , Blitar , Ponorogo , and Pacitan for the middle zone consists of counties : Madiun ,Nganjuk , Jombang and Trenggalek.

### Sampling

This study uses the unit or the unit of analysis is the study of the people of cocoa farmers in eastern Java is as much 49 144 people , then the samples taken must be representative , that is able to represent the population in the sense that all the traits and characteristics that exist in the population can be reflected from the sample is taken . Of this amount will be taken as a sample at a precision level of 10 % . Withdrawal sample using the formula of Emory , 1986: 230 ) , namely :

$$n = \frac{N}{Nd + 1}$$

Description:

n: Number of Entire Sample

N: number of populations

d: degree of precision used (10%)

Using the above formula, the number of samples taken for:

$$n = \frac{49\,144}{49\,144(0.1) + 1} = 99.79 \text{ rounded to } 100$$

To avoid the lack of data from the sample then we add 10% of the total sample is 10, then the number of samples to be taken is equal to 110.

Then the sample of 110 is allocated proportionally throughout the unit, where the sample size will be more than the number of units of fewer farmers. Furthermore, the allocation of whole units are presented in Table 1 below:

**TABLE 1**  
**NUMBER OF FARMERS (POPULATION) SAMPLE AND RESEARCH**

No	Kabupaten	ΣPetani ( Org)* (N)	Sampel ( n )	% (persen)
<b>Zona Tengah</b>				
1	Madiun	10.916	24	21,82
2	Nganjuk	1.821	4	3,64
3	Jombang	1.127	3	2,73
4	Ponorogo	8.020	18	16,36
<b>Zona Selatan</b>				
5	Pacitan	12.212	27	24,55
6	Trenggalek	8.307	19	17,27
7	Blitar	5.246	12	10,90
8	Malang	1.495	3	2,73
T O T A L		49.144	100	100,00

Source: East Java Disbun 2010, compiled and processed again

### Data Collection Method

The method used was interviews with respondents and observation (primary data) Primary data is data obtained directly from the object of study is the farmer respondents through interviews based on a questionnaire that has been prepared.

Data collection methods used in this study are:

- Questionnaire, which is a list of questions related to the research and distributed to farmers who made the object of research respondents.
- Interviews, namely direct interviews with respondents as additional material from the list of questions and documents.

- c. Documentation, collected data by examining all documents or records related to the research.  
 d. Observation, namely the direct observation of the object of study to obtain data to assist and strengthen the data obtained from interviews and questionnaires.

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$$\pi = \sum_{y=1}^n P_y.Y - \sum_{x=1}^n P_x.X \quad \text{dan B/C} = \frac{\sum_{y=1}^n P_y.Y}{\sum_{x=1}^n P_x.X}$$

Description:

$\pi$  = Profit

X = Number of inputs

Y = Number of production

Px = price of production inputs

Py = price of production

Feasibility testing criteria:

- If Gross B / C ratio > 1 means that cocoa farming as feasible or profitable
- If Gross B / C ratio < 1 < 0 means the cocoa farms are disqualified or lose

#### Results and Discussion

##### Characteristics of Respondents Based on cocoa farming and the use of Input Production in East Java.

In accordance with the results of research and interviews with respondents in the South Zone and Central Zone cocoa-producing people in East Java province, can be seen in table 1 below:

TABLE 2

COCOA FARMING CHARACTERISTICS INPUT PRODUCTION AND USE IN EAST JAVA

DESCRIPTION	AVERAGE (N = 100)
1. Land Area (Ha)	1,56
2. Plant age (years)	25,45
3. Production (Kw)	16,14
4. Productivity (Kw / ha)	16,68
5. Production inputs:	
a. Urea (Kg)	25,96
b. SP-36 (Kg)	25,39
c. KCL (Kg)	24,25
d. Insecticides (L)	0,19
e. Labor (HOK)	40,67

Source: Primary Data, 2012 (processed)

Outpouring of these include a small workforce, thus becoming a limiting factor for the sustainability of farming and affect the level of achievement of production targets. According Musofie et al (2003) scale high effort but is not matched by availability of sufficient labor can reduce the level of business productivity. In addition, a small outpouring of labor is an indication that the application has not tekni intensive cultivation. Therefore, the required additional labor from outside the family farmers themselves.

Farming experience is one important factor in supporting the success of farming. Farmers farming

experience of the respondents ranged between 5-35 years with an average experience of 17, 09 years. Farming experience is a learning process that can facilitate the adoption and implementation of technology developed dynamically. But the old farm experience is not mirrored by the respondent farmers applying recommendation technology and rely on the experience acquired hereditary. This is demonstrated by cultivation techniques and the use of the means of production inputs are still low (Table 2)

Based on table 2 it appears that the cocoa plant average age 25.45 years of age variation between 5-30 years and with shade trees-2's fruit crops such as papaya, banana and cashew. This reflects that the cultivation of cocoa has long been done with little effort rejuvenation. Events of the economic crisis that hit the country in mid-1998 and led to the weakening of the rupiah against the U.S. dollar (USD) would bring good luck to the cocoa farmers. Cocoa is a commodity export selling prices experienced a price rebound. The increase in revenue from the increase in the price of many used by farmers to expand the area of land and rejuvenate cocoa plants by menyambung side.

The level of productivity achieved cocoa farmers 16.68 kw / ha is still below the average production of cocoa Indonesian cocoa coffee research center that is equal to 20 kw / ha. The low level of productivity due to the presence of pests PBK. PBK due to attack the cocoa beans become disabled and low-quality and result in lower selling prices.

The use of the means of production inputs respondents consisted of farmers applied fertilizers, insecticides, and labor. Fertilizing crops cocoa farmers do not correspond to a dose of fertilizer, how, and time of fertilization, both doses of fertilizer, how, and the time of fertilization. Given fertilizer is urea with an average dose of 25.96 kg, SP-36 average of 25.39 kg and an average KCl 24.25 kg / ha. Meanwhile, Kisara the recommended dose of fertilizer to urea, SP-36 and KCl respectively is 0 to 333.33 kg / ha / yr, 0 -222.22 kg / ha / year and 0 to 333.33 kg / ha / year . Cocoa plant area at the study site has been attacked by pests PBK. Farmers do the pest control to maintain fruit chemically as effective pest control PBK has not been found. Average of 0.19 liters of insecticides used. The use of insecticide used has no direct influence on production because only minimize damage to the fruit, not defend from incoming attacks to the fruit.

#### Cocoa farming income

In addition to cocoa crop, farmers in the study area was also planted some other plantation crop such as fruits, vanilla, and coffee. Cocoa is a commodity plantations that provide sumbengan highest income and at the same time as the main source of income for farmers. Off-farm income derived from salaries, pensioners, trade, and construction worker / handyman (Table 3). The highest contribution to the farm income in cocoa farming is IDR12.355 million (53.95%) followed by fruit trees at IDR 1.500.000, - (12.14%), and vegetable. IDR 1,245 000 - (10,08%), Trade IDR 1.15 million, (9.31%), Employee IDR 1.05 million, - (9,31% ), farm workers, construction of IDR 850,000, - (6.82%) can be seen in the table below.

TABLE 3.

REVENUE CONTRIBUTION OF COCOA FARMING IN EAST JAVA

DESCRIPTION	Average ( IDR)	Proportion (%)
total Revenue	12.355.000	100,00
Cocoa	6.560.000	53,95
Plants Fruit-2an	1.500.000	12.14
Vegetable Crops	1.245.000	10,08
merchant	1.150.000	9,31
employee	1.050.000	8,50
Agricultural Labourers, building	850.000	6,82

Source: Primary Data, 2012 (processed)

Revenue represents the value obtained peasant farming profits derived from the difference in reception with cocoa farming costs consist of the cost of fertilizers ( urea , SP - 36 , and KCL ) , pesticides , labor . Allocation of the highest production costs of labor used for payment of Rp 2,846,900 , - per hectare or 72.24 % of the total cost of cocoa farming ( Table 3 ) . because most cocoa crop pests PBK , the herbicide expenditures of Rp 380 000 , - per acre or 9.64 % of total expenditures used to maintain crop of wild plants other disorders . Pruning and cleaning wild plants still considered farmers more effectively inhibit the rate of attack of pests on fruit than on spraying with insecticide . Wild plants around the tree periodically cleared by farmers and subsequent spraying to prevent continuous basis . Looks production costs , revenue and profits ( income ) per hectare cocoa farm shown in Table 4.

TABLE. 4  
 AVERAGE REVENUES, COSTS OF PRODUCTION, AND BENEFITS OF COCOA FARMING IN EAST  
 JAVA .

NO	DESCRIPTION	VALUE	
		IDR	%
1	Acceptance:		
	a. Production (Kg)	16.14	
	b. Production Price (IDR / kg)	15 500	
	c. Production Value (IDR)	10.501.140	
	TOTAL REVENUE	10.501.140	
2	Cost of Production:		
	a. Urea Fertilizer	168.740	4,28
	b. SP-36 fertilizer	150.500	3,82
	c. KCl fertilizer	145.000	3,68
	d. pesticide	250.000	6,34
	e. herbicide	380.000	9,64
	f. Labor	2.846.900	72,24
	TOTAL COST	3.941.140	100,00
3	Gains / Income	6.560.000	
	B/C Ratio	3,13	

Source: Primary Data, 2012 (processed)

The price of the product (cocoa) is IDR15,500, - is the average value of the price received by farmers ranged from IDR 13,500 - Rp 16,000, - per kilogram of dry beans. Production of dry beans per hectare average farmer 16.14 kw. The amount of IDR 12,355,000, - per hectare.

Average income of farmers is positive, it means show a profit, amounting to IDR 8,413,860, - per hectare. A comparison between the value of the income or profit earned by the cost of production nilao B / C ratio of 3.13 Viewing the criteria value B / C ratio, the cocoa farming in East Java is financially feasible to be developed as well as a source of family income. In addition, promising cocoa farm income of 3.13 times of the cost, so it is still profitable.

#### Smallholder Cocoa Farmers Family Welfare Judging from the lines Muzaqi Prosperity and Poverty Line mustahiq.

Area of land ownership by cocoa farmers will determine the level of production resulting in a subsequent year the amount of production that determines the amount of revenue generated and also the welfare of farm families concerned . Farmers earned income derived from sales of cocoa farmers who cultivated the land . The sales value of the products is income earned from work as a farmer .

When the farmers' income earned in one ( 1 ) year coupled with off-farm income , which is generated by both the husband and the wife is a total family income . The family income will determine whether the family is included in the category of family welfare groups ( Muzaki ) if the total family income is earned in one year greater ( > ) than one nishaf , Sedangkan if the total income is less than one nisaf , then the group is included in the group mustahik . The determination of categories and muzakis mustahik is very important where to draw the line muzakis prosperity and poverty limit mustahiq according to Islam for a community in a particular area .

Edge of poverty and prosperity under Islam has been developed by Zadjuli ( 2006:17 ) this model using macroeconomic variables , which can be applied at the micro level that the household economy . Economic variables used in this model include the level of autonomous consumption ( Co ) individual / society which includes food and non-food items according to current prices and constant prices . Furthermore, the level of income earned in a year either cocoa farm income and farm income from a side business ( Yc ) , to determine the limits of poverty and prosperity muzakki mustahiq household group is done by adding the value of the level of autonomous consumption of households with one nisaf ie 20 gold dinar is equal to 85 grams of gold . If the cacao farmer household income is greater than the constant expenditure coupled with 1 nishaf then group the household belongs to a group of prosperous material aspects according to Islam . However, if the earned income below the value of the individual expenses coupled with nishaf , then it should not matter according to aspects of the welfare of Islam and called mustahiq .

Of these criteria can be seen in Table 4.6 where the total income of cocoa farmers of IDR 12,355,000 , - < than 1 nishaf is 85 grams of gold for IDR29.750.000 , - so that it can be said that the cocoa farmers in East Java has not prosper if the terms of the poverty line and prosperity according to Islam .

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusion

Cocoa farming in East Java has the potential to be developed intensively and continuously. Support of the characteristics of farmers who are in the productive age, education level is high enough, and the age of farming experience. Constraints faced by the limited number of family members, so it still requires additional work from outside the family tanga.

Average - average of 1.56 hectares of land for cocoa farming still give you an advantage of 3.13 times the cost of production of cocoa. Cocoa crop is still a commodity future by contributing to the family income by 53.95% of the total income of farm families.

The level of poverty seen welfare and prosperity of the farmers in East Java has not been prosperous.

### Suggestion

Support of the central government (Ministry of Industry and Trade) in implementing assistance in order to see the quality of cocoa in East Java can be realized in the form of a cocoa fruit testing equipment. Empowering farmers with training in the field of quality certification of cocoa beans.

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