



The Analyses of Factors Influencing Farmer Motivation at Cacao Farming in North Lombok



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Abstract

The purpose of this study was to: (1). Knowing the level of production and the factors that influence the motivation of farmers in the farming of cocoa (*Theobroma cacao. L*) in North Lombok Regency. (2). Knowing the relationship between the factors that influence the motivation of farmers in the farming of cocoa (*Theobroma cacao. L*) in North Lombok Regency. (3). Knowing the constraints faced by cocoa farmers in farming in North Lombok Regency. This research uses the descriptive method with survey techniques. The unit of analysis in this study is a cocoa farm in North Lombok Regency. While the analysis is Logistic Regression and Spearman Rank Correlation. The results showed that the level of cocoa production in the year 2014 for all Sub-District in North Lombok regency as follows: District Winning as much as 25736.65 tons, District of Tanjung many as 79 920 tons, District Ganges as much as 358 596 tonnes, District Kayangan as much as 141 152 tonnes and the District Bayan as much as 19528.25 tons. Category factor affects the motivation of farmers in farming cocoa is the factor of socio-economic status of farmers covers formal education including lower categories, dependents medium category, experience medium category, economic factors include the availability of inputs, including the medium category, the relative advantages including very high category, guarantees market including very low category, social-technical factors include the level of potential suitability of land including appropriate category, the level of saving time farming include the category of very fast and the level of the local cultural appropriateness included the category of very appropriate. Factors influencing market guarantee to motivate cocoa farmers farming. Availability *saproti*, relative advantage, a guaranteed market, the level of cultivation time savings have a relationship with the cocoa farming farmer motivation. Constraints in cocoa farming is an attack of plant pests and diseases, limited means of production and the limited information on the location of the cultivation and marketing.

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Indonesia becomes the third largest cocoa producer in the world producing 456,000 tons after a country of Gading Coast which produces 1,276,000 tons and a country of Ghana which produces 586,000 tons. Indonesia's cocoa cropland area of approximately 992,448 hectares with a production of around 456,000 tons of cocoa beans per year, and the average productivity of 900 kg per ha (Ministry of Industry, 2007). North Lombok (KLU), a district of the West Lombok regency divisions, has the potential commodity of plantation crops seeded area of 30464.82 ha and the cocoa plants total area is 2923,35 ha. Of the total area of the cocoa plants, only 1,956.85 ha can be optimally used (DPPKKP KLU, 2014).

This research aims at:

- a) Investigating the relationship among factors influencing the farmers' motivation in cocoa farming (*Theobroma cacao*. L) in North Lombok Regency.
- b) Investigating the obstacles faced by the cocoa farmers in the farming in North Lombok Regency.

2. Materials and Methods

A method applied in this research is a descriptive method in which the data collected through surveying technique – data collection from a number of units or individuals in the certainly equal amount of time (Surakhmad, 2004). Cocoa farmers located in North Lombok regency consisting of five districts serve as the analysis units. Of the five districts determined by using a purposive sampling technique, Gangga, and Tanjung, the largest producers of the cacao production, were selected regions. There were seventy-two people as samples taken through a purposive sampling. The data analysis used logistic regression analyses were systematically formulated (Hosmer & Lemeshow, 1989):

$$\text{Logit (Y)} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9$$

β_0 = Constanta

β_i = Coefficient regression

Y = Farmers' Motivation

Spearman Rank Correlation (Nazir, 2003) is used to determine the relationship between the factors influencing the motivation and the level of farmers' motivation in cocoa farming.

$$r_s = 1 - \frac{6 \sum d_i^2}{N^3 - N}$$

r_s = Spearman Rank Correlation Value

d^2 = the difference of each pair rank

n = Number of rank pairs for Spearman

Criteria for decision-making at the level of 75% by t

3. Results and Discussions

3.1 Overview of Cocoa Farming in North Lombok Regency

North Lombok is one of the centers of cocoa farming in West Nusa Tenggara (NTB) province. It has an area of 3498.35 ha for cocoa farming in which an immature cocoa farming area is 495.53 ha, a producing cocoa area is 2537.92 ha and a damaged cocoa area is 464.90 ha.

3.2 Assessing Category Factors Affecting Farmers' Motivation in Cocoa Farming

In this study, the factors influencing the farmers' motivation in cocoa farming are measured by firstly socio-economic status (farmers' characteristics) factors which consist of formal education background, dependent family, and experience in cocoa farming, secondly, economic factors consisting of the availability of production means, a market security, and profit, and lastly technical cocoa cultivation factors which consists of level land potential suitability, level cultivation time savings and the level of local cultural appropriateness. The results of logistic regression analysis of the factors can be seen in table 1 below.

Table 1
Logistic Regression Analysis of the Factors Affecting Farmers' motivation in cocoa farming in North Lombok

Independent-Variable	B	P	Exp (β)	Inf.
Formal Education (X_1)	-0.120	0.732	0.448	NS
Dependant Family (X_2)	0.282	0.536	1.326	NS
Experience (X_3)	-0.063	0.797	0.939	NS
Availability of Production Means (X_4)	0.024	0.933	1.024	NS
Profit (X_5)	0.302	0.535	1.354	NS
Availability of Market Security (X_6)	-0.561	0.082	0.697	S
Potential Land Suitability level (X_7)	-0.067	0.882	0.935	NS
Saving Time Level for Cultivation (X_8)	-0.755	0.527	0.470	NS
Conformity of Cultural level (X_9)	-0.335	0.541	0.715	NS
Constanta	6.230	0.347	507,683	

Source: Processed Primer Data

Information:

B = Coefficient of Regression

P = Significant Value

$Exp(\beta)$ = Expected Value of Coefficient of Regression

S = significant

NS = non-significant

According to the table 1, it can be concluded that at the level of 20% (0.2) the significance test shows that one (1) variable of the nine (9) supposedly independent variables were significant (p -value ≤ 0.2) and the remaining eight (8) variables did not have a significant effect (p value > 0.2). The significant variable (p -value ≤ 0.2) is a market security (X_6), with $p = 0.083$. The second equation model (block 1) including all components of the independent variables was used to view the results of logistic regression analyses. Further, from the above table, it can also be entered into the logistic regression equation formed as follows:

$$\text{Logit} \frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9$$

$$\text{Logit} (Y) = 6.230 - 0.120X_1 + 0.282X_2 - 0.063X_3 + 0.024X_4 + 0.303X_5 - 0.361X_6 - 0.067X_7 - 0.775X_8 - 0.335X_9$$

3.3 Relationship Between the Factors Affecting Motivation and Farmers' Motivation in Cocoa Farming

To determine the relationship in regard to the factors influencing the farmers' motivation in a cocoa farm in North Lombok regency, this study used the Spearman rank correlation test (rs). Further details can be seen in table 2 below.

Table 2
Test Results of Spearman Rank Correlation on Factors Affecting Farmers' motivation in Cocoa farming in North Lombok

No	Factors	rs	t-count	table ($\alpha = 25\%$)	Info.
1	Formal Education Background (X ₁)	-0.005	-0,0412	0,679	NS
2	Dependant Family (X ₂)	0.076	0,638	0,679	NS
3	Experience (X ₃)	-0.021	-0,176	0,679	NS
4	Availability of Production Means (X ₄)	0.083	0,698	0,679	S
5	Profit (X ₅)	0.137	1,157	0,679	S
6	Market Security (X ₆)	-0.287*	-2,507	0,679	S
7	Potential Land Suitability level (X ₇)	-0.051	-0,427	0,679	NS
8	Saving Time Level for Cultivation (X ₈)	-0.084	0,705	0,679	S
9	Conformity of Cultural level (X ₉)	-0.074	0,621	0,679	NS

Source: Processed Primer Data

Information:

- S : Significant
 NS : Non- Significant
 rs : coefficient of Spearman rank
 Value (Sig 2 tailed) : Significant Value
 *) : Significant at $\alpha = 25\%$

Based on table 3, it can be concluded that at the level of 20% (0.2) the significant test shows that seven (7) variables of the nine (9) supposedly independent variables were significant ($p\text{-value} \leq 0.2$) and the remaining two (2) variables did not have a significant effect ($p\text{ value} > 0.2$). The significant variables ($p\text{-value} \leq 0.2$) are the availability of production infrastructures (X₄), the profits (X₅), the market security (X₆), the level of cultivation time savings (X₈), meanwhile variables which are insignificant or no relationship with the motivation is formal education (X₁), dependents (X₂), experience (X₃), the level of the potential suitability of land (X₇) and the level of local cultural appropriateness (X₉).

The variable of the availability of production infrastructures (X₄) has a relationship with the farmer motivation which is shown by t-test (0.698) > t-table (0.679). It can be concluded that if there are enough rice-production infrastructures provided, the farmers' motivation in cocoa farming will be much higher. Meanwhile variable of profit has a relationship or a significant effect on the farmers' motivation indicated by the value of t-count (1.157) > t-table (0.679). Hence, it can be inferred that the more benefits the farmers earned, the higher the motivation of farmers in cocoa farming will become.

Also, the market security variable has a significant relationship with the motivation of farmers or cocoa farming which is indicated by the value of t-test (-2.507) > t-table (0.679). It can be concluded that the more market security the products of cocoa have, the higher percentage of cocoa farming will be. In time, the variable of rate time-savings cultivation also has a significant relationship with the farmers' motivation intended by the value of t-count (0.705) > t-table (0.679). This means that the shorter time the cocoa bears the fruit; the farmers will be more motivated to do cocoa farming.

3.4 Obstacles encountered in Cocoa Farming

The obstacles in this study refer to the impediments faced by the cocoa respondents' farmers in North Lombok Regency either technically or non-technically. The technical impediments are related to the cultivation of plants in

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cocoa farming, while, non-technical constraints are related to the socio-economic situation of cocoa farmers. Further details regarding with the constraints can be seen in table 3 below.

Table 3
Obstacles faced by the respondents' farmers in Cocoa Farming in North Lombok Regency

No.	Description of Obstacles	Sum of people	Percentage (%)
1.	Pest-attacks on plants	33	46
2.	Limited means of production	20	28
3.	Limited information about the cultivation and marketing	26	36

It is shown that there are thirty-three people (46%) face the pest attack obstacle on the plants. The respondents' farmers said that many of their cocoa crops are attacked by the pests; such as white fungi, rotten fruits, and fruit fly pests. They said that they had tried to deal with some pesticides, yet they have not yielded maximum results.

The other obstacle factor is the limited production facilities experienced by twenty people (28%). This is due to the availability and the difficulty in obtaining production means; such as fertilizers and drugs. In addition, the farmers have difficulties in obtaining good cocoa seedlings to replace the death cocoa plants. Farmers said that they had tried to deal with it through frequently making RUK for the production means; however, it is always still a shortage of production facilities at the site. Governments only provide a limited amount of small cocoa plants, and furthermore, those are only for certain farmer's groups.

The limited information in regard to the cultivation and marketing is experienced by twenty-six (36%) respondents' farmers. Farmers reported that they need information about the cocoa selling price due to the fact that they have been used to selling the cocoa in logs to existing traders; consequently, the price depends on the collectors. While the information about the cultivation, the farmers also reported that they need the information in order to improve farmers' cultivation techniques, especially related to control of pests and diseases that can damage the cocoa crops.

4. Conclusion

Based on the research analyses and discussion, it can be concluded that:

- a) Category factors influencing the motivation of farmers in cocoa farming consist of three factors; socioeconomic status, economic, and social technicals. Firstly, the socio-economic status covers formal education as the low category, family dependents as the medium category and experience as the medium category. Secondly, the economic factors cover the availability of production means as the medium category, the profits as the very high category, and the market security as the very low category. The rest, the social-technical factors include the level of potential suitability of land as the appropriate category, the level of saving time farming as the very quick category, and the level of the local cultural appropriateness as the very appropriate category.
- b) The factors obviously influencing the motivation of farmers in cocoa farming are the market securities while others are insignificantly affecting.
- c) The relationship between the factors influencing the motivation that are the availability of production means, the profits, the marketable securities, and the level of cultivation time savings and the farmers' motivation is very significant.
- d) Obstacles faced by farmers are the pest attacks on plants, the limited means of production at the site, and the limited information about the cultivation and marketing.

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Statement of authorship

The author(s) have a responsibility for the conception and design of the study. The author(s) have approved the final article.


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