Farmers' Motivation to Cultivate Cacao (Theobroma cacao) in Wonoanti Village, Pacitan

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Abstract. This study aims to determine the motivation of farmers in cacao farming and the factors related to their motivation in Wonoanti Village, Tulakan Subdistrict, Pacitan Regency. The research was conducted in Bulih Hamlet, Wonoanti Village, Tulakan Subdistrict, Pacitan Regency (purposive sampling), which is an area with good cacao development in Pacitan Regency. The respondents were farmers who were members of the Gemah Ripah 04 farmer group, selected through a census technique, totaling 35 farmers. The analysis used in this study was descriptive analysis, scoring technique, and Rank Spearman correlation analysis. The results showed that (1) farmers' motivation in cacao farming based on the existence needs is in the moderate category with a score of 17.54, based on relatedness needs is in the high category with a score of 17.37, and based on growth needs is in the high category with a score of 16.97. Hence, it is known that the motivation of farmers in cacao farming in Wonoanti Village, Tulakan Subdistrict, Pacitan Regency is in the high category. (2) The factors related to farmers' motivation in cacao farming are the number of family dependents, land area, government's role, and marketing.

1 Introduction

Indonesia as an agricultural country has a population where the majority are farmers [1, 2], according to the results of a survey published by Sakernas in 2017 it is known that 31.89 percent of the Indonesian population works in the agricultural sector. So the agricultural sector is the sector that has the most labor and must be considered well by every group of society so that the progress and development of Indonesian agriculture increasingly shows good progress [3, 4]. Indonesia's plantation sector has a very promising development potential because plantation commodities produced by Indonesia can compete and meet the needs of the international market [5, 6]. Indonesia itself has a large plantation area of about 14 million hectares, of which 80 percent are people-owned plantations [7].

Cacao *(Theobroma cacao L.)* is one type of plantation plant in Indonesia that is widely cultivated [8, 9]. Cacao belongs to the type of perennial plants and is a dicotyledonous plant. Cacao comes from Central American countries and now cacao has been able to be developed in various countries [9]. Cacao in Indonesia began to be developed since 1970 and until now shows extraordinary development. Southeast Sulawesi, South Sulawesi, Central Sulawesi,

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West Sulawesi, and West Sumatra are regions that produce many products in the form of cacao beans [10]. Cacao in Pacitan Regency is almost thoroughly grown in every sub-district in Pacitan. According to the publication of [11] the area of cacao crop harvest in 2020 is 5,562 Ha with a total production of 386 tons.

Table 1. Area of planting land and amount of cacao production in Pacitan Regency in 2019-2020

Subdistrict	Planting Area (Ha)		Production yield (ton)	
	2019	2020	2019	2020
Donorojo	-	-	-	-
Tree	76	74	2.67	1.23
Pringkuku	36	36	0.50	-
Pacitan	38	38	2.63	1.25
Kebonagung	1,164	1,165	77.23	75.75
Arjosari	121	78	2.88	1.45
Fragrance	206	170	5.00	3.56
City	-	-	-	-
Tegalombo	157	155	6.09	4.64
Tulakan	**1,546**	**1550**	**131.50**	**129.96**
Ngadirojo	1,193	1155	81.05	79.6
Sudimoro	1,157	1141	90.08	88.63
Pacitan Regency	5,694	5562	399.63	386.07

Source: [11]

Tulakan Subdistrict is one of the areas in Pacitan Regency that cultivates or develops cacao plants. Based on the table 1, it can be seen that Tulakan District has the largest production and cacao planting area in Pacitan Regency. Wonoanti Village is one of the villages in Tulakan Subdistrict that develops cacao as their leading commodity. Favorable environmental conditions and good soil fertility make the cacao cultivation process in Wonoanti Village has good cacao production potential. This cacao development effort has been carried out since 20 years ago. In the village, farmers who develop cacao plants are members of a farmer group called Gemah Ripah 04 farmer group and in their cultivation activities the farmers have been able to develop their own cacao seeds.

In the development and marketing of cacao plants produced by Wonoanti Village, there is no difficulty in marketing the cacao that has been produced. Cacao production from Wonoanti Village can be marketed to various regions because many business actors want and buy cacao products from Wonoanti Village. The Agriculture Office of Pacitan Regency also contributes a lot in supporting the development and progress of cacao farmers by carrying out empowerment activities that are able to support the development of cacao plantation production in Pacitan and provide infrastructure that can be used by farmers.

Although there is no problem in the growth and marketing of cacao produced, farmers say that many cacao farmers in Wonoanti Village are less moved in developing and increasing cacao production in Wonoanti Village to become even bigger. Many farmers feel reluctant or lazy to pursue the development of cacao cultivation in Wonoanti Village. This also has an impact on the results of cacao production obtained to decrease. It can be seen in table 1 that Tulakan Subdistrict experienced a decrease in cacao production in 2020.

Based on the problems of cacao farmers in Wonoanti Village, Tulakan Subdistrict, Pacitan Regency, researchers felt interested in knowing and researching these problems. What makes cacao farmers in Wonoanti Village reluctant or lazy to carry out the process of cultivation or production of cacao plants so that the cacao production of Pacitan Regency has decreased. This problem encourages researchers to find out whether there are internal or

external factors that affect the motivation of farmers in developing the cacao they grow. To be able to answer these problems, research is needed with the title Motivation of farmers in trying cacao plants (*Theobroma cacao L*) in Wonoanti Village, Tulakan Subdistrict, Pacitan Regency.

2 Research Method

The research method used in this study is a descriptive quantitative method. Descriptive quantitative methods aim to be able to describe various aspects of conditions, conditions or variables that arise in the community environment that is the object of research based on phenomena that occur factually. Descriptive quantitative methods have a casuistic nature that only uses certain cases for the object of study. His position is very influential in making hypotheses or interpretations on various kinds of social variables (Abdullah, 2015). In this study will describe the motivation of farmers and factors that can affect the motivation of farmers in cacao farming.

The research was conducted in Wonoanti Village, Tulakan Subdistrict, Pacitan Regency. The location of the study was chosen based on certain considerations (*peurposive*). Wonoanti Village, Tulakan Subdistrict, is an area that has good cacao plant development potential in Pacitan Regency. The cacao production produced has a fairly large amount of production, this is supported by the conditions of the village area in the mountainous area that supports cacao farming.

The data used in this study are primary data and secondary data. The primary data collected is data that includes information both from farmer profiles and also farmer group profiles. Primary data were obtained by conducting interviews and assisted by questionnaires that included questions about farmer motivation contained in the ERG indicators (*Existance Needs, Relatedness Needs, Growth Needs*). For secondary data is supporting data obtained through community leaders, reports and records from related agencies. The secondary data used is related to data research from the Central Statistics Agency (BPS) which is used to determine the amount of production, planting area, monographic geographical data and also data from the Wonoanti Village Hall related to population condition data, socioeconomic condition data, and also important data in supporting research.

Indicators are measured based on the components that have been assembled. The score that will be given to measure each indicator in each variable of farmer motivation in cacao farming in Wonoanti Village, Tulakan Subdistrict, Pacitan Regency is on 5 scales. Answers from strongly disagreeing indicators are given a score of 1, disagree are given a score of 2, neutral answers are given a score of 3, affirmative answers are given a score of 4, and strongly agree answers are given a score of 5. The data that has been obtained will then be tabulated using the Microsoft Excel application. Then, the data is processed and descriptive analysis is carried out to be able to determine the motivation of farmers. The analysis was carried out into 3 categories, namely high, medium, low (Table 2).

Table 2. Farmer motivation score category in cacao farming.

Motivation Category	Existence Needs	Relatedness Needs	Growth Needs
Low	5 - 11.7	5-10	5-10
Moderate	11.8 - 18.5	11-16	11-16
High	18.6 - 25	17-22	17-22

After descriptive analysis is carried out to be able to determine the motivation of farmers, the next step is to conduct an analysis using spearman rank correlation analysis to determine the relationship between independent and bound variables. To be able to measure the relationship between motivation and internal and external factors, testing was carried out

with the Spearman Rank Coefficient, the value that has been obtained is then interpreted by looking at the table below to find out the relationship between variables and find out the criteria (Table 3).

Table 3. Rank Spearman Correlation Interpretation

Correlation Coefficient Interval	Interpretation
0.00-0.199	Very Low
0.200-0.399	Low
0.400-0.599	Neutral
0.600-0.799	High
0.800-1.00	Very High

3 Results and Discussion

3.1 Farmers' Characteristic

3.1.1 Farmer Age

Farmers who have an age that is classified as productive tend to have more enthusiasm and stronger or greater energy than those who are not included in the productive age category. The age of farmers who cultivate cacao in Bulih Hamlet, Wonanti Village, Tulakan Subdistrict, Pacitan Regency is dominated by the age of 41-60 years of farmers, which is 21 people, this shows that farmers who cultivate cacao are still classified as productive age. People who have exceeded the age of more than 65 or under 15 years are considered not included in the productive age because they cannot or have not been able to produce optimally [13].

3.1.2 Education Level

Education is a learning process that aims to develop knowledge, abilities, and intelligence. The level of education can be measured based on the last diploma held. Most farmers in Bulih Hamlet, Wonanti Village, Tulakan Subdistrict, Pacitan Regency have education at the elementary level with a total of 21 people with a percentage of 60%. This is based on their previous economic situation and is also more concerned with directly working to be able to generate income. People with weak economic conditions will think more about meeting their basic needs first than other needs such as education [14].

3.1.3 Number of Family Dependents

The number of family dependents is the number of family members who in fulfilling their needs are still borne by farmers. The number of family dependents owned by farmers is mostly as much as 1-3, this number is classified as a large number so that farmers must be more active and enthusiastic in seeking farming.

3.1.4 Farm Experience

Farming Experience is the length of time farmers pursue their farming, the longer the farming experience they go through, the more knowledge and skills the farmer has. The experience of most farmers is for 4-12 years, this shows that it is known that cacao farmers in Bulih

Hamlet, Wonoanti Village, Tulakan Subdistrict, Pacitan Regency have sufficient cacao farming experience in cacao development and management.

3.1.5 Land Size

Land area is an important capital for farmers in doing cacao farming. Land area can determine the amount of production produced by farmers. The land area owned mostly has an area of 500-5,333 m^2. The land owned by farmers is their own land that has been managed for generations. Most farmers do not use the entire land to grow cacao but the land is also planted with sea sengon wood trees.

3.1.6 Income

Income is the income obtained by farmers through the farming business they manage or from other jobs they have. The income received by farmers is mostly IDR 130,000-520,000, the income is obtained through cacao farming and also other jobs. Income from cacao farming is low because the age of cacao trees is still less than 5 years old and the problem of fruit blight that often attacks. Rainfall or high water content has a noticeable influence on the development of cacao blight, this is due to condensation of moisture on the surface of the fruit so that cacao is attacked by fruit blight [15].

3.2 Farmers' Motivation

In this study, the motivation of rice farmers was measured using the motivation theory of Clayton P. Alderfer known as the ERG theory. Each variable is the need for *existence (existance* needs), *related needs (relatedness* needs) and the need for growth (*growth needs*).

Table 4. Motivation Score

Motivation Aspect	Score	Category
Existence Needs	17.54	Moderate
Relatedness Needs	17.37	High
Growth Needs	16.97	High

Based on the table above, it can be seen that the motivation is known that the *Existance Needs* of farmers get a score of 17.57 in the medium category which shows in the situation that farmers are motivated to be able to meet their primary needs such as clothing, food and shelter, and farmers tend to cultivate cacao for their existence. Income from cacao farming that is still unable to meet daily needs causes farmers to be motivated to develop their farms thorough exist in the community. *Relatedness Needs* gets a score of 17.37 in the high category, this is because by doing this cacao farming, farmers can interact well with fellow farmers or farmer groups so as to bring good benefits. *Growth Needs* received a score of 16.97 in the high category, which mean that farmers are in the level want to grow in through cultivating cacao, this is because increasing farmers' knowledge and skills through extension and training activities is an important aspect for cacao farmers.

Table 5. Rank Spearman Correlation Analysis Results for Internal Factors Related to Farmer Motivation in Cacao Farming.

Indicator	Existence Needs	Relatedness Needs	Growth Needs	Motivation
Age				
Rs	0.120	-0.171	-0.041	-0.018
Sig	0.493	0.325	0.817	0.919
Education				
Rs	-0.053	-0.078	-0.086	-0.116
Sig	0.762	0.657	0.622	0.507
Farming Experience				
Rs	0.184	-0.140	0.144	0.110
Sig	0.290	0.422	0.409	0.530
Family Member				
Rs	-0.295	-0.239	-0.375*	-0.361*
Sig	0.086	0.167	0.026	0.033
Land Size				
Rs	0.337*	0.253	0.141	0.348*
Sig	0.048	0.143	0.418	0.040
Income				
Rs	-0.081	0.076	0.068	-0.012
Sig	0.645	0.666	0.696	0.945

Table 6. The results of the Spearman rank correlation analysis of external factors related to farmers' motivation in cacao farming.

Indicator	Existence Needs	Relatedness Needs	Growth Needs	Motivation
Capital Availability				
Rs	0.057	0.170	0.105	0.130
Sig	0.746	0.329	0.548	0.456
Infrastructure				
Rs	-0.002	0.073	0.013	0.009
Sig	0.989	0.677	0.940	0.957
Government Role				
Rs	0.374*	0.528**	0.693**	0.605**
Sig	0.027	0.001	0.000	0.000
Marketing				
Rs	0.192	0.388*	0.379*	0.343*
Sig	0.269	0.021	0.025	0.044

In table 5 and 6 above, the results of the rank spearman correlation analysis can be known. It can be seen that there are several factors that have a real (significant) relationship with farmer motivation such as the number of family member (0.033< 0.05) with a coefficient value of -0.361*, land area (0.040 < 0.05) with a coefficient value of 0.348*, the role of government (0.000 < 0.01) with a coefficient value of 0.605**, and marketing (0.044 < 0.01) with a coefficient value of 0.343*. Attention to those factors may increase the famers' motivation to be more concern in cacao cultivation. For example, the marketing condition, with support farmers through ease the marketing process can help cacao products are sold easier and give farmers more income. The higher income can lead farmers to have higher

motivation. As for factors that do not affect including age, education, farming experience, income, availability of capital and availability of infrastructure.

4 Conclusion

The motivation of farmers in cacao farming is seen through the existence needs included in the medium category with a score of 17.54. Farmer motivation on relatedness needs is included in the high category with a score of 17.37. And farmers' motivation in growth needs is included in the high category with a score of 16.97. The results of the Spearman Rank correlation show that the number of family dependents, land area, the role of government and marketing are factors related to farmer motivation. Meanwhile, age, education, farming experience, income, availability of capital and availability of infrastructure have no relationship with the motivation of farmers. The need for good cooperation between farmers and local institutions related to efforts to increase cacao production. Farmers need to consider planting shade crops with faster harvest periods and farmers go to the planting field more often so that they can do better cacao management.

References

1. Subejo S, Untari DW, Wati RI, Mewasdinta G Modernization of Agriculture and Use of Information and Communication Technologies by Farmers in Coastal Yogyakarta. Indones J Geogr 51:332–345. (2019).
2. Purnomo M, Hadiwiyono E, Andriatmoko ND, et al Transformation Role of Forest Farmer Group's (FFGs) in Indonesia from Development Agent to Brokering Project. SAGE Open 12. (2022).
3. Surahman A, Shivakoti GP, Soni P Prospect of Sustainable Peatland Agriculture for Supporting Food Security and Mitigating Green House Gas Emission in Central Kalimantan, Indonesia. Elsevier Inc. (2017).
4. Arif, Rahma; Octavian E ANALISIS PRODUKTIVITAS TENAGA KERJA SEKTOR PERTANIAN DAN KEMISKINAN DI INDONESIA. Semin Nas Variansi (Venue Artik Inovasi, Reson dan Apl Stat 39–48. (2020).
5. Syarifuddin S, Ahli Utama W, Pengembangan Sumber Daya Manusia Provinsi Riau B Coconut-Based Community Economic Development Strategy In Indragiri Hilir Regency. ADPEBI Int J Bus Soc Sci 2:13–21. (2022).
6. Syaufina L Forest and land fires in Indonesia: Assessment and mitigation. Elsevier Inc. (2018).
7. Wulandar, Siti Abir ; Kemala N KAJIAN KOMODITAS UNGGULAN SUB-SEKTOR PERKEBUNAN DI PROVINSI JAMBI. Ilm Univ Batanghari Jambi 134–141. (2016).
8. Asti GK, Ekantari N Consumer PReferences for Dark Chocolate Products Fortified with Spirulina Platensis Using Analytical Hierarchy Process Method. E3S Web Conf 147:03021. (2020).
9. Blare T, Useche P Is there a choice? Choice experiment to determine the value men and women place on cacao agroforests in coastal Ecuador. Int For Rev 17:46–60. (2015).
10. Yantu MR, Kalaba Y, Lamusa A, et al IMPACT OF CLIMATE CHANGE ON MACRO-ECONOMY OF CENTRAL SULAWESI PROVINCE INDONESIA: CASE OF CACAO BEANS COMMODITY. Agrol Agric Sci J 2:22–32. (2016).
11. Badan Pusat Statistik Kabupaten Pacitan Kabupaten pacitan (2021).
12. Abdullah PM METODE PENELITIAN KUANTITATIF. Aswaja Pressindo,

Yogyakarta. (2015).

13. Musdhalifah Kholil KARAKTERISTIK USAHATANI PISANG MULU BEBE DI KECAMATAN SAHU TIMUR KABUPATEN HALMAHERA BARAT. J Ekon Pertan dan Agribisnis 6:256–262. (2022).
14. Bunga Tubu Persepsi Masyarakat Terhadap Pendidikan Formal Kaitannya dengan Jumlah Anak-anak Putus Sekolah. LA Geogr 19:317–333. (2021).
15. Christoffol Leiwakabessy Kejadian Penyakit Busuk Buah Kakao (Phytophthora palmivora var. palmivora) di Desa Karlutu, Kecamatan Seram Utara Barat, Kabupaten Maluku Tengah. JPK 4:1–11. (2020).