

SELECTION OF FRESH FRUIT BUNCH MARKETING CHANNEL IN SMALLHOLDER OIL PALM PLANTATION IN ACEH PROVINCE

JAM

16, 2

Received, September 2017

Revised, December 2017

March 2018

Accepted, May 2018

Mawardati

Faculty of Agriculture Universitas Malikussaleh

Abstract: This research was conducted at smallholder plantation in Aceh Province in January-March 2015. The purpose of this research is to analyze the factors that influence farmers in choosing marketing channel in smallholder oil palm plantation in Aceh Province. The analytical method used in this study was *multinomial logit*. The result of the analysis shows that several factors, namely the age of farmers, production volume, loan capital, and the price of fresh fruit bunch (FFB) are the factors that become the basis of consideration of farmers in choosing marketing channel of large traders. Based on the result of regression coefficient, it is known that production volume was the most dominant factor affecting the farmers in choosing marketing channel of large traders. Meanwhile, all independent variables which were analyzed did not have a significant effect on the selection of marketing channels of Palm Oil Factory (POF).

Keywords: Marketing channel, palm oil farmers



Journal of Applied
Management (JAM)
Volume 16 Number 2,
June 2018
Indexed in Google Scholar

Correspondence Author:
Mawardati, Faculty of
Agriculture Universitas
Malikussaleh
DOI: [http://dx.doi.org/
10.21776/ub.jam.2018.
016.02.07](http://dx.doi.org/10.21776/ub.jam.2018.016.02.07)

Aceh Province is one of the provinces that has a suitable climate for the development of oil palm plantations. Palm oil plantation expansion occurs from year to year, especially smallholder plantations. Unfortunately, this condition is not followed by increasing productivity. In addition to the low productivity, another problem that is often faced by farmers is how the products are marketed. Speaking of production activities or productivity improvement in the concept of agribusiness is related to the problem of subsystems of primary production (on a farm). Actually, the success

of agricultural industry also cannot be separated from other agribusiness subsystems, one of them is off-farm marketing. According to Kotler (2005), marketing is a number of business activities intended to provide satisfaction with goods or services that are exchanged to consumers or users. Soekartawi (1999), adds that in principle, marketing is the flow of goods from producers to consumers. One important factor in the effort to smooth the flow of goods is to choose the right marketing channel to use. A marketing channel is a chain of trading agencies and/or intermediaries that have activities delivering goods and services from producers to consumers (Nitisemito, 1981).

A large number of intermediary traders involved in the marketing process indicates long marketing channel. Long marketing channel of a product results in greater marketing costs; such circumstances would lead to inefficient marketing channel (Saefuddin, 1982). The efficient marketing channel can provide a decent price for farmers as produc-

ers and ultimately will greatly affect farmers to be more productive. In an attempt to deliver goods from producer to consumers, a farmer is the weakest component in terms of price determination of an agricultural commodity. Similarly, in terms of fresh fruit bunch pricing, farmers should be involved, but that is very rare. Fresh fruit bunch pricing is based on Decree of the Minister of Forestry and Estate Crops No. 627/Kpts-II/1998 on the Provision of Purchase Pricing of Oil Palm Fresh Fruit Bunches (FFB) Produced by Smallholder Farmers. Based on this Decree, then Decree of Governor was issued for each region. The prevailing prices of fresh fruit bunches in Aceh Province are not always based on the provision, but they more often follow the market mechanisms. The average price of fresh fruit bunches (FFB) in 2015 in Aceh Province was 750 rupiahs per kg, with the highest price reaching 1,250 rupiahs per kg at the beginning of 2015 and the lowest price of 500 rupiahs per kg in the mid-year. However, around October 2015 the price of fresh fruit bunches started to be stable again, reaching around 1,500 rupiahs per kg. There is a lack of available facility and infrastructure such as inadequate access to Palm Oil Factory, while the location of palm oil plantation is generally very far away from the location of Palm Oil Factory; therefore, farmers certainly need a big capital to be able to directly market their fresh fruit bunches to Palm Oil Factory. In addition, as fresh fruit bunch is non-durable, farmers have no power to negotiate the price, so farmers must market fresh fruit bunches to others at a price determined by the buyer. In fact, to maintain the quality of the yield obtained in relation to the nature of fresh fruit bunches that is not durable, the farmers must directly market the fresh fruit bunches to the Palm Oil Factory because it would affect the price received by farmers. However, in reality, not all smallholder palm oil farmers in Aceh Province market fresh fruit bunch directly to Palm Oil Factory. Some of the farmers market their fresh fruit bunches to the middlemen and others market their fresh fruit bunches to large traders. The type of marketing channel that farmers choose, apart from being caused by various economic constraints, is also affected by the characteristics of each farmer

concerned. Based on the phenomena mentioned above, it is necessary to conduct a research with the aim to analyze the factors which influence the selection of marketing channels done by smallholder oil palm farmers in Aceh Province.

METHOD

This research was done by using survey method, a research method that takes the data of sample to describe a certain population. The population taken in this study was all smallholder oil palm farmers in the research area. From 16 regencies in which palm oil plantations are located, four regencies with the largest oil palm plantations were selected, namely Aceh Singkil Regency, Nagan Raya Regency, North Aceh Regency, and Tamiang Regency. Then two regencies were randomly selected; from each regency, 10 farmers were selected as the sample used in this study, so that the number of total sample of 8 selected regencies in this study was 80 samples. The analysis model used in this research was multinomial logit. A multinomial logit regression is used if the dependent variable is nominal data in the form of a categorical response that is more than two categories. The parameters of the multinomial logit equations were analyzed by using a method called Maximum Likelihood. Multinomial logit regression is also called polytomy logit model, namely a generalization of the binary logistic model. In this context, multinomial means that response variable has three categories (Y_1, Y_2, Y_3), with predictors (X_i). One of those three categories can be selected as a reference category. If it is assumed that the category of the response variable Y is coded 1, 2 or 3 where $Y = 3$ is used as a reference category and by keeping in mind that the logistic regression model for the binary response variable is written in logit $Y = 1$ to $Y = 3$, then three-category response has two logit functions, i.e. $Y = 1$ to $Y = 3$ and $Y = 2$ to $Y = 3$.

Wooldridge (2001) says that in the form of selection probability, the generalization of *logit* model is as follows:

$$P(y_i = j) = \frac{\exp(x_i \beta_j)}{[1 + \sum_j \exp(x_i \beta_j)]}$$

$$P(y_i = 0) = \frac{1}{[1 + \sum_j \exp(x_i \beta_j)]}$$

Note; y_i = dependent variable

x_i = independent variable

β_j = parameter which has not been known and estimated using maximum likelihood.

The hypotheses used in this study, namely age of farmers, level of education, experience of farming, price of fresh fruit bunch, loan capital, distance between the location and the oil palm factory, and

production volume, are factors affecting smallholder oil palm farmers in Aceh Province in selecting marketing channel of fresh fruit bunch. In this analysis, y_i consists of Y_1 (sell FFB to Oil Palm Factory), Y_2 (sell FFB to large traders), and Y_3 (sell FFB to middlemen). X_i consists of X_1 (age of farmers), X_2 (education level of farmers), X_3 (experience of farming), X_4 (price of fresh fruit bunch), X_5 (loan capital), X_6 (distance between the location and the oil palm factory), and X_7 (production volume).

DISCUSSIONS

Analysis of Factors Affecting the Selection of Marketing Channel

Smallholder oil palm farmers in Aceh Province market their fresh fruit bunches through three patterns of marketing channel. Based on the results of this research, the percentage of farmers who choose the marketing chain of fresh fruit bunches of smallholder oil palm plantation in Aceh Province is as follows:

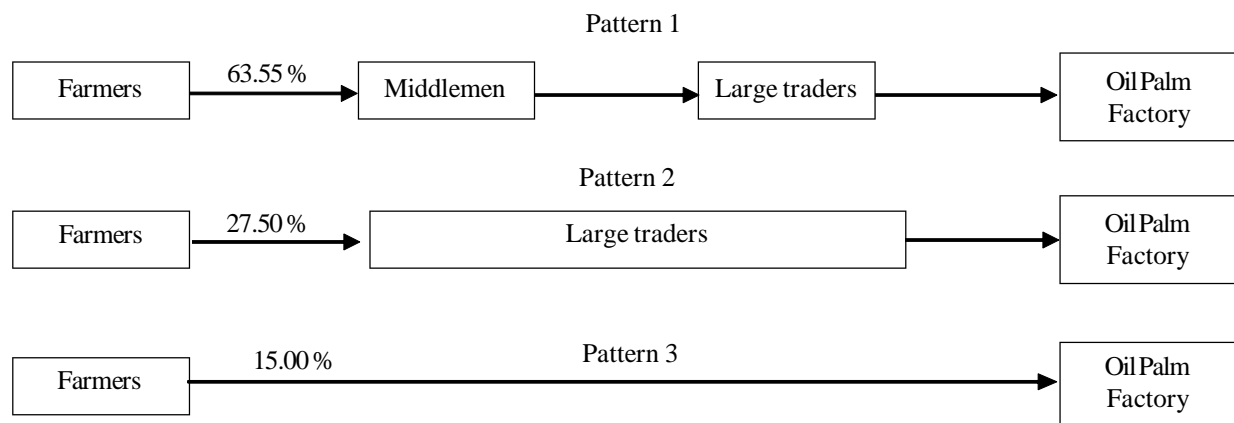


Figure 1 Fresh Fruit Bunch Marketing Channel in Smallholder Oil Palm Plantations in NAD Province

It turns out that the number of farmers who market their fresh fruit bunches to oil palm factory is far fewer than those who market their fresh fruit bunches to other traders. This is caused by several factors, among others: (1) Oil Palm Factories are only owned by big companies, both big national com-

panies and big private companies, (2) The location of Oil Palm Factory is very far from the location of smallholder plantation, (3) The number of Oil Palm Factories is very limited, (4) Those Oil Palm Factories have large capacities, so they require a large volume for one weighing; it is difficult to be fulfilled

by smallholder oil palm farmers. In deciding which channel will be selected in marketing the results of agricultural industry, farmers are influenced by several factors, both internal factors and external factors. Internal factors analyzed in this research are farmer characteristics/social factors, namely: age of farmer, level of education, and experience of farming; while the external factors analyzed in this research are related to economic factors namely:

distance between the location of plantation and Oil Palm Factory, production amount or production volume, loan capital, and price of fresh fruit bunch (FFB). The results show that the average age of farmer, level of education, an experience of farming, the distance between plantation and Oil Palm Factory, the amount of production or production volume, loan capital, and the price of FFB in various marketing channels are presented in Table 1 below.

Table 1 The Average of Age, Level of Education, Farming Experience, Distance between Plantation and Oil Palm Factory, Production Volume, Loan Capital, and the Price of FFB in Various Marketing Channels in 2015.

Type of Variable	Marketing Channel		
	Oil Palm Factory	Large Trader	Middlemen
Age of farmers (years old)	45.67	45.23	47.44
Level of Education (years)	9.75	9.16	8.57
Farming Experience (years)	5.56	5.41	3.58
The distance between plantation and oil palm factory (km)	21.08	25.06	28.72
Production Volume (ton)	38.92	20.31	15.65
Loan Capital (Rupiah)	0	647,058.80	2,921,875.00
FFB price (Rupiah)	966.67	715.00	686.00

Table 1 shows that on average farmers who choose to market their fresh fruit bunches to middlemen are a bit old, 47 years old, compared to those who market their fresh fruit bunches to Oil Palm Factory and large traders, who are still 45 years old. Overall, the average age of farmers in this study is not much different because it is still above 45 years and under 48 years. As with the age of farmer, level of education does not differ much in the different types of marketing channels chosen. On average, farmers who choose to market their fresh fruit bunches to Oil Palm Plantation were pursuing education for 9 years, while those who choose to market their fresh fruit bunches to middlemen were pursuing education for 8 years. In addition, farming experience has an effect on choosing marketing channel; on the average, the farmers who choose to market their fresh fruit bunches through middlemen have farming experience of 3.58 years, while farmers who choose to market their fresh fruit bunches to Oil Palm Plantation and big traders have farming experience of 5.0 years.

Based on Table 1, it can also be explained that high fresh fruit bunch price received by farmers who sell their high fresh fruit bunch to Oil Palm Factory is due to 1) low transportation costs as the location of the oil palm plantation is closer to the Oil Palm Factory than other marketing channels, 2) larger production volumes and unrestricted to loan capital from another party. Meanwhile, the greater distance between the location of palm oil plantation and Oil Palm Factory leads farmers to sell their high fresh fruit bunches to middlemen because middlemen pick up fresh fruit bunches in the location of palm oil plantation. In addition to the distance between the location of palm oil plantation and Oil Palm Factory, the average loan capital provided by the middlemen is greater than that given by the large traders. Based on that, then rationally the price of fresh fruit bunches received by farmers who choose middlemen is lower than those that received by farmers who choose other marketing channels. The price of fresh fruit bunches paid by large traders is higher compared to that paid by the middlemen because large traders

do not pick up the fresh fruit bunches in the location of oil palm plantation.

In order for the quality of Crude Palm Oil (CPO) to be maintained, fresh fruit bunches should be processed immediately after harvesting; the distance between the location of oil palm plantation and the processing place, in this case, is Oil Palm Plantation, becomes one of the important factors that should be concerned. The farther the location of Oil Palm Plantation with production centers, the greater the funds to be spent on the transportation costs. It leads some farmers in the research area not to directly sell fresh fruit bunches to Oil Palm Plantation; they rather choose other marketing channels that are easily accessible. The results show that the average distance between production centers and Oil Palm Plantation is 26.25 km; 65 km at most and 1 km at least.

Another factor that influences the selection of marketing channels is the amount of production or production volume per unit area, either calculated per year or per harvest. The average productivity of fresh fruit bunches of smallholder oil palm industry in Aceh Province based on the results of this research was 8.70 t/ha/year or 0.36t of fresh fruit bunches per harvest. This productivity is very low compared to the capacity of seedlings used by respondents, namely variety DxP. Generally, FFB production per harvest is fluctuating. This is influenced by climate factors, such as rainfall and intensity of sunlight. Low productivity is consistent with low production volumes per harvest. This condition leads many farmers in the study sites not to market their fresh fruit bunches to Oil Palm Plantation because it does not meet the minimum requirement, approximately 1.5 tons of fresh fruit bunches. The low production volume per harvest led farmers to choose other marketing channels, both large traders and middlemen. Another obstacle faced by small farmers is low business capital. Capital is one of the factors that are needed in running a farming activity, including oil palm farming. In oil palm farming, especially, the biggest cost required is for fertilization. The limited capital owned by oil palm farmers in the research area has caused the farmers to be less intensive in the maintenance of the plants. This con-

dition is used by middlemen and big traders to offer loan capital to the farmers, but the farmers are obliged to sell their harvest to the lender. This kind of practice actually has existed in Indonesia, which is called *ijon* system. If there were any other alternatives, the farmers would not do this kind of thing because it would ultimately disadvantage the farmers themselves; the farmers have to sell their fresh fruit bunches to the lender even though the price is slightly below the price offered by the other party. The results of this study show that the number of oil palm farmers who borrowed capital from other parties was 21 respondents or 26.25 percent of the number of respondents. The lowest loan amounted to 2 million rupiahs and the highest loan amounted to 15 million rupiahs with an average loan as this research was conducted was 6,023,809.52 rupiahs.

Fresh fruit bunch price is also one of the obstacles for farmers in deciding to choose marketing channels. Price is a benchmark for assessing the quality of a product offered, as well as fresh fruit bunch produced by farmers. The average price of fresh fruit bunch received by the respondents in 2015 varied widely, with the lowest price of 500 rupiahs/kg, the highest price of 1,100 rupiahs/kg and an average price of 733.68 rupiahs/kg. The amount of fresh fruit bunch price, in addition to being influenced by the export tax, is also affected by the amount of Crude Palm Oil (CPO) price in the international market. The higher the CPO price in the international market, the higher fresh fruit bunch price purchased from the farmers; conversely, the lower the price of CPO in the international market, the lower the price of fresh fruit bunch at the farmer level. Non-durable fresh fruit bunch is also one of the reasons for low fresh fruit bunch prices because farmers have to sell it at any price so as not to degrade its quality. Meanwhile, fresh fruit bunch price of farmers purchased by Oil Palm Factory is determined by the Price Team appointed by the Governor calculated by the formula which has been determined. However, according to Erningpraja et al (2005), fresh fruit bunch price in the free/actual market does not follow the formula above; the price formed is influenced by the team price and also the balance of supply and demand for fresh fruit bunch.

In other words, the current fresh fruit bunch pricing mechanism by both core oil palm factory and oil palm factory which has no plantation is “buying” fresh fruit bunch, not processing. In addition, there is also frequent price competition among Oil Palm Factories, especially when there is a shortage of raw material supply that usually occurs in a particular season, in which farmers cannot produce lots of fresh fruit bunches. This condition is often encountered in oil palm production centers which are not located around Oil Palm Factory which has no plantation. If this happens rationally farmers choose to sell their fresh fruit bunches to the party offering higher prices. However, for smallholders, it cannot be done simply because they are bound to the co-operation agreement with the core Oil Palm Factory, while smallholder farmers are constrained by various factors. In addition to the characteristics of farmers/social factors, other factors such as production volumes that do not meet minimum requirements, loan capital from other parties, and the great distance between the location of the plantation and

the nearest Oil Palm Factory, become constraints for farmers in marketing fresh fruit bunches.

Analysis of Factors Affecting Marketing Channel Selection

In determining the probability that one of the categories of marketing channels is chosen, one of the categories of marketing channels should be the control. The type of marketing channel that becomes the control in this analysis is middlemen because they are considered less profitable to farmers than big traders and Oil Palm Factory, especially in terms of the selling price of fresh fruit bunches from farmers. To know the influence of farmer's age, level of education, experience of farming, distance between the plantation and Oil Palm Factory, production volume, loan capital, and fresh fruit bunch price in determining the probability that one category of dependent variable compared to category of dependent variable being control, you can see the Table below.

Table 2 Estimation Results of Marketing Channel Selection in Smallholder Oil Palm Plantation in 2016

Market	Variable	Coefficient	Sig.
Oil Palm Factory	Intercept	-966.913	-
	Age	2.031	.999
	Education	6.571	.999
	Experience	.824	1.000
	Distance	1.035	1.000
	Production Volume	2.535	1.000
	Loan Capital	.002	1.000
	FFB price	.804	.996
Big Traders	Intercept	-1.847	.550
	Age	-.061*	.097
	Education	-.009	.909
	Experience	.044	.456
	Distance	-.006	.654
	Production Volume	.104***	.004
	Loan Capital	-.001***	.001
	FFB price	.006*	.099

The reference category is middlemen.

Note: * = significant at $\alpha = 0.1$

*** = significant at $\alpha = 0.01$

The estimation by using *multinomial logit* model shows that all independent variables analyzed did not give significant effect on the selection of Palm Oil Factory. However, from 7 (seven) independent variables included in the model, there were four variables that significantly affected the selection of big traders. These variables were farmer's age, production volume, loan capital, and FFB prices. Variables that positively influenced the farmers in selecting marketing channel were the production volume and the FFB price. Variables that negatively affected the farmers in selecting marketing channel were farmer's age and loan capital. The results of the analysis show that the estimated coefficient value (α) of variable production volume was positive and significant at 99% confidence level ($\alpha = 0.01$). This indicates that the higher the volume of production, the greater the probability that producers move from middlemen to the big traders. From the analysis results, it can be concluded that smallholder oil palm farmers in Aceh Province still have the opportunity to choose a more profitable marketing channel by increasing the production volume of FFB.

This finding is consistent with the empirical data obtained in the field that farmers cannot sell their FFB to Oil Palm Plantation if the production volume per harvest is below 1.5 tons. In line with the low production volume per harvest obtained from an oil palm farming activity, the productivity per year is also low. In this regard, high level of productivity is affecting farmers in choosing the marketing channel. In other words, low productivity also hindered the development of oil palm agro industry. This is in line with the results of a research conducted by Wahid et al (2007) that continuous research and development of oil palm is of paramount importance, especially in terms of technological development in order to increase productivity as it is a very important way to accelerate the development of oil palm industry in the future. In addition to production volume, the analysis results also provided the estimated coefficient value (α) of fresh fruit bunch price that is positive but significant at 90% confidence level ($\alpha = 0.10$). This indicates that the higher the price of FFB, the higher the opportunity of farmers to

move to big traders. Based on the empirical data, if a farmer sells their FFB to the big traders, the transportation cost is borne by the farmer because the big trader buys FFB at a permanent location or does not move so many farmers do not have enough capital to bear the transportation cost. Meanwhile, middlemen pick up fresh fruit bunches in the harvest location; although the FFB price is lower, farmers do not bear the cost of transportation. Thus, if there is an increase in FFB price, then farmer has the opportunity to market FFB to the big traders, in the hope that the difference in revenue caused by the price increase can be used to pay for the transportation cost.

Generally, big traders have larger business capital than middlemen, so big traders can buy more FFB volume. Big traders not only buy FFB from farmers but also from middlemen, who mostly sell FFB that has been purchased from farmers. Thus, big traders are well adapted to the prevailing price changes, different with middlemen. The estimation results show that the coefficient of farmer's age was negative and significant at 90% ($\alpha = 0.10$). This means that the age of farmers had a negative influence on the selection of marketing channels; in other words, the younger the farmers, the greater the probability for farmers to choose big traders. It implies that training should be directed to older farmers, so they can think more rationally to choose a more profitable marketing channel in marketing their fresh fruit bunches. This is in line with the empirical data that farmers who choose to market their fresh fruit bunches to middlemen are older than those who market their fresh fruit bunches to middlemen.

Generally, older farmers are more concerned with tradition than rational or economic thinking. In addition, they also have a lower ability, both physical ability and ability to take decisions on farming activities. The results of the analysis show that beside the age of farmers, loan capital also negatively affected the selection of marketing channel. This means that the smaller the loan capital of the farmers, the bigger the probability for farmers to choose bigger traders. This indicates that the lower the business capital owned by oil palm farmers, the higher the dependence of farmers on the middlemen. In

other words, farmers have no freedom to choose a marketing channel that rationally benefits them. The finding implies that smallholder oil palm farmers in the study area still have the opportunity to choose more profitable marketing channel by reducing loans to the middlemen. But the reality in the field shows that it seems to be difficult because most farmers do not have income from other sources, so all the needs are met depending on the results of oil palm farming. On the one hand, farmers want to do something that can increase the productivity of farming by putting aside some of the production results for business capital; on the other hand, farmers are pushed by the need for consumption and other daily needs that cannot be avoided. This is what Scott (1977) called central economic dilemma faced by most farmers' households. Low capital owned by small farmers in a village is actually a classic problem. Although quite a lot of government programs aimed at helping smallholder farmers have high capital, until now it still remains the biggest obstacle for some farmers in order to improve the productivity of farming. The same thing is felt by smallholders in Aceh Province. Based on empirical data found in the field, some farmers did not provide enough fertilizer for oil palm plants because they did not have much capital; even some farmers did not provide fertilizer at all. Generally, farmers are waiting for assistance in the form of fertilizer given by the government, especially local government; in fact, the assistance is not given every year. In fact, fertilizer is only one component affecting the success of the production; there are still many things that can be done in an attempt to increase the productivity such as cleaning the plate (circle around oil palm which is used to avoid the oil palm from any pest) and pruning (Pahan, 2006). Both components of technology basically have a very large effect on the increase of productivity of FFB, but some farmers did not do it even though it does not cost and only done 2 (two) times in a year. Farmers prefer to take their time to things that are not profitable than taking care of their crops. There are indications as if the low productivity of FFB is caused by the absence of government assistance, whereas farmers themselves lack the initiative to try to increase FFB productivity.

The education level and experience of farmers are two of the three variables of farmer characteristics analyzed in this study. The results of the analysis indicated that the education level and experience of farmers did not give significant results. The insignificance of education level in this study was likely because the type of education analyzed in this study was only formal education, while issues from the development to marketing decisions of certain commodities including oil palm are very complex. In this case, non-formal education in the form of special training is also required. This finding is in line with the results of a study which was conducted by Sumaryanto (2004) on the opportunity for farmers to diversify from monocultural farming into multicultural farming. Level of education included in the *multinomial logit* analysis model also did not yield significant results.

As with the level of education, the experience of farmers also yielded insignificant results. The longer the farmers have been oil palm farmers, the more they understand the ins and outs of these farming activities, starting from seeding to marketing. With an average of 5.2 years experience in farming, it is not enough for oil palm farmers in the research area to understand more about the obstacles or challenges in this agricultural industry. Meanwhile, the distance between the location of oil palm plantation and oil palm factory also gave insignificant results. The insignificance of the distance between the location of oil palm plantation and oil palm factory is because if the farmer chooses to sell FFB to middlemen, then FFB will be picked up at harvest location. In addition, the purchase price remains the same at the same time either in an easily accessible location or a difficult location to reach.

CONCLUSIONS AND SUGGESTIONS

Conclusions

The age of farmer, production volume, loan capital, and fresh fruit bunch price were factors affecting smallholder oil palm farmers in Aceh Province in choosing big trader as a marketing channel; previously, the farmers marketed FFB to middlemen. The analysis results show that those four types of variable gave significant results only on the op-

portunity to choose big traders as a marketing channel. Meanwhile, all variables analyzed did not give significant influence on the selection of Palm Oil Factory as a marketing channel. Thus, it can be concluded that currently the oil palm farmers analyzed in the research area have not been able or not yet eligible to choose to market FFB to big traders.

Suggestions

Price is one of the factors that significantly influence the analysis of marketing channel selection, while the current price of FFB in the research location is according to the market mechanism. Related to this matter, to help farmers about the certainty of FFB price, FFB pricing based on Decree of the Minister of Forestry and Estate Crops No. 627/Kpts-II/1998 needs to be done continuously. This needs to be done so that there is a standard price that can be a guideline for parties involved in the process of marketing FFB; the farmers will not be disadvantaged.

Oil palm plantation expansion has not been followed by the development of Oil Palm Factory, especially in the production centers. Therefore, more farmers choose to sell FFB to intermediary traders rather than to sell it directly to Oil Palm Factory. In this regard, local government should pay more attention to the shortcomings of Oil Palm Factory, so that in next few years, some investors may be invited to build mini factories (mini Oil Palm Factory), especially in oil palm production centers, particularly around the smallholder oil palm plantations of non-plasma farmers.

REFERENCES

- Scott, James C. 1977. *The Moral Economy of Peasant: Rebellion and Subsistence in South East Asia*. USA: Yale University Press.
- Erningpraja, L. and Kurniawan, A. 2005. *Prospek Usaha Dan Titik Jenuh Pengembangan Areal Perkebunan Kelapa Sawit Indonesia*. Warta. Pusat Penelitian Kelapa Sawit 13 (2): 21 – 30.
- Kotler, Philips. 2005. *Manajemen Pemasaran*. Terjemahan Benyamin Molan. Jakarta: PT Indeks.
- Nitisemito, Alex S. 1981. *Marketing*. Jakarta: Penerbit Ghalia Indonesia.
- Pahan, I. 2006. *Panduan Lengkap Kelapa Sawit. Manajemen Agribisnis dari Hulu Hingga Hilir*. Jakarta: PT. Penebar Swadaya.
- Saefuddin, A. M. 1982. *Pengkajian Pemasaran Komoditi*. Diklat Pascasarjana. Institut Pertanian Bogor.
- Soekartawi, 1999. *Agribisnis. Teori dan Aplikasi*. Jakarta: PT. Raja Grafindo Perkasa.
- Sumaryanto, 2004. *Faktor-faktor yang Mempengaruhi Keputusan Petani Menerapkan Pola Tanam Diversifikasi (Kasus di Wilayah Persawahan Irigasi Teknis DAS Brantas)*. Pusat Analisis Sosial Ekonomi dan Kebijakan Pertanian. Bogor. <http://pse.litbang.deptan.go.id/ind/pdf/mono27-2.pdf>.
- Wahid, B. M., Lim, W. S., and Mohd Arif. S 2007. *Technological Development and New Growth Areas of the Oil Palm Industry*. Oil Palm Industry Economic Journal 7(1): 1-8.
- Wooldridge, J. M. 2001. *Econometric Analysis of Cross Section and Panel Data*. England, Massachusetts London: The MIT Press Cambridge.