

## Research project of counterparts funded at UNJA

Name	Counterpart	Title
Edison, Ira Wahyuni	C08	The Effect of Land Typologies on Smallholders' Palm Oil Palm Profit in Jambi Province

## Research summary

The development of the agricultural sector is important to encourage the acceleration of regional development for Jambi Province. This can be seen from the large contribution of this sector to the GRDP and labor absorption to regional economy. Agricultural sector has contributed approximately 27.5 percent of Jambi Province's GRDP and has also absorbed a relatively large number of laborers, 46.88 percent of the existing labor force (Anonymous, 2018). The oil palm commodity in Jambi Province is a reliable commodity that provides a better and safer income for farmers compared to other agricultural commodities such as rubber, coconut, coffee and rice crops. Therefore, every year, oil palm plantation gives better lives for Jambi oil palm farmers. In addition to land typologies, there has also been a picture of smallholders' oil palm behavior to organize and be involved in their own income and profit. Jambi Province has three type of land typologies such as the highland of Kerinci District, midland of Muaro Jambi District and lowland of Tanjab Timur. Meanwhile, oil palm plantations grow mostly in the midland and lowland. The farming system based on land typologies will also affect smallholders' oil palm scales because of the different land typology (Edison 2018).



**Figure 1.** Smallholder oil palm farmers bring their produce to a collection point in Muaro Jambi District



**Figure 2.** Place for collecting smallholder oil palm products in Sungai Bahar, Muaro Jambi Regency

Farmers' income is influenced by farming production from different land typologies (Daniels 2012), in this case lowland and middleland oil palm plantations. Besides being influenced by the amount of production, farmers' income is also influenced by the selling price of the production, the amount of labour used and the capital allocated by farmers in the farm (Soekartawi, 2006). Farmers' desire to increase income and ensure routine income every month (Asni 2015) causes their income to be affected by the types of land typology.

This study aims to analyze the effect of land typology types on the smallholders' oil palm plantation profits in Jambi Province. It also analyses the comparison between smallholders' oil palm profit in two types of land typologies in Jambi Province. From the information above, a few phenomena can be inquired as follows: (a) Is the area of land, labor and capital significantly affecting the profit of lowland and midland oil palm plantations in Jambi Province? (b) Is the amount of production, the selling price, the number of labor and capital significantly affecting the profit of smallholders' palm oil plantations in Jambi Province? (c) Does the lowland oil palm profit differ significantly from the midland oil palm profit in Jambi Province?

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Figure 4. Smallholder oil palm plantation in Muaro Jambi Regency

**Figure 3.** Interviewing smallholder oil palm farmer in Muaro Jambi regency

Our study therefore had three purposes: (1) to evaluate land area, labor, cost, and income in midland and lowland oil palm plantations, (2) to analyze the effect of land typology on smallholders' palm oil income and profit in Jambi Province., (3) to analyze the comparison between lowland and midland income and profit on smallholders' oil palm plantations in Jambi Province.

The research area was Muaro Jambi District for midland oil palm and Tanjab Timur District for lowland oil palm. These areas were chosen on purpose due to its status as the most important palm oil production areas in Jambi Province.



Figure 5. Smallholder oil palm plantation in Muaro Jambi Regency



Figure 6. Smallholder oil palm plantation in East Tanjung Jabung Regency

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**DFG** Deutsche Forschungsgemeinschaft Research samples were identified by Cluster Sampling methods. There were a total of 120 samples (60 samples for midland oil palm farmers, and 60 samples for lowland oil palm farmers). This research took place in 2019.

The empirical approach to investigate the three main objectives is stated in the introduction. First is the examination of the household agricultural income and profit of oil palm farmers. Second is addressing the effect of different land typologies on household income and profit in Jambi. Finally, a discussion is made comparing the results to a key problem and estimating the effect of different land typologies on household agricultural income and profit of oil palm farmers.

Quantitative data collected from the survey was processed and calculated using a standard mathematical formula for measuring cost, revenue, and profit as follows. Profit =  $TR - TC = (P \times Q) - (TFC+TVC)$  where : TR = Total revenue of oil palm plantation (IDR/ha/year); TC = Total production cost (IDR/ha/year); P= FFB price (IDR/kg); Q = FFB production (kg/ha/year); TFC = Total fixed cost (IDR/ha/year); and TVC = Total variable cost (IDR/ha/year). To see whether there is a difference in income between farmers with midland and lowland patterns, the analysis used is the average difference t-test:

$X_{1} - X_{2}$	where: $X_1 =$ the average income of middle land samples;	
t =	$X_2 =$ the average income of low land samples;	
$\ddot{O} \ \underline{S}_{\underline{1}}^2 - \underline{S}_{\underline{2}}^2$	$S_1^2$ = variance of middle land samples; $S_2^2$ = variance of low land samples;	
n <sub>1</sub> n <sub>2</sub>	$n_{1.} =$ number of middle land samples; and $n_2 =$ number of low land samples	

The average level of income from oil palm farming in midland oil palm is IDR 51,207,577/year or IDR 4,267,298/ month, while in lowland oil palm farming it is IDR 32,636,357/year or IDR 2,719,696/month. Overall, the labor variable, the number of trees, fertilizers and herbicides have a positive influence on palm oil production both in midland and lowland oil palm farming.

Partially, only the labor variable, number of trees, and fertilizer influence the increase of palm oil production in the midland pattern. Furthermore, for farmers with a lowland pattern, the variables that influence the increase in production are also the labor, number of trees and fertilizer variables. In terms of income, there are significant differences between the income of oil palm farmers with midland patterns and oil palm farmers in lowland patterns.



Figure 7. Interviewing smallholder oil palm farmer in East Tanjung Jabung Regency

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