

LAND OWNING PATTERNS ON RICE FARMING: Increasing Production and Efficiency

UNTARI^{1*}, and MARIA VERONOCA IRENE HERDJIONO²

¹Department of Agribusiness, Faculty of Agriculture, Universitas Musamus. Merauke, Indonesia

²Department of Accounting, Faculty of Economic and Business, Universitas Musamus. Merauke, Indonesia

*E-mail : untari@unmus.ac.id

ABSTRACT

Merauke has a large potential for agricultural land with a type of agriculture that can be developed, namely a wetland farming system that is very suitable for paddy production. The objectives of this study are: a) to know the patterns of paddy farming, b) analyze the level of production from land tenure patterns, and c) analyze the level of economic efficiency of paddy farming in the pattern of paddy farmland ownership in Marga Mulya village, Semangga District, Merauke Regency. The study used 60 respondents as a source of data and information on primary research data. Data analysis method used to answer the research objectives is farming analysis and R/C ratio. The results of the study concluded that there are two patterns of rice farming land ownership, namely the pattern of ownership of private land and leased land. The two patterns of land ownership show that the pattern of ownership of private land has a higher production compared to the pattern of ownership of rent versus 2,785.71 kg/ha/season and 2,313 kg/ha/season with an efficiency level of 2.57% and 2.51%.

Keyword : farming, agricultural, profit, ownership land.

ABSTRAK

Merauke memiliki potensi besar untuk lahan pertanian dengan jenis pertanian yang dapat dikembangkan, yaitu sistem pertanian lahan basah yang sangat cocok untuk produksi padi. Tujuan penelitian ini adalah: a) untuk mengetahui pola usahatani padi, b) menganalisis tingkat produksi dari pola sewa lahan, dan c) menganalisis tingkat efisiensi ekonomi usahatani padi dalam pola kepemilikan lahan di Marga Desa Mulya, Kecamatan Semangga, Kabupaten Merauke. Penelitian ini menggunakan 60 responden sebagai sumber data penelitian primer. Metode analisis data yang digunakan untuk menjawab tujuan penelitian adalah analisis usahatani dan R / C rasio. Hasil penelitian menyimpulkan bahwa ada dua pola kepemilikan tanah pertanian padi, yaitu pola kepemilikan tanah pribadi dan tanah sewaan. Dua pola kepemilikan tanah menunjukkan bahwa pola kepemilikan tanah pribadi memiliki produksi lebih tinggi dibandingkan dengan pola kepemilikan sewa dibandingkan dengan 2.785,71 kg / ha / musim dan 2.313 kg / ha / musim dengan tingkat efisiensi 2,57% dan 2,51 %.

Keyword : Pertanian, agriculture, keuntungan, kepemilikan lahan.

INTRODUCTION

Land is one of the factors of farming production that plays an important role in the amount of production and productivity of farming. Indonesia as an agricultural country and the majority of its population mostly have jobs as farmers, so the land becomes the main capital for farmers to be able to turn on the family economy and become land as capital to be

able to improve family welfare. Based on ownership patterns, farming land is divided into three types, namely own land, rented land, and profit-sharing land (Hayami & Otsuka, 1993).

In their study showed that the pattern of farming land ownership had an effect on the level of production, labor allocation and efficiency of paddy farming in Jatimulyo Village, Jenggawah Subdistrict,

Jember Regency, East Java (Hariyanto, 2014). The results of this study indicate that land ownership of production leases is higher compared to farmers who own their own land and profit sharing system. Based on the allocation of labor, farmers who own ownership of land use more labor than the rent and profit sharing system. Own land in paddy farming activities has high efficiency followed by profit sharing systems and lease systems. Furthermore, in this study shows that self-owned land has a low productivity but has a higher advantage compared to a system of land ownership with a lease system. Whereas As'ad and (Ainani, 2018) in his study on the influence of land tenure systems on the level of production and income of farmers in the fields that farmers who own private land, production factors that have a significant effect on production are land, seeds and pesticides. Whereas farmers who own land with a leased system, production factors that influence production, namely land area, labor and fertilizer. For land-use farmers, namely the area of land and seeds.

An analysis of farming business in irrigated paddy fields in Meureudu Sub-District, Pidie Jaya Regency, the study showed that farmers who own their own land have higher income and are more profitable than the status of leased land and pledged land (Amir F, Awaluddin H, 2019). Where as Manatar, et.al., 2017., that the level of income of farmers with ownership status of leased land is higher than the status of own land ownership with share croppers with different income levels (Laoh, H., & Juliana R. Mandei, 2017).

The opinions and facts of the study above are interesting to study in Merauke Regency which has been designated as a food production center by Indonesian President Joko Widodo. Merauke is designated as a National Food Barn not without reason. Merauke has a very wide and good potential for food production, especially for agricultural commodities, namely paddy. The theme of the study was

conducted based on the results of previous studies "*The Pattern of Land Ownership of Production and Economic Efficiency of Paddy Farming in Marga Mulya Village, Semangga District, Merauke Regency*".

The land area of Merauke Regency is based on Merauke BPS in 2017 figures that is 4.6 million ha. Based on the function of land use, one of them is used for agricultural land. The agricultural sector is one of the important sectors that support development in Merauke because Merauke has a wide potential availability. Two agricultural commodities that use quite large land, namely paddy farming and oil palm plantations are managed by the private sector. To increase paddy production and expand plantation land leased by the private sector has the consequence of clearing forests into paddy fields and oil palm plantations.

The impact of large land clearing is extreme climate change in Merauke which is characterized by increased carbon emissions and will affect. the results of a study conducted by Untari et al., (2018) that The result of this research concludes that carbon density map in Merauke Regency has decreased from observation in 1990 – 2014. Mean while, Merauke emission level per unit area on 4 observation periods are, 0.42 ton CO₂ eq/ha.year in 1990 – 2000 with plan unit of settlement, urban area, and mangrove forest that dominate the carbon emission contribution; 1,34 ton CO₂ eq/ha.year in 2000 – 2005 with plan unit of urban area, beach border, and terrestrial fisheries which dominate carbon emission contribution; 9.35 ton CO₂ eq/ha.year in 2005 – 2010 with sand digging, PLB, and HPK dominate carbon emission contribution, and 13.93 ton CO₂ eq/ha.year in 2010 – 2014 with contribution of carbon emission dominated by plan unit of animal farm, plantation, and land national park (TN darat in Indonesian (Rahail et al., 2019; Untari, Melmambessy, & Simatupang, 2018; Untari, Yus, & Jefri, 2018).

The study reveals that warming conditions will lead to reduction in crop duration and increase in respiratory losses, thus decreasing net photosynthesis and ultimately crop productivity (Kingra, Kaur, & Kaur, 2019). Although increase in CO₂ levels lead to positive growth response, but this effect is nullified due to increase in temperature. However, increase in CO₂ concentration can counterbalance the effect of increase in temperature by 1-2°C and further warming will have negative impact of rice productivity even under elevated CO₂ levels. Hence, to overcome the adverse effects of climate change on rice productivity, integration of agronomic and breeding approaches can play a significant role. Impact of climate change can be reduced by the adoption of diversified integrated rice based farming system, adoption of water saving technologies such as direct sowing of paddy, irrigation management, rainwater harvesting etc. In addition to this, methane emission can be reduced by tillage practices, soil type, rice cultivar and water management. Along with various agronomic interventions, breeding approaches to locate/identify the genes responsible for high temperature stress tolerance will act as boon for harnessing higher rice productivity in the upcoming warmer climatic conditions.

The area of paddy farming in Merauke Regency in 2016 reached 32,516.88 ha, planted area of 39,123.63 ha with production of 153,661.09 tons and productivity of 4.73 tons/ha. Data from Merauke BPS in Figures, 2017, that paddy production in the Semangga district reaches 38,332.8 tons with paddy field area 5,151 ha or 24.95% of the total production of 20 Districts in Merauke District or Semangga District being one of the centers of paddy production stipulated by the Agriculture Service based on production data from year to year. Based on this, the research was carried out in the Semangga District by taking a sample

location in Marga Mulya village (BPS Merauke, 2017). Therefore, The objectives of this study are: a) to know the patterns of paddy farming, b) analyze the level of production from land tenure patterns, and c) analyze the level of economic efficiency of paddy farming in the pattern of paddy farmland ownership in Marga Mulya village, Semangga District, Merauke Regency.

METHOD

The research was conducted in Marga Mulya Village, Semangga District, Merauke Regency, Papua. Marga Mulya is one of the transmigration villages and is dominated by non-local residents, namely the Javanese who have the majority of their livelihoods as farmers, especially paddy farmers. Based on the pattern of land ownership, paddy farmers in the village of Marga Mulya are divided into two, namely farmers and tenant farmers. The research sample was taken using the random sampling method. The number of samples in this study were 60 paddy farmers.

Data collection research was conducted using a structured questionnaire using the interview method. Data collected in interviews are general descriptions of rice farming, as well as costs incurred by farmers in rice cultivation in each farmer on the ownership status of private land and rent. While the farming efficiency of each land ownership pattern was analyzed using the RC ratio method (Soekartawi, 1995). There are two R/C ratio values that will be calculated, namely RC ratio by calculating implicit costs and without taking into account the implicit costs of labor in the family (Soekartawi, 1995).

RESULT AND DISCUSSION

Pattern of Paddy Farming Land Ownership Status

The development of the agricultural sector in Merauke Regency can be said to be good. This can be seen

in the field from the commitment of the regional and central government to develop agricultural infrastructure such as farms, farms, irrigation and reservoirs. Farming facilities are very much needed to support the success of agricultural production in this case is rice production. The potential of agricultural land that can be cultivated for rice farming is the reason for funding the construction of production facilities taken from various funding sources. The ownership of land in Merauke by farmers in the field is very high, meaning that the ownership status of agricultural land for paddy plants is mostly owned by themselves. The results showed that 93.3% of paddy farmers in Marga Mulya village owned tenure systems owned privately and 6.7% of farmers as sharecroppers or rented only. The results of this study are different from the research conducted by Manatar, 2017 that the status of rice farming land ownership in Tumpatan Village, Beringin Subdistrict, Deli Serdang Regency is that most farmers do not own land but farmers as tenants and land-use farmers for rice farming (Laoh et al., 2017).

Some of the land ownership in Marga Mulya village is self-owned, this is because some residents are transmigration communities who have received certified land during the transmigration from Java to Merauke, which is 1 ha one head of the family. The Marga Mulya village was first opened in 1984 as a transmigration village which most of the transmigration communities have livelihoods are farmers. Approximately 35 years of community domicile in the village and there has not been much land conversion in the village that the tendency of extensive agricultural land to increase is in line with government programs to increase the amount of rice production in Merauke by taking one strategy is to increase the area of rice fields by clearing land new.

The transfer of functions of agricultural land in Merauke in general has been regulated in the Regional Regulation which prohibits the conversion of productive agricultural land into other functions such as settlement.

Farmers in Marga Mulya Village, Semangga District, Merauke Regency 6.7% are farmers as tenants. Rice fields leased by middlemen are land owned by residents in Marga Mulya village but also not worked on their own. Some residents of the village of Marga Mulya have land that is wide and wide, and they cannot already be cultivated so that the land that is not cultivated will be rented out to other farmers in the village. Farmers who rent land are farmers as residents in the village of Marga Mulya but as new residents as displaced people from other villages in Merauke who do not have private land.

Field data shows that the land lease price of land for one hectare is between Rp. 2,500,000 to Rp. 3,000,000. The amount of land lease costs is much higher than that of farmers as landowners who only pay annual fees to pay land taxes which are around Rp. 50,000/ha. However, the results of this study are in line with the research conducted by (Kusnadi, Tinaprilla, Susilowati, & Purwoto, 2011).

Pattern of Land Ownership on Rice Production

The effect of patterns of agricultural land ownership on rice production in the village of Marga Mulya, Semangga District, Merauke Regency, that for farmers owning private land the production is higher compared to land tenant farmers. The amount of rice production on own land is 2,785 kg/ha or 2.7 tons/ha while the amount of rice production on leased land is 2,313 kg/ha or 2.3 tons/ha. The results of this study are not in line with the results of a study conducted by (Rondhi & Adi, 2018), that rented land has better production compared to its own pattern.

However, this research is in line with the research conducted by (Kusnadi et al., 2011), that research carried out in five sample provinces namely North Sumatra, West Java, Central Java, East Java, and South Sulawesi that the factors of production the real effect on production recall is such as land production factors, seeds, N fertilizer, P fertilizer, and labor.

The difference in rice production in the two patterns of land ownership in Marga Mulya Village, Semangga District, Merauke Regency is influenced by the use of production factors for the same land area unit. For farmers as land owners, the higher production costs are used for purchasing production factors. The production factors used are the purchase of fertilizers, seeds, labor, pesticides and the costs incurred for leasing processing equipment for agricultural land and paying annual land taxes. The total cost spent for rice production is Rp. 8,272,857/ha while for land lease the total production cost is Rp. 6,989,000/ha. On leased land has a land rent value of Rp. 2,500,000 up to Rp. 3,000,000 / year while the costs that are shared by farmers owning land are only for land lease per year which is Rp. 50,000 / year. Based on the costs incurred by the tenant farmers, the land used for purchasing production factors which greatly influences the quantity of rice production is lower so it is assumed that the level of production in the land leased by farmers is of lower quality and quantity. The supply of production factors by farmers must be supported by the family's economic independence so that the farming capital is fulfilled.

Efficient Farming Business in Each Land Ownership Pattern

Private land ownership patterns that choose to cultivate their own land have an income of Rp. 12,987,857 / ha / season, while for farmers who choose to land lease for rice production has an income of Rp. 10,536,000/ha/season. The rice production system of farmers in

Marga Mulya Village for farmers who cultivate private land has higher production costs but the farmer's opinion is still greater compared to farmers with a land leasing system. The high cost of production is positively correlated with rice production per unit area cultivated by farmers. Rice production on farmers with private land ownership patterns is 2,785.71 kg of rice while on land lease the production is 2,313 kg of rice / ha. The amount of production costs in the private land ownership system is Rp. 8,272,857 / ha and Rp. 6,989,000 / ha on leased land.

Production costs in the private land system are mostly used to procure equipment for production of equipment. Marga Mulya Village, which is dominated by Javanese as farmers, can be said to be economically capable of providing adequate equipment to support increased production and improvement in selling value. In addition, the cost of purchasing pesticides and labor costs is higher. This is done by farmers because they want to reduce the risk of crop failure which can be caused by pest and plant disease attacks. The use of pesticides and fertilizers must use the principle of use, which is the right dose and appropriate, to realize this, the paddy farmers use outside labor starting from the stage of land processing to more harvesting than the use of labor in the family.

While the production costs of rice farming in the land tenure system are mostly used to lease land, where to rent land per hectare ranges from Rp. 2,500,000 to Rp. 3,000,000 / year, different from farmers who cultivate their own land, ie farmers only pay annual taxes of Rp.50,000/year/ha. The cost of purchasing production factors is higher fertilizer, which is Rp. 662,500 / ha, compared to private land of Rp. 558,446 / ha. This is because the need for leased fertilizer tends to require more use of fertilizer compared to land managed privately by farmers own land owners. Fertilizer needs of a land are strongly

influenced by the level of nutrient requirements in the soil. Some reasons why farmers in Marga Mulya village lease out their rice fields to other farmers are because the area of private land that must be cultivated is not balanced with the availability of labor, so farmers make the decision to lease land that cannot be cultivated given to other farmers for lease, p. with the aim that the land remains productive and not only overgrown with shrubs and still bring income from leasing the land. Land that is leased may not be in the condition of having good soil fertility, this is thought to cause the cost of purchasing fertilizer by higher tenant farmers compared to the cost of purchasing fertilizer from farmers who own their land. Decisions of farmers who

cultivate private land to improve quality by using timely and appropriate production factors such as fertilizers, pesticides and labor have an impact on increasing rice production. This result is in line with the research conducted by (Triyanto, 2006), that the analyzed production factors had a positive influence on rice production in Central Java. Production factors analyzed were land area, labor, seeds and water pumps. The results of this study are not in line with the results of research carried out in the Philippines, where the pattern of land ownership affects the technical efficiency of farming and land managed by land tenant farmers has the highest productivity compared to their own land and profit-sharing land (Koirala, Mishra, & Mohanty, 2016).

Table 1. Cost structure and acceptance of farming based on land ownership patterns

NO.	Deskription	Land Ownership Pattern	
		Private Land	Land Leases
1	Production (kg/ton)	2,786	2,313
2	Selling Price(Rp/kg)	7,639	7,575
3	Reception (Rp)	21,260,714	17,525,000
4	Fixed cost		
	Equipment (Rp)	6,357,696	2,732,500
	Tax (Rp)	50,000	-
	land lease (Rp)	-	2,625,000
5	Variable Cost		
	Seeds (Rp)	311,607	300,000
	Fertilizers (Rp)	558,446	662,500
	Labor (Rp)	565,982	325,000
	Pesticides (Rp)	429,125	344,000
6	Total Cost (Rp)	8,272,857	6,989,000
7	Income (Rp)	12,987,857	10,536,000
8	Cost Efficiency	2.57	2.51

Source: Primer Data after processing, 2019.

In terms of economic efficiency, the acceptance of rice farming is seen from land management, namely farmers own land and tenants. Owner's land income is Rp. 12,987,857 / ha / season with an

economic efficiency value of 2.57%, while farmers' income on leased land is 10,536,000 / ha / season with an economic efficiency value of 2.51%. The results of the above analysis show that farmers who

cultivate their own land have higher income compared to land tenant farmers, this means that in the social conditions that exist in the community that private land ownership can be a benchmark for family welfare or as a benchmark that farmers have established economy. Farmers with own land will be able to take advantage of the effects of economic change that are better than increasing other aspects of farming such as increased productivity. Dewi et al., (2012) in her research conducted in Subang Pacung Babakan, Mengwi Subdistrict, Badung Regency showed different results that all production factors used in rice farming conducted by perani in Subang Pacung were not efficient or not have a positive influence on the economic changes of rice farmers (Dewi, Suamba, & Ambarawati, 2012). This is because the use of production factors is not optimal so that the profits obtained in rice farming have not been maximally felt by farmers. The factors of production used in Subang were analyzed, namely seeds, ponska and rainbow fertilizer urea, organic fertilizer, pesticides and labor. Whereas other relevant research is research carried out by Pandit, et. Al., 2010. In an economic analysis study the adoption of non-tillage technology in wheat cultivation on trans-gangetic plains in India concluded

that with no tillage can increase profits caused by a reduction in the cost of cultivating without cultivation 4670/ha compared to conventional processing. While the profits caused by the reduction in cultivation costs in 2011/ha and an increase in yield of 281 kg / ha. The landless cultivation system saves 30.95% labor costs, 35.11% mechanical labor, and saves time 4.15% for plowing, 4.32% time for rakes, 0.43% time for leveling.

CONCLUSION

The results of the study concluded that the pattern of agricultural land ownership of rice farmers in Marga Mulya Village was divided into two systems, namely the pattern of private land ownership and the leased system. In the second pattern of ownership of agricultural land provides different yields and economic efficiency at the level of paddy farmers. The pattern of ownership of private land production is higher than the pattern of ownership of leased land which is Rp. 12,987,857 / ha / season for income of private land ownership patterns and Rp. 10,536,000 / ha / season for the pattern of land ownership with a lease system. While the level of economic efficiency of private land is 2.57% and 2.51% on leased land.

REFERENCES

- Ainani, O. (2018). Analisis Pengaruh Sistem Penguasaan Lahan terhadap Tingkat Produksi dan Pendapatan Petani Padi Sawah (Kasus: Desa Tumpatan, Kecamatan Beringin, Kabupaten Deli Serdang). *Repositori Institusi USU Departemen*. Retrieved from <https://repositori.usu.ac.id/handle/123456789/9210>
- Amir F, Awaluddin H, M. A. . (2019). *Alokasi waktu kerja dan peran istri nelayan dalam meningkatkan ekonomi keluarga di kelurahan petoaha kecamatan nambo kota kendari*. 4(1), 6–10.
- BPS Merauke. (2017). *Merauke Dalam Angka* (2017th ed.). Merauke: BPS-Statistics Of Merauke Regency.
- Dewi, I. G. A. C., Suamba, I. K., & Ambarawati, I. G. A. . (2012). Analisis Efisiensi Usahatani Padi Sawah. *E-Journal*, 1(1), 1–10.
- Hariyanto, S. (2014). *ANALISIS PEMBERDAYAAN MASYARAKAT*. 2(1).
- Hayami, Y., & Otsuka. (1993). The economics of contract choice: an agrarian perspective. *Oxford: Clarendon Press*.
- Kingra, P. K., Kaur, R., & Kaur, S. (2019). *Climate change impacts on rice (Oryza sativa) productivity and*

- strategies for its sustainable management*. 89(February), 171–180.
- Koirala, K. H., Mishra, A., & Mohanty, S. (2016). Impact of land ownership on productivity and efficiency of rice farmers: The case of the Philippines. *Land Use Policy*. <https://doi.org/10.1016/j.landusepol.2015.10.001>
- Kusnadi, N., Tinaprilla, N., Susilowati, S. H., & Purwoto, A. (2011). Rice Farming Efficiency Analysis in Some Rice Producing Areas in Indonesia. *Jurnal Agro Ekonomi*, 29(1), 25–48.
- Laoh, M. P. M., H., E., & Juliana R. Mandei. (2017). Pengaruh Status Penguasaan Lahan Terhadap Pendapatan Petani Padi Di Desa Tumani, Kecamatan Maesaan, Kabupaten Minahasa Selatan. *Agri-SosioEkonomi Unsrat*, 13(1), 55–64.
- Rahail, E., Untari, Herdjiono, I., Saadah, Wahyuni, C., & Dariati, T. (2019). Low-emission strategy through effective planning and public participation in Merauke. *IOP Conference Series: Earth and Environmental Science*, 235(1).
- Rondhi, M., & Adi, A. H. (2018). Pengaruh Pola Pemilikan Lahan Terhadap Produksi, Alokasi Tenaga Kerja, dan Efisiensi Usahatani Padi. *AGRARIS: Journal of Agribusiness and Rural Development Research*, 4(2). <https://doi.org/DOI:10.18196/agr.4265>
- Soekartawi. (1995). *Analisis Usaha Tani*. Jakarta: Universitas Indonesia.
- Triyanto, J. (2006). *Analisis Produksi Padi di Jawa Tengah*.
- Untari, Melmambessy, E. H. P., & Simatupang, D. O. (2018). Carbon Emissions and Mitigation Actions in Merauke. *E3S Web of Conferences*, 73, 1–6. <https://doi.org/10.1051/e3sconf/20187302009>
- Untari, Yus, W., & Jefri, S. (2018). Analysis of Carbon Emission Level on Merauke Regency Land Cover.

E3S Web of Conferences, 73, 0–4.
<https://doi.org/10.1051/e3sconf/20187308013>