

COMPARATIVE ANALYSIS OF PRODUCTION RESULTS AND INCOME OF PARTNER RICE FARMERS WITH NON-PARTNERS

Setia Budi¹, Eva Wardah², Muhammad Zamzami³

¹ Agribusiness Department of Agriculture Faculty, Malikussaleh University, North Aceh, Indonesia

² Agribusiness Department of Agriculture Faculty, Malikussaleh University, North Aceh, Indonesia

³ Student Agribusiness Department of Agriculture Faculty, Malikussaleh University, North Aceh, Indonesia

Correspondence: Setiabudi@unimal.ac.id

Abstract

One of the goals of Indonesia's agricultural development is to realize food security through increasing production yields as well as increasing the income of the main actors (farmers) in agricultural development. This study aims to analyze the differences in production and income of lowland rice farming by farmers who are involved in the agricultural extension partnership program with farmers who are not involved in the partnership program by using different technology packages in North Aceh Regency. Analysis of the data used is the T test of two unrelated samples (Independent Samples T Test). The results of the study showed that there were differences in the production and income of the partner farmers of the agricultural extension program at the research location as much as 7,369.44/Kg/MT/Ha with an income of Rp. 21,352.800 MT/Ha while the production of non-agricultural extension partners is 6,004.28Kg/MT/Ha with an income of Rp. 13,678,100 MT/Ha. The calculated T value for production is 440,87 and the T table is 1.993 while the T calculated income is 33,214 and the T table is 1,993. Farmers who are members of the agricultural extension partnership program have higher production and income than non-partner farmers.

Keywords: *Comparative analysis, rice farming, extension partnership, production, income, partner farmers, non partner farmers*

1. INTRODUCTION

Agricultural development that must be taken by the community is directed at the development of advanced, efficient and resilient agriculture. This aims to increase the yield and quality of production, increase the income and standard of living of farmers, as well as expand employment and business opportunities, and support industrial activities as well as increase the country's foreign exchange.

The target of Indonesia's agricultural development is to create food security, increase added value and competitiveness of agricultural products and improve the welfare of farmers. Among the various sources of staple food in Indonesia, rice plays the most important role in providing food that supports national food security and economic empowerment of farmer households. Therefore, rice production needs to be increased immediately to be able to meet the very high demand for rice consumption of the Indonesian people.

Based on data from BPS and FAO in 2015 alone, Indonesia's rice consumption reached 114.15 kg/capita, higher than the average rice consumption in Southeast Asia of 90 kg/capita. As a comparison for Malaysian rice consumption of 90 Kg/Kapita, Brunei 80 Kg/Kapita and Thailand 70 Kg/Kapita. This condition is strongly influenced by the consumption pattern of Indonesian staple foods. According to Suryana (2001), the participation rate of rice consumption both in cities and in villages, in Java and outside Java is quite high, namely 97-100%, this means that only 3% of households do not consume rice.

Food crop agriculture, especially rice crops, has strategic value because it is the backbone of food security and the livelihoods of the Indonesian population. This can be seen in the increasing

COMPARATIVE ANALYSIS OF PRODUCTION RESULTS AND INCOME OF PARTNER RICE FARMERS WITH NON-PARTNERS

Setia Budi, Eva Wardah, Muhammad Zamzami

demand for rice in line with population growth of +1.9% per year, where the demand for rice for 2025 is predicted to reach 78 million tons. One of the efforts to increase production is through intensification by improving rice cultivation technology (BPS, 2018).

The increase in domestic rice production in recent years does not mean that the food problem has been resolved. The problem faced by the Indonesian people is that population growth is faster than the ability to produce food. If the productivity of farming, especially food ingredients, can be increased in accordance with the rate of increase in population, the food problem can be solved. To increase farm productivity, technology is needed that continues to develop. In addition, high productivity can also be obtained through the efficient use of production facilities.

Data from the Central Statistics Agency of Aceh Province (2018) shows that one of the main strategic commodities of food crops that has been developed is lowland rice in Aceh Province. Data in 2018 shows the potential for rice fields of 297,642 ha with a planting area of 495,027 ha and an average production of 5 tons, the potential production reaches 2,475,135 tons or equivalent to 1.22 million tons of rice.

Based on BPS data sources in 2017, North Aceh Regency is the largest rice-producing area with a planting area of 45,485 hectares and a total production of 373,153 tons with an average productivity of 5.6 tons/ha. These data indicate that North Aceh Regency has a very large role in determining the success of Aceh Province in achieving the title of a national food barn. However, a large planted area and high production at certain times are not enough as a guarantee if it is not followed by an increase in productivity evenly.

To increase rice productivity, it must be accompanied by the use of modern technology and superior seeds. Now in Indonesia, there are many superior rice varieties, one of which is the IPB 3S variety which has been released since 2012. IPB 3S rice was able to give a muri record, which recorded a productivity of 8.5 Tons/Hectare GKG, 3 tons higher than the average of 5-6 Tons GKG/Hectare on average. IPB 3S rice in one harvest is able to produce harvested dry grain of 11.2 – 13.4 Tons/Ha (Aswidinnor H et al 2016)

2. RESEARCH METHOD

This research was conducted in North Aceh District. The research location was determined purposively with the consideration that North Aceh Regency is one of the well-developed agricultural areas and as an adaptation test area for the superior rice varieties of IPB 3S in its implementation implementing the extension partnership program.

The scope of this research is only limited to analyzing the comparative production and income between partner farmers who use IPB 3S rice varieties and non partner farmers who use Ciherang rice varieties. The object of the research is partner farmers who cultivate IPB 3S rice varieties and non-partner farmers who cultivate Ciherang varieties of rice.

Sources of data used in this study are primary data and secondary data. Primary data were obtained directly in the field by means of observation, interviews with respondents, namely farmers, using questionnaires. Secondary data, namely data obtained from various sources or agencies related to this research, namely literature, local government and the Department of Agriculture

The population of this research is partner farmers who use IPB 3S rice varieties and non partner farmers who cultivate Ciherang varieties of rice. Determination of respondents was done by using the Simple Random Sampling method. The number of respondents who were selected as samples in this study were 72 people, 42 samples were taken from 84 partner farmers who used rice seeds of the IPB 3S variety and 30 samples were taken from 60 non-partner farmers who used rice seeds of the Ciherang variety.

The data analysis used in this research is qualitative analysis and quantitative analysis. Qualitative analysis is used to find out the general picture and explain the costs and income of partner farmers who use rice seeds of IPB 3S variety and non partner farmers who use Ciherang variety in research locations which are described descriptively. Quantitative analysis used is cost

analysis, production comparison analysis and income analysis of partner farmers with non partner farmers.

According to Suratiah, (2006) the analytical model used to determine the income of lowland rice farming is:

$$= TR - TC$$

Information :

□ =Farming Income (Rp).

TR = TotalRevenue (Total Revenue) (Rp).

TC = TotalCost (Total Cost) (Rp).

The total cost can be calculated using the following formula:

$$TC = FC + VC$$

Information :

TC = TotalCost (Total Cost) (Rp)

FC =Fixed Cost (Rp)

VC =Variable Cost (Variable Cost) (Rp) (Soekartawi, 2002).

Calculating revenue can be calculated using the following formula:

$$TR = Y \cdot Py$$

Information:

TR = TotalRevenue (Rp)

Y =Product obtained in a farm (Kg)

Py = PriceProduction (Rp) (Soekartawi, 2009).

Comparative Analysis

a. Variance Test

To determine which T-test model to use, the magnitude of the population variance (S²) must first be known. The formula for population variance (S²) according to Nugiyantoro (2004) is as follows:

$$S^2 = \frac{\sum(x_i - \bar{x})^2}{(n - 1)}$$

Where:

S² = population variance

Xi =Total Production and Income of Rice Farming (Rp/Production)

X = Average Production and Income of IPB 3S rice farming (Rp/Production)

n =Number of samples of rice farming Partner farmers and non partner farmers (Persons)

To find out the variance of the two groups is homogeneous or not, the F test is used with the following formula:

$$F = \frac{\text{Varians Terbesar}}{\text{Varians Terkecil}}$$

The hypothesis is:

Ho : 1 2

Ha : 1 > 2..... (Sugiyono, 2010)

Information :

Ho = There is no difference between variance 1 and variance 2

Ha = There is a difference in variance 1 and variance 2

Under the condition :

If F count < F table, then Ho is accepted, this means that the variance is homogeneous.

If F count > F table, then Ho is rejected, this means that the variance is not homogeneous.

COMPARATIVE ANALYSIS OF PRODUCTION RESULTS AND INCOME OF PARTNER RICE FARMERS WITH NON-PARTNERS

Setia Budi, Eva Wardah, Muhammad Zamzami

b. Different Test

Different tests were carried out on the production and income of partner farmers and non partner farmers using the T test analysis. The formula used is T test for two unrelated samples (Independent Samples T Test). If the sample of the first group is not equal to the number of samples of the second group ($n_1 \neq n_2$) and the variance is homogeneous, then the Polled Variance formula is used as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

However, if the variance is not homogeneous, then the Separated Variance formula is used as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Information:

\bar{X}_1 = Average production and income of partner farmers' rice farming

\bar{X}_2 = Average production and income of non-partner rice farmers

n_1 = Number of partner farmer respondents

n_2 = Number of non-partner farmer respondents

s_1^2 = Variance of average production and farm income partner rice farmers

s_2^2 = Variance of average production and income of rice farming non partner farmers (Sugiyono, 2010).

3. RESULTS AND DISCUSSION

Extension of the pattern of extension partnerships by involving the parties will contribute to the implementation of agricultural extension for farmers. This is in accordance with research in Nepal where farmer groups and cooperatives, national and national non-governmental organizations, Community Based Organizations and several private entities provide personal extension services to support agricultural extension activities (Dhital, 2017). Interventions to increase the selling price of farmers' seeds, access to extension services, infrastructure support and market availability will increase the involvement of farmer households in the absorption of rice cultivation technology offered by extension workers (Mesfin, A. H, Zemedu, L. 2018)

Partner farmers have also not fully implemented the IPB-Prima cultivation technology package offered by the administrators and higher education institutions, both in the use of production facilities and cultivation processes and agricultural mechanization. This is in line with the results of research by khairunnisa et al 2019; In the decision to adopt IPB Prima Technology, farmers have reused straw on agricultural land and have carried out rice cultivation in accordance with the recommendations of IPB-Best Practice, but farmers have never decomposed straw using a decomposer and are still rarely in the application of agricultural mechanization.

On In the research location, there are also farmers who do not participate in the partnership extension program (non-partners) and the majority of them are in the process of cultivating rice using the Cihorang variety, which is provided by the government through the Agricultural Extension Center at the research location.

3.1. Comparison of Labor and Equipment Usage

Labor

PowerWork is an absolute factor and is needed by every business. The types of labor activities that are compared between partner farmers and non-partners include the use of labor for

activities (soaking seeds, making seeding sites, planting, spraying, fertilizing, weeding, harvesting). The average workforce used in partner farmers' and non-partner's rice farming is shown in table 1 below:

Table 1. Average Employment of Labor Per Hectare in Partner and Non Partner Rice Farming

No	Type of activity	Partner Farmers (HOK)	Non Partner Farmers (HOK)
1.	Seed Soaking	0.07	0.17
2.	Breeding Place Making	2.05	2.57
3.	Land preparation	8.20	8.01
4.	Planting	4.78	3.76
5.	Spraying	1.89	1.19
6.	Fertilization	2.67	1.84
7.	Maintenance	3.46	3.06
8.	Harvest Implementation	5.18	5.12
Amount		28.31	25,40

Source: Primary Data, 2020.

From Table 1 can be seen that the average workforce used for partner farmers' rice farming using IPB 3S rice seeds is greater than the use of labor in the family for non partner farmers' rice farming using Ciherang variety rice seeds.

3.2. Use of Equipment

Equipment is an important component in the activities of a business. The equipment used in partner farmers' and non-partner farmers' rice farming includes; hoes, machetes, and handspayers. Details of the use of equipment in rice farming of IPB 3S and Ciherang varieties in Sawang District, North Aceh Regency can be seen in table 2 and table 3 below:

Table 2. Average Equipment Depreciation Cost of Respondents at Partner Farmers' Rice Farming in North Aceh District

No	Equipment	Amount	Price (Rp/Unit)	Total Cost (Rp)	Economic life (years)	Residual Value (Rp)	Depreciation Value (Rp/MT)
1.	Hoe	1	45,000	45,000,-	3	10,000	7,5000.00
2.	machete	1	50,000	50,000,-	3	10,000	8,333.33
3.	Handsprayer	1	250,000	250,000,-	3	25,000	41,666.66
Amount							57,499.99

Source: Primary Data (processed), 2020.

Table 3. Average Depreciation Cost of Respondents' Equipment for Rice Farming by Non Partner Farmers in North Aceh District

No	Equipment	Amount	Price (Rp/Unit)	Total Cost (Rp)	Economic life (years)	Residual Value (Rp)	Depreciation Value (Rp/MT)
1.	Hoe	1	45,000	45,000,-	3	10,000	7,5000.00
2.	machete	1	50,000	50,000,-	3	10,000	8,333.33
3.	Handsprayer	1	250,000	250,000,-	4	25,000	31,250.00

COMPARATIVE ANALYSIS OF PRODUCTION RESULTS AND INCOME OF PARTNER RICE FARMERS WITH NON-PARTNERS

Setia Budi, Eva Wardah, Muhammad Zamzami

Amount

47,083.33

Source: Primary Data (processed), 2020.

From Tables 2 and 3 above can be seen that the depreciation cost of equipment for partner farmers' rice farming is greater than the depreciation cost for non partner farmers' rice equipment. This is because partner farmers' rice farming uses more equipment in the application of the technology package compared to non partner farmers' rice farming

3.3. Production Cost

Production costs are all the values of production factors needed to carry out a farming business. The production costs referred to in this study include all costs used in farming activities, both by partner farmers and non-partner farmers. Production costs used in partner and non partner rice farming include; tractor costs, production facilities costs, equipment depreciation costs, labor costs and other costs.

Table 4. Average Production Costs Per Hectare in Partner and Non-Partner Farmer Farming Partnership Extension Activities in North Aceh District

No	Production cost	Value Per Hectare	
		Partner Farmers	Non Partner Farmers
1.	Tractor Fee	875,000.00	875,000.00
2.	Production Facility Cost		
	- Rice Seeds	400,000.00	499,155.25
	- Organic fertilizer	277,896.50	91.155.25
	- NPK Fertilizer	241,500.00	276,515.27
	- Urea Fertilizer	200,476.19	250,925.93
	- SP-36 . Fertilizer	100,000.00	153,513.79
	- Pesticide	166666.67	196666.67
	Total Cost of Production Facilities	1,386,539.36	1,468,207.46
3.	Equipment Depreciation Cost	57,499.99	47,083.33
4.	Labor costs	2,485.813.13	3,182,934.77
5.	Other costs		
	- Land lease	7,500,000,000.00	7,200,000.00
	- Keujreun Blang	375,000.00	300.000,00
	- Thresher Fee	2,579,302.87	1,983,570.71
	- Transportation costs	235,225.30	-
	Amount of Other Fees	10,689,528.17	9,569,207.46
	Total cost	15,494,380.65	15,142,433.02

Source: Primary Data (processed), 2020.

Table 4 explains that the largest production costs are in partner farmers' rice farming, which is Rp. 15,494,380.65, while the production costs for non-partner rice farmers are Rp. 15,142,433.02. When we look at the comparison of production costs, fixed costs are smaller than variable costs.

3.4. Production Results and Income

Income is the difference between the production value and the costs incurred in a production process in a certain period. The size of the income obtained by farmers is strongly

influenced by the high and low production yields and costs incurred. The average income of partner farmers' rice farming with non-partners can be seen in the following table:

Table 5. Average Income Per Hectare of Rice Farming Partners and Non-Partners, North Aceh District

No	Description	Unit	Farming Comparison	
			Partner Farmers	Non Partner Farmers
1.	Production result	Kg	7,369.44	6,004.28
2.	Price	Rp	5,000.00	4,800,000
3.	Production Value	Rp	36,847,183.82	28,820,544.00
4.	Production cost	Rp	15,494. 380.65	15,142.433.02
5.	Income	Rp	21,352,803.17	13,678,110.98

Source: Primary Data (processed), 2020.

Table 5 shows that the average rice production of partner farmers is significantly different from that of non-partner farmers, partner farmers' rice farms earn higher incomes than non-partner farmers' rice farms. The rice produced by partner farmers who use IPB 3S variety seeds produced in the research location is mostly used for seeds so that the selling price is more expensive than rice produced by non-partner farmers. The income obtained by partner farmers' rice farming reaches Rp. 21,352,803.17 while the income earned by non-partner rice farmers only reached Rp. 13,678,110.98. So the difference in income obtained is Rp. 7,674,692.19, the difference in income is obtained because the amount of production and selling prices are different.

This is in line with Ahmed, AU at al (2016) and Himire, R at al (2015) The use of superior seeds in addition to having an impact on improving welfare will also reduce hunger and food insecurity in developing countries. This is also in line with the research of Achmad Rifa'I, Salman Samir. (2019) which states; The use of new (superior) seed varieties has a positive impact on farmers' welfare. Improved and good seeds will produce good quality rice so that it increases the selling price in the market and ultimately affects the welfare of farmers for a better life.

Based on the results of interviews at the research location, it was found that there was a gap in the potential yield of superior seeds with the production yields obtained by partner and non-partner farmers. This condition is in line with the results of research by Andini et al (2012) which states that rice productivity at the farm level still shows a fairly high yield gap compared to the potential that can be achieved. The reason is that the use of superior seeds of high potential varieties (certified seeds) is still low at around 53%.

In table 6 below, if the price of the production of partner and non-partner farmers is the same. then we will get an overview of the results as follows.

Table 6. Average Income Per Hectare with the assumption of the same selling price on rice farming partner farmers and non partner farmers in North Aceh Regency

No	Description	Unit	Rice Farming Comparison	
			Partner Farmers	Non Partner Farmers
1.	Production result	Kg	7,369.44	6,004.28
2.	Price	Rp	5,000.00	5,000.00
3.	Production Value	Rp	35,373,312.00	30,021,400,000
4.	Production cost	Rp	15,494. 380.65	15,142.433.02
5.	Income	Rp	19,878,931.35	14,878,966,80

Source: Primary Data (processed), 2020.

The income obtained with the same selling price at the partner farmer's rice farm reached Rp 19,878,931.35, while the income for the Cihorang variety rice farm reached Rp 14,878,966.80. So the difference in profits between partner farmers and partners is IDR 5,008,926.55.

COMPARATIVE ANALYSIS OF PRODUCTION RESULTS AND INCOME OF PARTNER RICE FARMERS WITH NON-PARTNERS

Setia Budi, Eva Wardah, Muhammad Zamzami

3.5. Comparison of Production and Income

In analyzing whether there are differences in production and income between partner farmers' rice farming and non partner farmers' rice farming, two things are done: testing whether there is a similarity in variance and testing whether there are differences in production and income for the two treatment groups.

1. Test for Similarity of Variety (Variance)

To find out the difference in production and income of partner farmers and non partner farmers, a uniformity test was first performed using the F test. The calculation results obtained that the calculated F value for rice production was 1.03 while the calculated F value for income was 1,22 (appendix 16).

F Nilai valuetable with an error rate of 5%, at $df_1 = 2$ and $df_2 = 70$ is 3.13. So from these results it can be seen that the calculated F value for rice production is smaller than the F table value ($1.03 < 3.13$) and the calculated F value for income is smaller than the F table value ($1.22 < 3.13$). this shows that the variance is homogeneous.

a. The Difference Test of Partner Farmers and Non Partner Farmers

To perform a difference test, we must first know the T arithmetic formula for homogeneous variance and the number of samples of the first group is not the same as the number of samples of the second group. The formula used in this calculation is the T formula for calculating the type of Polled Variance.

ResultsThe calculation shows that the calculated T value for rice production is 440.87, while the calculated T value for income is 33.214.17. While the value of t table at the 5% level of $n = 72$ is 1,993. Based on these calculations, it turns out that the calculated T value for rice production is greater than the T table value ($440.87 > 1.993$) while the calculated T value for income is greater than the T table value ($33,214.17 > 1.993$), thus H_0 is rejected. and h_a accepted. From this, it can be seen that there is a significant difference between partner farmers' rice farming and non partner farmers' rice farming.

The average income of IPB 3S rice farming is greater than the average income of Ciherang variety (Table 5). The income of partner farmers' rice farming is higher due to higher production and selling prices (Rp 5,000,-). Non-partner rice farming farmers get lower production than partner farmers' rice farms, and the selling price of production is lower (Rp 4,800, -), so that their income is smaller than rice farming Farmers who are involved in partnership counseling program activities carried out by farmers partners (local government, universities, private sector, and farmer institutions). This is in line with the research findings of Fakhruddin Y et all (2018) where partner farmers have higher incomes when compared to non-partner farmers.

4.CONCLUSION

Based on the results of data analysis and discussion, the conclusions obtained are:

1. The average production obtained by partner farmers using IPB 3S rice varieties in the research area is 7,369.44/Kg/MT/Ha and the average production obtained by non-partner farmers using Ciherang rice varieties in the study area is 6,004.28/Kg /MT/Ha.
2. The average income obtained by rice partner farmers who use the IPB 3S variety in the research area is Rp21,352,803.17/MT/Ha and the average income of non-partner rice farmers using the Ciherang variety in the study area is Rp13,678,110.98/MT/Ha.

5. RECOMMENDATION

1. For partners to be able to apply the IPB-PRIMA technology package in the cultivation of IPB 3S rice varieties properly and correctly. For non-partner farmers to be able to adopt a farmer technology package that has been tested and is able to increase the average yield of productivity per Planting Season (MT)/ Hectare (Ha).
2. For all farmers (partner farmers and non-partners) optimizing cooperation between local governments, universities, private parties, and farmer institutions in the process of adopting innovations in the use of superior seeds in their farming activities.

REFERENCES

- Ahmed, AU, Hernandez, R., Naher, F., (2016). Adoption of stress-tolerant rice varieties in Bangladesh. *Technological and Institutional Innovations for Marginalized Smallholders in Agricultural Development*. Springer, Cham, pp. 241–255. https://doi.org/10.1007/978-3-319-25718-1_15.
- Andini R et all. 2012. Analysis of Rice Productivity Using Certificated Seeds and Non-Certificate Seeds in Banyubiru District, Semarang Regency. *EDAJ* 1 (2) <https://journal.unnes.ac.id/sju/index.php/edaj/article/view/485>
- Aswidinnor H, Willy B. Suwarno, Desta Wirnas, Yudiwanti We Kusumo. 2016. Optimum Production Technology (IPB-Prima) Rice Varieties of IPB 3S and IPB 4S. Department of Agronomy and Horticulture. Faculty of Agriculture. Bogor Agricultural Institute.
- Central Bureau of Statistics. 2017. North Aceh in Figures 2017. North Aceh.
- Central Bureau of Statistics. 2018. Aceh in Figures 2018. Banda Aceh.
- Dital, Pankaj Raj. (2017). Agricultural Extension In Nepal: Experiences And Issues. *Journal of Advances in Agriculture*, 7(3): 1071-1082.
- Fakhruddin Y, et al. 2018. Analysis of Partner and Non Partner Farmers Income at PT. Indonesian Organic Sirtanio in Banyuwangi Regency. *Proceedings of the National Seminar of the Agribusiness Study Program, Faculty of Agriculture, University of Jember*. <https://jurnal.unej.ac.id/index.php/prosidang/article/view/8964>
- Himire, RG, Wen-chi, HU, & Hrestha, RBS (2015). Factors Affecting Adoption of Improved Rice Varieties among Rural Farm Households in Central Nepal. *Rice Science*, 22(1), 35–43. <http://dx.doi.org/10.1016/j.rsci.2015.05.006>
- Julita, J., Arianty, N., & Bahagia, R. (2021). MODEL OF SOCIAL AND ECONOMIC CHARACTERISTICS OF MSMEs IN UTILIZING ONLINE MEDIA TO INCREASE PEOPLE'S POWER IN BATANG KUIS DISTRICT. *MORFAI JOURNAL*, 1(1), 81-98.
- Mesfin, AH, & Zemedu, L. (2018). Choices of Varieties and Demand for Improved Rice Seed in Fogera District of Ethiopia. *Rice Science*, 25(6): 350-356. <http://dx.doi.org/10.1016/j.rsci.2018.10.005>
- Nawir, I. D., Riinawati, R., Faizal, R., & Mansyur, A. Z. LAND TRANSPORTATION MANAGEMENT POLICY ON TARAKAN PUBLIC ECONOMY. *Frontiers in Built Environment*, 136.
- Khairunnisa, Amiruddin Saleh, Oos M Anwas. 2019. Institutional Strengthening of Rice Farmers in Decision Making on Technology Adoption of IPB Prima. *Journal of Extension* 2019 Vol. 15 (1). Bogor Agricultural Institute
- Nugiyantoro, B., et al. (2004). *Applied Statistics for Social Sciences Research*. Yogyakarta: Gadjah Mada University Press.
- Rifa'i. A, Salman Samir. (2019). Impact of New Seed Varieties Program on the Welfare of Rice Farmers in Indonesia: A Propensity Score Matching Approach. *Journal of Agricultural Extension*, 23(4) 144-156. <https://dx.doi.org/10.4314/jae.v23i4.16>
- Soekarno. (2009). *Agribusiness. Theory and Its Application*. Jakarta, Rajawali Press Universitas Brawijaya.
- Sugiono (2010) *Statistics For Research*, Bandung, Alfabeta.

COMPARATIVE ANALYSIS OF PRODUCTION RESULTS AND INCOME OF PARTNER RICE FARMERS WITH NON-PARTNERS

Setia Budi, Eva Wardah, Muhammad Zamzami

Suratiyah, K. 2006. Farming Science. Self-Help Spreader.