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Impact of Use of Certified Seeds on Rice Paddy Farming; Case Study: Kolam Village, Percut Sei Tuan District, Deli Serdang Regency

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ABSTRACT

This study aims to determine the impact of using certified seeds on rice paddy farming (case study: Kolam Village, Percut Sei Tuan District, Deli Serdang Regency). This research was conducted in the Kolam Village, Percut Sei Tuan District, Deli Serdang Regency. The sample technique used in this study was purposive sampling. The population in this study were 1,238 farmers. With the slovin formula, and the error tolerance limit of 10%, the sample size for Kolam Village is 93 farmers. To determine the impact of using certified seeds, a difference test between two different populations was carried out using an independent sample t test. The results showed that there were significant differences in productivity, revenue, and income between lowland rice farming using jabal seeds and those using certificate seeds. As for the total cost, there is no significant difference between lowland rice farming using jabal seeds and those using certified seeds.

Keywords: Certified Seeds, Jabal Seeds, Productivity, Revenue, Total Cost, Income.

INTRODUCTION

Deli Serdang Regency as one of the central rice production districts in North Sumatra consists of several sub-districts which also have quite large rice fields. The pre-survey was conducted in several villages in Deli Serdang Regency. Information was obtained from several farmers in the village that many farmers were reluctant to use certified superior seeds. From the pre-survey results, information was obtained from local extension officers that the superior seeds that were given to farmers were certified superior seeds. Generally, certified superior seeds socialized and marketed in the Deli Serdang district are of the inpari type.

This means that farmers who receive seed assistance use certified superior seeds for their lowland rice farming. Meanwhile, farmers who did not receive superior seed assistance, based on the results of interviews during the pre-survey, these farmers generally used jabal seeds (seed networks between fields) which were of course non-certified for their paddy fields.

Impact according to Soemarwoto (1998) is an act that occurs as a result of an activity. In general, impact is anything that results from 'something'. The impact itself can also mean, the consequences before and after 'something'. In this research, we will analyze the state of lowland rice farming in terms of productivity, total revenue, total cost and income before using certified seeds and also after using certified seeds. However, farmers generally do not have records of their farming in the prior period. So the authors accept the category of farmers using jabal seeds or non-certified seeds as a reflection of "before" conditions and the category of farmers using certified seeds as a reflection of "after" conditions.

Nurnayetti and Atman (2013) stated that most farmers stated that planting superior varieties of rice only if there was

direct (free) seed assistance from the government. Almost none of the farmers buy superior varieties of rice seeds directly at the local saprotan stalls. The reason is that besides the limited availability of superior seeds labelled, none in the stalls is also related to crop rotation. Farmers used to exchange seeds with neighbors or other families.

The imbalance in the average productivity level between several sub-districts that received superior seed assistance and those that did not receive superior seed assistance made the authors feel the need to conduct research related to the impact of using certified superior seeds on lowland rice farming. And to find out whether the use of superior seeds has an impact on lowland rice farming, it is necessary to see how the effect of using superior seeds before and after its use. However, in general, farmers did not have a record of the state of their farming before the use of superior seeds, so the authors took a sample of farmers from two groups of farmers with different categories in terms of using seeds to see whether there was an impact on the use of superior seeds.

So, this study aims to determine the impact of using certified seeds on rice paddy farming (case study: Kolam Village, Percut Sei Tuan District, Deli Serdang Regency).

RESEARCH METHODS

The determination of the research area was carried out purposively, that is, deliberately based on the pre-survey conducted in accordance with the research objectives. The area chosen as the research location was based on information on secondary data obtained through the approach of the number of aid seeds obtained in each sub-district in Deli Serdang Regency. The village that was chosen as the research location was Kolam Village. This village is included in the Percut Sei Tuan District, which is the area where the most certified seed assistance is received (seed assistance received 9,024% with a productivity of 60.59 kw/ha).

The sample technique used in this study was purposive sampling. Purposive sampling is one of the non-probability sampling techniques in which the determination of the sample is based on certain considerations that are in accordance with the research objectives (Sugiyono, 2012).

The population in this study were 1,238 farmers. With the Slovin formula, and the error tolerance limit of 10%, the sample size for Kolam Village is 93 farmers.

Primary data collection was carried out by survey methods and taken randomly, through interview techniques (Supriana, 2016).

To determine the impact of using certified seeds, a difference test between two different populations was carried out using an independent sample t test. Independent sample t test aims to compare one population with another population (Gani and Amalia, 2015). Two sample free t test is used to test whether the mean of one sample group is different from the other sample groups. The t test on two free samples means that the two groups are not related (Pratisto, 2004).

RESULT AND DISCUSSION

Analysis of the Use of Fertilizers and Labor

The three dominant types of fertilizers used by lowland rice farmers in Kolam Village are urea, SP-36 and KCl. To find out how the impact of using certified seeds on farming in Kolam Village can be seen in the following table:

From the table below, it can be seen that the use of fertilizer is slightly more in the group of farmers using certified seeds than the farmer groups using jabal seeds. As it is known, certified seeds have a high response to fertilization (Permentan, 2007).

Table 1. Average Fertilizer Usage for Planting Season

Input Usage	Jabal Seeds*	Certificate Seeds**	Homogeneous Test	Difference Test
Urea (Kg/Ha)	81	85	0.061	0.303
SP-36 (Kg/Ha)	47	50	0.070	0.176
KCl (Kg/Ha)	48	49	0.110	0.716
HKP TK Fertilization & Care (HKP/Ha)	63,77	73.75	0.985	0.068
Cost TK Fertilization & Care (Rp/Ha)	3,497,475	4,051,627	0.868	0.061
HKP TKDK Fertilization & Care (HKP/Ha)	0.14	0.28		
Productivity (Kg/Ha)	8,222	9,639	0.095	0.039
Revenue (Rp/Ha)	23,525,393	29,138,368	0.984	0.043
Total Cost (Rp/Ha)	10,591,566	11,636,940	0.211	0.252
Income (Rp/Ha)	12,933,827	17,501,427	0.743	0.037

* average land area 0.66 Ha
** average land area 0.63 Ha
Source: Primary Data Processing

The absence of a fertilizer subsidy program in Kolam Village of course also affects the use of seeds where farmers who have limited capital tend to use jabal seeds because even if fertilizer is added, it does not necessarily increase productivity. Unlike the case with farmers who have better financial capacity, generally tend to use certificate seeds, although the need for fertilizers to be used is greater when compared to jabal seeds, because the use of certificate seeds can increase productivity so that their income and income also increases where the increase in revenue exceeds the increase As stated by Margaret *et al.* (2016), the addition of fertilizer doses to certified superior seeds affects the productivity produced.

The results showed that there were significant differences in productivity, revenue, and income between lowland rice farming using jabal seeds and those using certificate seeds. As for the total cost, there is no significant difference between lowland rice farming using jabal seeds and those using certified seeds.

It can be seen the difference in the average productivity of the two sample farmer groups. Laofa (2016) and Nurfitriyani (2013) state that the productivity of certified rice seeds is higher than non-certified rice seeds. Asnawi (2014) adds that although integrated crop management is carried out, the productivity of non-certified seeds is lower than that of certified seeds. Likewise in Kolam Village, although the overall cultivation treatment was relatively the same, the productivity obtained by the sample farmer group using certificate seeds was higher than the farmer group using jabal seeds. Through a different test at a significance level of 5%, it is proven that the productivity obtained by the two groups of sample farmers is significantly different. this.

The difference in productivity certainly affects the amount of revenue that farmers get. Where the higher the productivity, the greater the revenue obtained. As stated by Nurfitriyani (2013) that the high productivity obtained by certified VUB user farmers will increase the acceptance of certified VUB user farmers compared to farmers who use non-certified VUB. For the Pond Village itself, although the selling price of certified seed farmers and farmers using jabal seeds is relatively the same, namely Rp5,000/Kg of harvested dry grain, high productivity has made the sample farmer groups using certificate seeds obtain higher acceptance. And through a different test, it was found that the acceptance of the two farmer groups was significantly different at the 5% significance level with the difference received by the certified seed farmer group on average of Rp5,612,975/Ha, higher than the revenue received by the farmer group using jabal seeds.

Descriptively there is a difference in the total cost of the two sample farmer groups where the sample farmer group using certified seed requires a slightly higher total cost than the farmer group using non-certified seeds. As it is believed that certified seeds require more intensive care than jabal seeds. This is reflected in the large use of fertilizer & maintenance labor

required by farmer groups using certificate seeds compared to farmers using jabal seeds. Especially in the use of TKDK for fertilization & maintenance where the amount of HKP on certified seed farmers was twice (0.28 HKP/Ha) compared to the amount of HKP for farmers using jabal seeds (0.14 HKP/Ha). However, although there were descriptive differences in the total cost of the two farmer groups, through a different test it was found that the total cost of farming in the two sample farmer groups was not significantly different at the 5% significance level. The treatment of lowland rice cultivation in the two sample farmer groups is relatively the same.

The greater the acceptance of certified seed farmers, where the total costs incurred are relatively the same between the two farmer groups, it will make the income of certified seed users greater than farmers using jabal seeds. The difference in income between the two is Rp4,567,600/Ha per planting season, mostly in certified seed users. Dewi *et al.* (2012) stated that although the input production costs required for the use of certified seeds are higher, the income obtained by farmers can cover the cost of input for this input, even their income can exceed the income received by farmers using non-certified seeds. Thus, certified seeds are able to provide greater income to farmers. Although certified seed in its cultivation requires fertilization and more intensive care, consequently increasing production costs, its ability to increase productivity which continues to increase revenue exceeds the increase in costs it requires.

CONCLUSION AND SUGGESTION

The results showed that there were significant differences in productivity, revenue, and income between lowland rice farming using jabal seeds and those using certificate seeds. As for the total cost, there is no significant difference between lowland rice farming using jabal seeds and those using certified seeds.

The government should be able to provide sufficient certified seed for farmers' needs and in accordance with the farmer's planting season schedule in Kolam Village. Certified seed assistance to lowland rice farmers should be distributed evenly. Farmers who use jabal seeds should be willing to try certified superior seed technology to increase productivity so that they can boost farmers' own income. Farmers and the government should work together to implement integrated crop management cultivation so that potential productivity can be achieved. For further researchers, a research should be conducted on why farmers in the pond village still use jabal seeds.

REFERENCES

1. Asnawi R. 2014. *Peningkatan Produktivitas dan Pendapatan Petani Melalui Penerapan Model PTT Padi Sawah di Kabupaten Pesawaran, Lampung*. Jurnal Penelitian Pertanian Terapan, 14(1):44-52.
2. Dewi, N. K., Yudono P., & Jamhari. 2012. *Tingkat Adopsi Petani terhadap Benih Padi (Oryza Sativa L.) Bersertifikat dan Non-sertifikat di Kecamatan Kalasan Kabupaten Sleman*. Jurnal Vegetalika, 2(2):74-86.
3. Gani, I., & Amalia S. 2015. *Aplikasi Statistik untuk Penelitian Bidang Ekonomi dan Sosial*. Yogyakarta: Andi offset.
4. Laofa, D. E. 2016. *Analisis Pengaruh Benih Mapan Terhadap Produktivitas dan Pendapatan Petani Padi di Metro Lampung*.
5. Margaret, S., Yusup A. M., & Sasmita P. 2016. *Pengaruh Pupuk Hayati dan Dosis Pupuk NPK Anorganik Terhadap Pertumbuhan dan Hasil Inpari 32*. Prosiding Seminar Padi.
6. Nurnayetti & Atman. 2013. *Keunggulan Kompetitif Padi Sawah Varietas Lokal di Sumatera Barat*, 16(2), 102-110.
7. Nurfitriyani A. 2013. *Pengaruh Penggunaan Benih Bersertifikat Terhadap Produksi dan Pendapatan Usahatani Padi di Kabupaten Cianjur*.
8. Permentan.No.40/Permentan/OT.140/4/2007. 2007. *Acuan Penetapan Rekomendasi Pupuk N, P, dan K pada Lahan Sawah Spesifik Lokasi (per Kecamatan)*. Jakarta: Kementerian Pertanian.

9. Pratisto A. 2004. *Cara Mudah Mengatasi Masalah Statistik dan Rancangan Percobaan dengan SPSS 12*. Jakarta: Elex Media Komputindo.
10. Soemarwoto, Otto. 1998. *Analisis Dampak Lingkungan*. Yogyakarta: Gadjah Mada University Press.
11. Sugiyono. 2012. *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Alfabeta.
12. Supriana T., Barus R. 2016. *Statistik Nonparametrik Aplikasi dalam Bidang Sosial Ekonomi Pertanian*. Medan: USU Press.

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