International Applied Science
UMJember Proceeding Series (2024) Vol. 3 No 2: 68-71

Proceedings of the SEMARTANI 3 2024

Farmers' Response to the Use of Combine Harvester Machine on Rice Farming Business in Lojejer Village, Wuluhan Subdistrict, Jember Regency

Lilis Famidayana[1*] , Henik Prayuginingsih[1], Anisa Nurina Aulia[1]
[1] Universitas Muhammadiyah Jember; famidayana@gmail.com

*Correspondence: Lilis Famidayana
Email: famidayana@gmail.com

Published: Juli, 2024

Abstract: Rice is the most widely cultivated food crop commodity as the main food source in Indonesia. Efforts to increase rice production continue to be made to meet the food needs of the community in order to support food security. In line with the development of time, with the increasingly varied activities in the economy, agricultural technology is also growing. At this time the harvesting process which usually uses traditional rice harvesting tools is now switching to the use of modern combine harvester machines. This study aims to determine and analyse the response of farmers to the use of combine harvester and to determine the impact of the use of combine harvester on rice farming in Lojejer Village, Wuluhan District, Jember Regency. The study population was 120 farmers and became 32 samples using the slovin formula with a random sample method obtained from 16 farmers using combine harvester and 16 non-users of combine harvester. Data analysis method using likert scale method. The results showed that the response of farmers using combine harvester machines was in the criteria of high/responsive to very high/very responsive in terms of cost, yield optimisation, time efficiency, crop quality and job effectiveness.

Keywords: Combine Harvester, Rice, Response, Likert Scale

INTRODUCTION

Agricultural activities have started since humans began to choose a sedentary lifestyle. In line with the development of time, with the increasingly varied activities in the economy, agricultural technology is also growing (Sukartini & Achmad, 2013). Rice is the most widely cultivated food crop commodity as the main food source in Indonesia. Efforts to increase rice production continue to fulfil the food needs of the community in order to support food security. Improvements in cultivation technology have proven to be able to significantly increase rice production. In the last decade, the use of harvesting machines has developed. This is in line with efforts to overcome labour limitations in rural areas, one of which is the combine harvester (Saputra, 2021).

It has become a tradition that rice plants are usually planted simultaneously as well as harvesting is also simultaneous and timely. At this time the availability of labour in agricultural management is increasingly scarce and limited. To overcome this condition, it is very important to use equipment and machinery in agriculture, so that human labour is more effective. This limitation is good starting from land preparation, tillage, plant maintenance, harvesting, post-harvest handling, and processing results (Anas et al., 2020). At this time

the harvesting process which usually uses traditional rice harvesting tools is now switching to the use of modern combine harvester rice harvesting machines. The combine harvester rice harvesting tool used is an example of innovations made to be able to increase efficiency and productivity, especially in harvesting activities.

When viewed from all areas in Jember Regency, rice farming results in Wuluhan District are quite high, the area of harvested land in Wuluhan sub-district in 2020 was around 4,731 ha with a productivity of 75.67 kw/ha and total production reached 35,798 tonnes. Lojejer Village is one of the villages in Wuluhan Sub-district, Jember Regency, consisting of 3 hamlets, namely Sulakdoro Hamlet, Kepel Hamlet and Krajan Hamlet. The agricultural yield of this village is also quite high with the use of various harvesting tools but in these three hamlets there are already some farmers who have switched to the use of combine harvester machines. Psychologically, when farmers are faced with the choice of new technology, the response of farmers will certainly vary, depending on various considerations, there are even farmers who have used these innovations back to the old farming technology for certain reasons (Handayani, 2019). Based on this, this study aims to analyse farmers' responses to the use of combine harvesters and to determine the impact of combine harvesters on rice farming in Lojejer Village, Wuluhan Sub-district, Jember Regency.

METHOD

The research method used in this study is descriptive analysis method and quantitative analysis method. The research location was Lojejer village, Wuluhan sub-district, Jember district, which was selected purposively. The sample consisted of 32 farmers who had been determined using the Slovin formula, the sampling technique used in this study was a random sample consisting of 16 user farmers and 16 non-user farmers combine harvester machine. Data collection methods to analyse the response of farmers using a Likert scale based on indicators that are assessed based on (score) Likert scale, respondents' responses will be sorted into five classes, namely:

1. Strongly agree with a score of 5
2. Agree with a score value of 4
3. Moderately agree with a score value of 3
4. Disagree with a score value of 2
5. and disagree with a score value of 1

Determine the ideal score, percentage and Likert scale interval as follows:

Ideal Score = Highest Score x Number of Respondents

$$\text{Percentage (\%)} = \frac{Total\ score}{Ideal\ score} \text{ x } 100$$

$$\text{Interval} = \frac{100}{\text{Total score level}}$$

Then the Likert scale assessment interval is converted into the following criteria levels:

1. Very responsive / very high with a percentage range of (81-100)%
2. Responsive/high with a percentage range (61-80)%
3. Quite responsive / sufficient with a percentage range (41-60)%
4. Less responsive/low with a percentage range (21-40)%
5. and not responsive / very low with a percentage range of (1-20)%

RESULTS AND DISCUSSION

In general, a response can be interpreted as a result or impression obtained (left) from observations about subjects, events or relationships obtained by inferring information and interpreting messages (Kurniawan, 2022). Farmers' response to the use of rice harvesters (Combine Harvester) in Lojejer Village, Wuluhan District, Jember Regency is the response of rice farmers to the use of rice harvesters (Combine Harvester) as a rice harvesting machine used by farmers. The following is the response of 16 farmers that emerged from rice farmers with the use of rice harvesters (Combine Harvester) in Lojejer Village using a Likert scale:

Tabel 1. Respon Petani Pengguna Mesin *Combine Harvester* Desa Lojejer

No	Attitude/Interest Indicator	Score	Precentage (%)	Criteria
1	Choosing to use a combine harvester because it can save on labour costs during rice harvesting	80	92,5	Very Responsive
2	Choosing to use a combine harvester because it can reduce the amount of loss in the harvest (optimising yields).	80	75	Responsive
3	Choosing to use a combine harvester because it can shorten the harvesting period	80	78,75	Responsive
4	Choose to use a combine harvester machine because it can maintain the quality of the harvest.	80	71,25	Responsive
5	Choosing to use a combine harvester because it can increase work effectiveness	80	77,5	Responsive

Source; Primary Data, Data Processing 2024

Based on table 1. The response of farmers using combine harvester machines is in the high/responsive to very high/very responsive criteria. If the review is the cost incurred for labour at harvest time is in the criteria very high / very responsive. because when using a combine harvester machine greatly reduces the cost of harvesting compared to human labour or traditional methods. However, others feel that they can overcome this even if they do not use a combine harvester machine, this is because farm labourers are sufficient to harvest during the rice harvest.

In the second review, the level of loss of rice harvest also received a high/responsive criterion response, this is due to the experience of most farmers who have long harvested rice manually claiming not to experience a large amount of loss. However, some farmers are interested in using a combine harvester.

The third review is that the response of farmers is high/responsive. Harvesting rice manually will take several days, while if using a combine harvester machine, the harvesting process becomes faster ranging from 15-20 minutes per rice field. This is one of the things that supports the enthusiasm of farmers in using the combine harvester machine.

In the fourth review, the use of the combine harvester machine can maintain the quality of the harvest also has high/responsive criteria. This is based on harvesting that is done manually, where the rice that has been cut and scraped can produce grain with poor quality, because there are still many rice leaves and kopong or half kopong rice seeds mixed in. Farmers are very interested in using a combine harvester rice harvesting machine to be able to overcome the problem of the quality of the harvest of the impact of things that might happen during the harvest of rice is quite long when using the manual method.

And the fifth review, namely the use of combine harvester rice harvesting machines as an effort to increase the effectiveness of the farmer's work is in the high/responsive criteria. In addition to being able to take advantage of the length of time that is no longer used during the harvest period to carry out other activities/work, this time can also help optimise the work of farmers.

In addition to reviewing farmers who use combine harvester machines, researchers also review farmers who are not combine harvester users, where there are still some farmers who maintain traditional harvesting methods such as harvesting using sickles. In traditional harvesting in terms of harvesting costs, labour requirements and the quality of the harvest which is far from the results of using the combine harvester machine, farmers still maintain traditional harvesting because some farmers are already comfortable using traditional methods and the farmer's land area is not more than one plot of rice fields as well as land access that is difficult to reach. Apart from land conditions, there are also some farmers who are reluctant to use combine harvester machines because according to their knowledge that after the use of combine harvester machines the soil becomes dense and difficult to process and even the results of planting crops afterwards become less fertile

CONCLUSION

Based on the formulation of the problem, research objectives and research results and discussion. It can be concluded that the response of farmers using combine harvester machines is generally high/responsive to very high/very responsive. This is mainly because the machine can reduce labour costs at harvest time, speed up the harvest process, and maintain the quality of the harvest. The use of a combine harvester is considered to increase the effectiveness of farmers' work because it saves time that can be utilised for other activities/work.

Nevertheless, there are still some farmers who maintain the traditional harvesting method for reasons such as being comfortable with the method, small land area, difficult land access, and concerns about the soil becoming compact and less fertile after using a combine harvester.

REFERENCES

Anas, M., Sadat, M. A., & Azisah. (2020). Farmers' response to the use of combine harvester in Bonto Marannu Village, Lau District, Maros Regency. Agribis Journal, 11(1), 33-44.

Deni Kurniawan, A. H. (2022). Parents' Response to the Online System at SD Muhammadiyah IV Pekanbaru. Journal of Social Science.

Eka Handayani, K. S. (2019). Identification of Potential Leading Commodities in the Food Crop Agriculture Sector. Scientific Journal of Agriculture.

Fitri Wahyuni, R. F. (2023). Analysis of Farmers' Response to the Use of Combine Harvester Machine (Case Study of Padang Village, Manggeng District, Southwest Aceh Regency). AGROINFO GALUH Student Scientific Journal, 1137-1149.

Saputra, H. (2021). Feasibility Analysis of Combine Harvester Machine from Technical, Financial and Socio-Cultural Aspects on Rice Farming Business in Tulang Bawang Regency, Lampung Province. Journal of the Japan Society for Precision Engineering, 87(12), 947-947. https://doi.org/10.2493/jjspe.87.947

Sukartini, N. M., & Achmad, S. (2013). Farmers' Response to Technology Development and Climate Change Case Study of Subak in Gadungan Village Tabanan Bali. Journal of Applied Quantitative Economics, 6(2), 128-139.