

Farmers' Satisfaction with the Implementation of Certified Rice Seed Breeding in Batanghari Regency

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ABSTRACT

Rice is one of the commodities that continues to be improved with the aim of maintaining the agricultural sector. The planting area and demand for paddy rice seeds in Jambi Province have fluctuated from 2019 to 2022. This shows that the supply of rice seeds in Jambi Province is insufficient. Peminggan District has 19 villages, but only 9 villages cultivate paddy fields. Senaning Village and Lubuk Ruso Village are the villages with the highest productivity levels of 6.25 tons/ha and 5.75 tons/ha. Factors related to the provision of seeds include the management, management and use of agricultural tools and machinery in Senaning and Lubuk Ruso Villages. This study aims to describe farmers' satisfaction with paddy rice seed breeding technology. Describe the implementation of rice paddy seed captivity. The analysis method used is descriptive statistical data. Primary data was collected using a questionnaire and with a sample of 35 respondents. The results of the study revealed that farmers' satisfaction with certified rice seed breeding techniques was included in the category of satisfaction in the expectation indicator of 71% and farmer satisfaction in the performance indicator of 54%. This shows that all the sample farmers are satisfied with the results obtained from certified rice seeds. The implementation of breeding paddy rice seeds in Senaning Village, Peminggan District, Batanghari Regency is in the high category of 60% and in accordance with the Operational Standards Procedures of the West Java Agricultural Technology Assessment Center (BPTP). Conclusion: Farmers' satisfaction in cultivating local rice farming is included in the satisfied category for expectations and performance indicators and the implementation of paddy rice seed breeding in Senaning Village, Peminggan District, Batanghari Regency is in the high category in accordance with the SOP of the Agricultural Technology Assessment Center.

Keywords: Satisfaction, Captivity, Certified Seeds, rice

INTRODUCTION

Agriculture has a very important role in the development of a country's economy. Therefore, the agricultural sector must receive serious attention from the government. Starting from land provision, technology, pest management, determining the market, protection, credit to other policies. Jambi Province is one of the provinces in Indonesia that prioritizes development in the agricultural sector. Rice is one of the commodities that continues to be improved with the aim of maintaining the agricultural sector. This is supported by environmental conditions that are quite ideal for the growth of rice fields. The area of paddy rice planting in Jambi Province from 2019 to 2022 fluctuates every year. (Madani, 2021)

Table 1. Rice Seed Needs Based on Planting Area in Jambi Province in 2019-2022

Year	Planting Area (ha)	Use of Seeds (kg/ha)	Seed Requirement (kg)
2019	47.201	25	1.180.025
2020	150.200	25	3.755.000
2021	69.536	25	1.738.400
2022	47.201	25	1.403.580
Sum			15.244.755
Average			2.177.822

Source : Jambi Province Horticulture and Livestock Food Crops Service

Based on the table above, it can be seen that in 2019 the planting area was 47,201 ha with the use of seeds as much as 25 kg/ha and seed needs of 1,180,025 kg, in 2019 there was a decrease in planting area and seed needs. In 2020 the planting area was 150,200 ha with the use of seeds as much as 25 kg/ha and seed needs as much as 3,755,000 kg, in 2020 there was an increase in planting area and seed needs. In 2021, the planting area was 69,536

ha with the use of seeds as much as 25 kg/ha and seed needs as much as 1,738,400 kg, this year there was a decrease in planting area and seed needs. In 2022, the planting area is 47,201 ha with the use of seeds as much as 25 kg/ha and seed needs of 1,403,580 kg, this year there is a decrease in planting area and seed needs. However, in 2020 it experienced the highest planting area, which was 150,200 ha with a seed requirement of 3,755,000 kg, but in 2021 it decreased to 69,536 ha and in 2022 it decreased again to 47,201. Jambi Province is an area that has carried out breeding of paddy rice seeds based on data from the Jambi Province BPSPT (Plant Seedling Supervision and Certification Center). (Service Plant Food and Beverage Horticulture, 2023)

Table 2. Rice Seed Production (Passed Lab Test), Rice Seed Production (Not Passed Lab Test) in Jambi Province in 2019-2022

Kabupaten/Kota	2019		2020		2021		2022	
	Lulus	No	Lulus	No	Lulus	No	Lulus	No
Jambi City	1.5	-	-	-	-	-	-	-
Squirrelly	83.57	142.07	108.01	152.42	67.71	47.61	55.6	42.7
Muaro Jambi	93.6	61.3	44.35	27.1	137.2	7	142.43	8.5
Bungo	80	4.6	-	-	32.55	6	30.8	4.3
Tebo	31.5	33	-	-	8	13.5	8.2	10.6
São Paulo	61.3	41.5	-	-	37.1	13.2	30.5	14.6
Sarolangun	40.41	17.36	-	-	-	-	-	-
West Tanjab	267.96	80.84	139.04	39.37	134.16	9.22	130.9	10.8
East Tanjab	156.38	190.1	93	156.55	183.6	69.5	183.5	67.4
Kerinci	46.57	13.1	35.16	18.86	27.34	4.25	25.5	5.7
River Full	22		13.5	2	12.5	3.6	12.6	2.4
Sum	884.79	583.87	433.06	396.3	640.16	173.88	620.03	167

Source :Plant Seed Supervision and Certification Center

Based on the table above, it can be seen that in 2019 the supply of seeds in Jambi Province was 884.79 tons, then in 2020 it decreased to 433.06 tons, and in 2021 it increased again to 640.16 tons. This shows that the supply of rice seeds in Jambi Province is not enough. Pemayang District has 19 villages, but only 9 villages cultivate paddy fields. Senaning Village and Lubuk Ruso Village are the villages with the highest productivity level in Pemayang District with the productivity of Senaning Village of 6.25 tons/ha and Lubuk Ruso Village of 5.75 tons/ha. This achievement is actually inseparable from the factors that affect production inputs. Related factors, of course, are the management, management and use of agricultural tools and machinery in Senaning and Lubuk Ruso Villages. Farmers have a very important role in this, because farmers must be able to optimize everything available in the field. Thus, this study aims to describe farmers' satisfaction with paddy rice seed breeding technology and describe the implementation of paddy rice seed breeding (BPSPT, 2023).

RESEARCH METHOD

This research was carried out in Senaning Village, Pemayang District, Batanghari Regency. The determination of the location of this research was carried out deliberately (*purposive*) with the consideration that Senaning Village is a breeding place for superior rice seeds in Pemayang District. Sampling is based on certain considerations that are tailored to the purpose of the study. In addition, the object of this study is farmers who are rice seed breeders. This research will be carried out in July 2024.

The data required in this study consisted of the identity of rice seed breeder farmers including: name, age, level of education, area of seed breeders, length of rice seed exchange, land ownership status, number of seed production and number of seed breeder farmers. Data on farmers' satisfaction in rice seed breeding include indicators of hope and performance. Other data that support and are needed in this study. Data related to rice seed breeding in Pemayang District. Primary data was obtained from rice farmers through direct interviews using questionnaires. Secondary data was obtained through several agencies such as the Central Statistics Agency of Jambi Province, the Central Statistics Agency of Batanghari Regency, the Agricultural Extension Agency of Pemayang District, the Food Crops and Horticulture Office of Batanghari Regency.

The data collection method used in this study is by survey, survey research is research that takes samples from one population using a questionnaire as the main data collection tool. In addition to the survey method, this study also uses observation methods. The selection of the location of this research was carried out deliberately (*purposive*), namely in Senaning Village, because farmers in Senaning village carried out breeding activities for certified rice seeds. The sample extraction method used in this study is the census method by taking a group of populations as a sample as a whole and using a questionnaire in a structured manner as the main data collection tool for specific information. Based on this study, the number of respondent subjects is less than 100 respondents, so the author takes 100% of the total population in one farmer group, namely the Payo dadap farmer group, 35 respondents. (S. Arikunto, 2006)

This study uses descriptive statistical data analysis. By using a questionnaire that will be used in the scoring process. The formula used in the data calculation is to use the Chi Square test to find out the relationship between the variables contained in this study and the following formula:

$$\chi^2 = \frac{\sum(f_o - f_e)^2}{f_e}$$

Where:

χ^2 : Chi-squared value

f_e : *Expected frequency*

f_o : *Frequency obtained/observed*

Descriptive analysis is an analysis used to describe or describe the behavior of farmers in breeding certified rice seeds in Senaning Village, Pemayung District. This study was compiled using a closed questionnaire (structured), this is based on the knowledge and experience of different respondents, in addition to avoiding more extensive information. The compiler uses a closed questionnaire so that respondents only need to choose several alternative answers available. The compiler used a questionnaire with a likert scale. The *Likert scale* is used to measure the attitudes, opinions and perceptions of a person or a group of people about social phenomena.

RESULTS AND DISCUSSION

Overview of Farmer Groups in Senaning Village, Pemayung District

Based on SIMLUHTAN Pemayung District, there are four farmer groups in Senaning Village, Pemayung District. It can be seen in the following table 11.

Table 3. Number of Farmer Groups in the Research Area in 2022

Name of Farmer Group	Status	Member
Advice Dadap	Active	35
Farming Wisdom	Active	40
Joint Venture	Active	35
Source of Sustenance	Inactive	23
Sum		129

Source: BPP Pemayung 2022, Processed

Based on the table above, of the 4 farmer groups that cultivate rice fields in Senaning Village, there is only 1 farmer group that breeds rice seeds. This is because the paddy fields of the Payo Dadap farmer group are very suitable for breeding seeds, because of the good drainage channels.

Farming Experience

Every farmer really needs farming experience, because the experience that farmers have can help to improve and develop their farming. The experience of farmers in this study is experience in farming rice fields, in this experience it is very determined how long farmers have been farming rice fields. For more details on the experience of farming sample farmers, you can see the following table 4:

Table 4. Frequency Distribution of Respondent Based on Farming Experience in the Research Area in 2023

Farming Experience (Years)	Frequency (People)	Percentage (%)
3 - 10	9	25,7
11 – 18	6	17,1
19 – 26	15	42,9
27 – 34	4	11,4
35 - 42	1	2,9
Sum	35	100,00

Source: Primary Data Processing Results, 2024

The table above shows the distribution of the frequency of respondent farmers based on farming experience in the research area in 2024. The lowest farming experience was 3-10 years and , which consisted of 9 farmers or 25.7% of the total respondents. Farmers with low farming experience tend to have lower productivity and income than farmers with higher farming experience. This is because farmers with low farming experience still lack the knowledge, skills, and technology needed to manage oil palm farming optimally.

The highest farming experience was 19-26, consisting of 15 farmers or 42.9% of the total respondents. Farmers with high farming experience tend to have higher productivity and income than farmers with lower farming experience. This is because farmers with high farming experience already have sufficient knowledge, skills, and technology to manage paddy rice farming efficiently and effectively.

According to Damayanti (2019), the experience of doing business greatly affects farmers in carrying out farming activities which can be seen from the production results. Farmers who have been farming for a long time have a high level of knowledge, experience and skills in running their farming. Farming experience is divided into three categories, namely inexperienced (< 5 years), moderately experienced (5-10 years) and experienced (> 10 years). (Damayanti et al., 2019)

Land

The paddy fields cultivated by farmers in this research area are paddy fields owned by the farmers themselves. The land area owned by farmers in the research area has a land area of 0.3 Ha to 1 Ha. The distribution of the respondent farmers' land area is as follows:

Table 5. Distribution of Frequency and Percentage of Respondent Farmers Based on Rice Field Area in the Research Area in 2023

Land Area (Ha)	Frequency	Percentage (%)
0.30 – 0.41	3	8,6
0.42 – 0.53	5	14,3
0.54 – 0.65	5	14,3
0.66 - 0.77	3	8,6
0.78 – 0.89	4	11,4
0.90 – 1.0	15	42,8
Sum	35	100,00

Source: Primary Data Processing Results, 2024

Based on the table above, the majority of farmers own medium-sized land (0.9–1.0 Ha), which accounts for 42.8% of the total respondents. This shows that the land ownership structure in the area is dominated by medium-scale farmers. Farmers with very little land, only 8.6% have land of 0.30-0.41 Ha and 0.66-0.77 Ha. This can indicate limited access to larger land resources.

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Hope

Farmers' expectations for certified rice seeds include expectations of improved crop quality, productivity and large economic benefits. Expectations are subject to change based on new experiences and information. (Wilkie, 1994)

Table 6. Distribution of Frequency and Percentage of Farmers' Satisfaction Expectations With Seed Breeding

Category	Frequency	Percentage (%)
Dissatisfied	10	29
Puas	25	71
Sum	35	100

Source: Primary Data Processing Results, 2024

Based on the table of frequency distribution results above, it can be seen that farmers' satisfaction with the indicator of expectations for the certified rice seed breeding technique is in the satisfied category, which is as many as 25 respondents or equivalent to 71%. This was obtained based on a questionnaire distributed to farmers with a total of 22 question items containing farmers' expectations for production, farmers' expectations for costs, and farmers' expectations for the recommended standards for certified seed farming business management, which were then categorized into the category of dissatisfied and satisfied. Where when the farmers' expectations have reached the goal according to their abilities, whether in terms of decision-making, an object or other things.

Performance

Farmers' performance is not only determined by technical factors such as seed quality and agricultural practices but also by the expectations they have for the process and crop yields. Farmers who are faced with higher yields from the use of certified seeds tend to be more motivated to adopt supportive technologies and methods. If farmers feel that the use of certified seeds gives satisfactory results, this can increase satisfaction and loyalty. As such, it is important to provide clear training and information about the benefits of certified seeds so that expectations and reality can align. (Wilkie, 1994)

Table 7. Distribution of Frequency and Percentage of Farmer Satisfaction Performance with Seed Breeding

Category	Frequency	Percentage (%)
Dissatisfied	16	46
Satisfied	19	54
Sum	35	100

Source: Primary Data Processing Results, 2024

Based on the table of frequency distribution results above, it can be seen that farmers' satisfaction with performance indicators with certified rice seed breeding techniques is in the satisfied category, which is as many as 19 respondents or equivalent to 54%. This was obtained based on a questionnaire distributed to farmers with a total of 19 question items containing farmers' performance on production, farmer performance on costs, and farmers' performance on the recommended standards for managing certified seed farms, which were then categorized into the category of dissatisfied and satisfied. Where the achievements of farmers are in accordance with the performance of the results obtained.

Satisfaction as a person's feeling of liking or disappointing as a result of a comparison between the perception of the product's performance with his or her expectations. In this case, the satisfaction of farmers with rice seed breeding techniques can indirectly make farmers continuously use certified rice seed breeding techniques in developing their agricultural products so that there can be an improvement in the quality of rice seeds produced in the future. Research conducted by Oktaviani related to (Kotler & Keller, 2019) *the Importance Performance Analysis* (CSI) analysis showed that overall farmers were satisfied with the performance level of superior varieties of rice seed attributes. If the performance meets expectations then the customer is satisfied. If the performance exceeds expectations, then the customer is very satisfied or happy. (Goddess Anggun Oktaviani, 2019) (Adriansyah et al., 2023)

Overview of the Implementation of Certified Rice Seed Breeding in Senaning Village, Pemayang District, Batanghari Regency

The implementation of certified rice seed breeding involves a series of processes carried out to ensure the quality of rice seeds that certainly meet the standards. The existence of good supervision of the quality and purity of rice seeds is the main focus.

Table 8. Distribution of Frequency and Percentage of Certified Rice Seed Breeding Techniques

Category	Frequency	Percentage (%)
Low	14	40
Tall	21	60
Sum	35	100

Source: Primary Data Processing Results, 2024

Based on the frequency distribution table above, it can be seen that the respondent's certified rice seed breeding technique is in the high category of 60%. This was obtained based on a questionnaire distributed to farmers with a total of 20 question items containing certified rice seed breeding techniques consisting of seed sorting and treatment, land preparation, planting, maintenance, stadia/roguing, observed variables, tuber methods, seed harvesting and processing, packaging and storage which were further categorized as bad and good. The question items are related to planting distance, fertilization effectiveness, rouging effectiveness, influencing variables, tuber methods and yields, harvesting process according to procedures, use of appropriate and standard packaging, and seed storage time.

Meanwhile, as many as 40% of respondents in rice seed breeding techniques are certified as respondents are in the low category. This was obtained based on a questionnaire distributed to farmers with a total of 20 question items containing certified rice seed breeding techniques consisting of seed sorting and treatment, land preparation, planting, maintenance, stadia/roguing, observed variables, tuber methods, seed harvesting and processing, packaging and storage which were further categorized as bad and good.

The selection of rice seeds (source seeds) which will later be bred in the breeding of certified rice seeds in Senaning Village, Pelayung District, Batanghari Regency was carried out by the head of the farmer group. Seed selection is carried out by looking at the varieties needed for the next planting season and choosing certified source seeds. Seed sowing is carried out by rice seed breeders. Seed sowing is carried out to obtain uniform rice seedlings. Land preparation is carried out by farmers who breed rice seeds. Land preparation is carried out so that the land that will be planted is clean from weeds and other plant residues, with a loose texture so that it is ready to be planted. Land preparation, including basic fertilization, is also carried out to prepare the nutrients needed by plants. (Jamil A, 20016)

Planting that is done properly and correctly will have a great effect on the growth of rice crop production. The selection of planting spacing in the planting stage is also important because it affects the distribution of soil nutrients to plants and water flow. Fertilization is carried out as a fulfillment of plant nutrition to avoid disease and can grow healthily until harvest. Fertilization is carried out in stages according to the growth phase of rice plants. Maintenance aims to prevent the struggle for nutrients by weeds that grow with rice plants. If weeds are allowed to grow with rice plants, it is certain that there will be fierce competition for nutrients and will interfere with the productivity of rice plants. (Panjaitan, 2020)

The management of Plant Disrupting Organisms is carried out carefully and precisely because it is carried out from the beginning of the planting period to the end before harvest. Selection or rouging should be carried out by every breeder farmer because this stage of rouging is an important stage in carrying out rice breeding. Shortly before the harvest was carried out, the chairman of Gapoktan coordinated with the Food and Horticulture Seed Certification Supervision Center (BPSBTPH) to check whether the rice beds were suitable for harvest or not. The feasibility of harvesting is seen from the uniformity of rice plants, if it is considered not yet uniform, then selection or rouging is carried out. If it is considered suitable for harvest, the chairman of the farmer group represents its members and the chairman of the gapoktan makes a price agreement, because later all crops will be purchased and processed by the gapoktan. After a price agreement occurs, the harvest can be carried out. The harvest was carried out by the agricultural section of the Gapoktan management assisted by two workers. (Nizar, 2022)

Drying seeds aims to store seeds and survive the dormant period. If the moisture content of the seeds meets the standards, then seed processing is carried out. Packaging is carried out to prevent seeds from being damaged and maintain seed quality. Storage is carried out to maintain the availability of seed stock within a certain time limit. Good storage space conditions are those that are able to maintain the quality of the seeds during the storage period. The ideal condition of a storage space is good if it has a relative humidity % (RH) plus the storage room temperature (°F) = 100. The technical expertise of breeders in maintaining rice seed cultivation is evenly distributed, because breeders have relied on experience in running their businesses. The breeder himself stated that he had gained a lot of knowledge and knowledge related to technical and production through counseling and socialization from the supervisor. Factors of education, experience and influence of others as well as support from the government affect the attitude of farmers

in the application of certified rice seed rooting techniques. If farmers' knowledge of certified rice seeds increases, farmers' attitudes in using seeds will also increase, and vice versa. So in line with this, satisfaction is a person's feeling of liking or disappointing as a result of a comparison between farmers' perceptions of seed performance and their expectations for their crop (BPTP, 2009) (Asri et al., 2022) (Pao & Enteding, 2019) (Kotler & Keller, 2019) yields.

CONCLUSION

Based on the description in the discussion, it can be concluded from the results of the study that farmers' satisfaction in cultivating local rice farming is included in the category of satisfaction in the expectation indicator of 71% and farmer satisfaction in the performance indicator of 54%. The overview of the implementation of rice field seed breeding in Senaning Village, Pemayung District, Batanghari Regency is in the high category of 60% and in accordance with the Standard Operating Procedures (SOP) of the West Java Agricultural Technology Assessment Center (BPTP).

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AUTHOR CONTRIBUTIONS

The entire team of writers is involved in the completion of this article starting from determining the theme, research objectives, research places, data collection, data processing to data analysis and publishing this article.

DISCLOSURE

There is no conflict of interest in publishing this article.

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