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# Farmers' Evaluation of Inpari IR Nutrizinc Biofortified Rice Attributes in Jember Regency

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**Abstract**

*Rice yields are influenced by seed varieties and biofortification. In 2019, the Indonesian government launched Inpari IR Nutrizinc rice to increase productivity and health benefits. This variety supports the government's program to combat stunting in Jember Regency, one of the regencies with high stunting rates. This study aims to evaluate the seed performance and farmer satisfaction with Inpari IR Nutrizinc rice in Jember Regency, with a focus on farmers' attitudes. The study was conducted in the villages of Mumbulsari, Ajung, Kebon Agung, and Gugut in Jember Regency using quantitative descriptive methods and the Fishbein multi-attribute approach. The study involved 40 farmers who were members of farmer groups that received Inpari IR Nutrizinc seeds in 2022. These attributes included productivity, resistance to pests and diseases, fertilizer use, harvest time, seed viability, seed quality, tolerance to water stress, plant drought, pesticide/insecticide use, ease of marketing unhusked rice, access to seeds and the selling price of unhusked rice, and the purchase price of Nutrizinc seeds. The research results show that farmers' attitude toward Inpari IR Nutrizinc rice was rated at 195.5, indicating a neutral attitude. The highest-rated attribute among farmers was seed quality, while the lowest-rated attribute was the ease of marketing paddy.*

**Keywords: Attitude, Fishbein Multi-Attribute Model, Inpari IR Nutrizinc.**

## INTRODUCTION

Rice plays a major role in Indonesian society as a source of staple food. Indonesia's rice productivity in 2021 increased to 5,226 metric tons per hectare, compared to 5,115 metric tons per hectare in 2020 (Badan Pusat Statistik, 2022). Productivity in the previous year fluctuated, a trend that may have been influenced by the use of high-quality seeds,



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which can affect rice production by up to 20% of the available harvested area (Khakim et al., 2013). East Java Province, as one of the major contributors to rice production on the island of Java accounting for 32.10% has experienced a decline in its growth rate, which may be influenced by various factors, one of which is the use of high-quality seeds (Hidayatullah & Aulia, 2020). The government is actively involved in improving rice quality, for example through biofortification technology. Biofortification technology is a method used to naturally increase the content of certain substances or compounds in food through genetic engineering (Widiastuti, 2019). One product of biofortification technology is the Inpari IR Nutrizinc rice variety.

Inpari IR Nutrizinc rice seeds contain 16.6% amylose and have a potential iron content of 34.5 ppm. These seeds were released by the government in 2021 with the aim of increasing the productivity and production of high-yielding rice varieties. These seeds are being actively distributed to farmers due to their health benefits, which also support the government's program to address zinc deficiency and thereby reduce stunting rates in Indonesia (Buri, 2021). These seeds can support the government's efforts to reduce stunting rates, particularly among children. East Java Province is a priority area for reducing stunting rates; according to the Indonesian Nutrition Status Survey (SSGI), the stunting rate in East Java Province was quite high at 19.2% in 2022, with three regencies contributing significantly to the high prevalence of stunting: Jember Regency, Situbondo Regency, and Bondowoso Regency. Inpari IR Nutrizinc rice seeds were redistributed to several areas in East Java Province, particularly in Jember Regency, where the stunting rate reached 34.9% (Kementerian Sekretariat Negara Republik Indonesia, 2023).

Rice seed varieties continue to undergo agronomic development, resulting in morphological characteristics that distinguish one variety from another. These differences among varieties lead to varying seed characteristics and performance (Hanas et al., 2017). This naturally leads to differences in how farmers evaluate seed performance, particularly regarding Inpari IR Nutrizinc. Farmers, as the primary actors in the cultivation system, as well as producers and the government, need to understand seed performance evaluations through farmers' attitudes and satisfaction levels toward Inpari IR Nutrizinc rice. Based on this, this study will examine farmers' attitudes and satisfaction regarding the use of Inpari IR Nutrizinc rice seeds in Jember Regency. Therefore, the research question for this study is: What are the attitudes of farmers who use Inpari IR Nutrizinc rice in Jember Regency?

## METHOD

The method used to determine the location of the study was the purposive method (Sugiyono, 2018; Mukhlis et al., 2019; Mukhlis et al., 2024; Asgaf et al., 2025). The location



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of the study was chosen in Mumbulsari Village (Mumbulsari Subdistrict), Ajung Village (Kalisat Subdistrict), Gugut Village (Rambipuji Subdistrict), and Kebonagung Urban Village (Kaliwates Subdistrict) in Jember Regency from August to October 2023. The respondents selected for this study were farmers who were members of farmer groups that received Inpari IR Nutrizinc seed assistance in 2022 and had previously used these seeds at the four study sites. The sampling method employed was controlled quota sampling, in which the exact population size is unknown and specific criteria are required (Fauzy, 2019). A total of 40 farmers were sampled for this study, with a target of 10 farmers per research location. The data analysis methods used in this study were descriptive statistics and the Fishbein Multi-Attribute Analysis. The Fishbein Multi-Attribute Analysis was used to analyze farmers' attitudes toward Inpari IR Nutrizinc rice. The following seed attributes were used in the study.

**Table 1. Attributes for Assessing Farmers' Attitudes Toward Inpari IR Nutrizinc Rice Seeds**

| No. | Seed Attributes | Score | | | | |
|---|---|---|---|---|---|---|
| 1. | Productivity | 1 | 2 | 3 | 4 | 5 |
| 2. | Resistance to pest attacks | 1 | 2 | 3 | 4 | 5 |
| 3. | Resistance to disease | 1 | 2 | 3 | 4 | 5 |
| 4. | Use of Fertilizer | 1 | 2 | 3 | 4 | 5 |
| 5. | Harvest Age | 1 | 2 | 3 | 4 | 5 |
| 6. | Seed viability | 1 | 2 | 3 | 4 | 5 |
| 7. | Seed Quality | 1 | 2 | 3 | 4 | 5 |
| 8. | Resistance to water stress | 1 | 2 | 3 | 4 | 5 |
| 9. | Plant Lying Down | 1 | 2 | 3 | 4 | 5 |
| 10. | Use of pesticides/insecticides | 1 | 2 | 3 | 4 | 5 |
| 11. | Selling price of paddy (GKG) | 1 | 2 | 3 | 4 | 5 |
| 12. | Ease of marketing unhusked rice | 1 | 2 | 3 | 4 | 5 |
| 13. | Access to seeds | 1 | 2 | 3 | 4 | 5 |
| 14. | Purchase price of Nutrizinc seeds | 1 | 2 | 3 | 4 | 5 |

Source: Modified secondary data (2023)

The ei component measures the evaluation of Inpari IR Nutrizinc rice seed attributes using a five-point Likert scale, with responses ranging from "not at all important" to "very important." The bi component measures farmers' trust in Inpari IR Nutrizinc rice seeds using


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a five-point Likert scale, with responses ranging from “very poor” to “very good.” The Ao component indicates farmers’ attitude toward the attributes of Inpari IR Nutrizinc rice seeds, obtained by multiplying the ei and bi components. The Fishbein multi-attribute formulation is written as follows

$$A_0 = \sum_{i=1}^{n}$$

$A_0$ : overall attitude toward the product attribute
$b_i$ : level of confidence in products possessing the attribute
$e_i$ : evaluation score for the i-th attribute
n : number of attributes

Decision-making in assessing farmers’ attitudes toward Inpari IR Nutrizinc rice seeds in Jember Regency is divided into the following five criteria.

**RESULTS**

Attitude analysis was measured using the Fishbein Multi-Attribute Model to describe consumer attitudes toward a specific product. The consumers in this study were farmers who had previously used Inpari IR Nutrizinc rice in their farming operations. The Fishbein Multi-Attribute Model analysis, as identified at, was conducted using the belief (bi) and evaluation (ei) components for the attributes of Inpari IR Nutrizinc rice.

The evaluation level indicates the extent to which an attribute is considered important. It can serve as a reference for developing strategies or improving trust in specific attributes. The following table presents farmers’ evaluation levels regarding the attributes of Inpari IR Nutrizinc rice:

**Table 2. Farmers’ Evaluation Level Assessments of Inpari IR Nutrizinc Rice Attributes**

| No. | Attribute | Average Evaluation Score (ei) | Interpretation |
|---|---|---|---|
| 1. | Productivity | 4.5 | Very important |
| 2. | Resistance to pest attacks | 3.9 | Important |
| 3. | Resistance to disease | 3.7 | Important |
| 4. | Fertilizer use | 4.3 | Very important |
| 5. | Harvest age | 4.4 | Very important |
| 6. | Seed viability | 4.9 | Very important |


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| No. | Attribute | Average Evaluation Score (ei) | Interpretation |
|---|---|---|---|
| 7. | Seed quality | 4.7 | Very important |
| 8. | Tolerance to water stress | 3.3 | Fairly important |
| 9. | Plant vigor | 3.6 | Important |
| 10. | Use of pesticides/insecticides | 4.7 | Very important |
| 11. | Selling price of paddy (GKG) | 4.3 | Very important |
| 12. | Ease of marketing unhusked rice | 4.3 | Very important |
| 13. | Access to seeds | 4.3 | Very important |
| 14. | Purchase price of Nutrizinc seeds | 3.3 | Fairly important |

Source: Processed primary data (2023)

Based on Table 2, the following conclusions can be drawn.

1. Productivity

Based on the interview results, the average score for the productivity attribute was 4.5, indicating that farmers consider this attribute to be very important. This is certainly understandable, as productivity is a factor that influences the amount of income farmers receive (Arimbawa and Widanta, 2015) . Farmers tend to choose other, more productive varieties in order to obtain a bountiful harvest and maximize their profits. The higher the productivity, the greater the profits earned by farmers.

2. Resistance to pest attacks

Resistance to pest attacks received an average score of 3.9, indicating that this attribute is considered important by farmers. Farmers believe that the more pest attacks there are, the higher the production costs they must incur to purchase pesticides (Suharyanto et al., 2015) . Farmers' production costs will also increase if the selected variety is susceptible to pest attacks, as the dosage required to control such attacks will also be higher.

3. Resistance to Disease

Crop management is one of a series of activities in rice cultivation. It involves not only controlling pests but also diseases that attack rice. The average rating for the attribute of resistance to disease attacks was 3.7, indicating that this is important to farmers. Crops affected by disease will, of course, be treated with pesticides, such as fungicides. This is done with the same objective as controlling pest infestations: to maintain future rice yields (Supartama et al., 2013) . Rice that is susceptible to disease to the point of causing crop failure will result in financial losses for farmers.



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4. Use of Fertilizer

Fertilizer is one of the essential production inputs in rice cultivation. Fertilization is crucial for plants to provide nutrients to the soil and thereby increase productivity (Mansyur et al., 2021) . The fertilizer typically used is NPK, with doses adjusted according to field conditions. The average rating for the attribute of fertilizer use was 4.3, indicating that it is very important to farmers. This is certainly understandable given the very high cost of fertilizer and the limited availability of subsidized fertilizer. Based on interviews with farmers, policies restricting fertilizer subsidies have led to limited fertilizer availability, forcing farmers to manage their supplies wisely. Excessive fertilizer use is also harmful to soil health and the environment, so selecting the right crop varieties is essential.

5. Harvest Age

Based on the research findings, the average rating for the harvest age attribute was 4.4, indicating that it is very important. This is certainly understandable because the sooner the seedlings can be transplanted, the faster the process of shoot formation will occur. Seedlings that remain in the nursery for too long will result in increasingly elongated roots. These elongated roots are highly likely to result in suboptimal plant growth upon transplanting (Marlina et al., 2017) . This is closely related to the roots' function of absorbing water and nutrients from the soil.

6. Seed viability

According to , seed viability is the ability of a seed to germinate. Seed germination rates vary among varieties due to genetic factors. The average rating for seed viability was 4.9, indicating that it is highly important. Farmers believe that when seedlings are sown properly and produce many shoots, there is a greater chance of earning higher profits. Additionally, farmers also place greater consideration on the duration of the seedling stage, as a longer seedling stage means a longer nursery period. This will affect the planting time for the next season.

7. Seed Quality

The average rating for seed quality attributes was 4.7, indicating that this factor is very important. Seeds are one of the key factors supporting success in farming. Farmers consider seed quality when making their selections because seeds carry genetic traits. These genetic traits are also related to the plant's resistance to pests and diseases. Using high-quality seeds certainly offers a greater chance of producing high-quality crops. The higher the quality of the rice seeds used, the higher the yield produced (Emalia et al., 2021) .

8. Tolerance to water stress

The current phenomenon of global warming is causing climate change around the world. Rising sea temperatures lead to increased rainfall, which in turn increases water



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volume. Each crop's tolerance to waterlogging varies, particularly in the case of rice. Each variety has a different level of tolerance (Santhiawan and Suwardike, 2020) . The average rating for water stress tolerance was 3.3, indicating that this trait is quite important. This is likely because the Inpari IR Nutrizinc rice variety is relatively tolerant to water stress, and farmers are currently quite adept at managing water volume.

9. Plant Lodging

The average rating for the plant lodging attribute was 3.6, indicating that it is important. Plant lodging is closely related to stem strength, as the stem plays a role in distributing water and nutrients while also serving as the plant's support. Rice plants that are prone to lodging will bend or break at the lowest stem nodes. This will make the harvesting process more difficult, reduce the yield, and even lower the quality of the grain (Wiettimena et al., 2021) .

10. Use of Pesticides/Insecticides

The average rating for the attribute of pesticide/insecticide use was 4.7, indicating that it is very important. Pesticides/insecticides serve as a means of protecting crops when they are attacked by pests or diseases, and are therefore considered very important. The role of pesticides/insecticides differs from that of other inputs; consequently, they do not serve to increase productivity (Damayanti, 2013) .

11. Selling Price of Unhusked Rice (GKG)

The selling price is the value assigned to a product. In rice farming, the selling price is expressed in rupiah per kilogram (Rp/kg). Based on the research results, the average value for the selling price of paddy (GKG) attribute was 4.3, indicating that it is very important. This is certainly reasonable, given that the selling price significantly affects the income earned by farmers (Agfrianti et al., 2023). The higher the selling price, the higher the income received.

12. Ease of marketing paddy

The average rating for the attribute of ease of marketing paddy was 4.3, indicating that it is very important. This attribute is considered very important because it represents the final stage of farming and significantly determines the amount of income earned (Syamsiah et al., 2015). Farmers naturally want their paddy to be easy to market so they can recoup their investment quickly.

13. Access to Seeds

The average rating for the "access to seeds" attribute was 4.3, indicating that it is very important. Farmers naturally want ease in obtaining seeds (Ahmad & Rahmah, 2020). Farmers place great consideration on the distance traveled to obtain seeds, as they believe this will affect transportation costs. Based on the interview results, some farmers are willing



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to spend a little more to buy seeds that are closer and easier to access, while others are willing to travel quite a distance to get seeds at a lower price.

14. Purchase Price of Nutrizinc Seeds

The average rating for the Nutrizinc seed purchase price attribute was 3.3, indicating that it is fairly important. Nutrizinc seeds have so far been obtained free of charge through government assistance and are not yet sold at retail outlets. Based on the interview results, if Nutrizinc seeds are eventually marketed, farmers will consider the price, which will influence their interest in planting Nutrizinc again (Desfaryani et al., 2022).

The level of trust can be described as the extent to which respondents are satisfied with the attributes of a particular product. The following table shows farmers' assessments of their level of trust in the attributes of Inpari IR Nutrizinc rice:

**Table 3. Farmers' Trust Level Assessments of Inpari IR Nutrizinc Rice Attributes**

| No. | Attribute | Average Trust Score (bi) | Interpretation |
|---|---|---|---|
| 1. | Productivity | 2.3 | Low |
| 2. | Resistance to pest attacks | 3.5 | High |
| 3. | Resistance to disease | 3.6 | High |
| 4. | Fertilizer use | 3.0 | Fairly high |
| 5. | Harvest age | 4.2 | Short (early maturing) |
| 6. | Seed viability | 3.5 | High |
| 7. | Seed quality | 4.4 | Very high |
| 8. | Tolerance to water stress | 4.2 | Very resistant |
| 9. | Plant lodging | 4.1 | Hold |
| 10. | Use of pesticides/insecticides | 3.2 | Quite high |
| 11. | Selling price of paddy (GKG) | 2.7 | Fairly high |
| 12. | Ease of marketing unhusked rice | 2.4 | Low |
| 13. | Access to seeds | 3.0 | Fairly easy |
| 14. | Purchase price of Nutrizinc seeds | 3.4 | Quite high |

Source: Processed primary data (2023)

Table 3 shows that attributes rated as "very good" include harvest maturity, seed quality, and tolerance to water stress. Based on the interviews conducted, the harvest maturity attribute was rated as short (early maturing), which is considered very good because farmers felt that the harvest maturity of Inpari IR Nutrizinc rice was 10–20 days



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faster than that of the varieties they usually use, which range from 100 to 119 days. The seed quality attribute was rated very high meaning "very good" because the seeds received were plump, clean, uniform, and free of fungal infection, even though they were government-provided seeds. The tolerance to water stress attribute was rated as highly tolerant meaning "very good" because farmers did not report any plant deaths due to excess water.

Attributes rated as "good" include resistance to pest attacks, resistance to disease, seed viability, plant lodging, and the purchase price of Nutrizinc seeds. Based on interviews conducted, resistance to pest attacks was rated "high," which means "good," as Inpari IR Nutrizinc rice is considered resistant to pest attacks. Common pests include rats and planthoppers. These pests are controlled by spraying pesticides/insecticides, with application adjusted according to the severity of the infestation. Resistance to disease was rated high, which is considered good, as Inpari IR Nutrizinc rice is considered resistant to disease. A common disease is leaf blight. In addition to leaf blight, there is stem rot, which is suspected to be caused by fungi, leading to crop failure in certain areas, such as in Kebonagung Village, Kaliwates Subdistrict. This is believed to be caused by high rainfall, which promotes increased fungal growth.

The seed viability attribute is rated high, which is considered good because the seeds germinate relatively quickly during the seedling stage within 25–30 days producing numerous tillers, which benefits farmers. The plant lodging resistance attribute is rated "resistant," which is considered good because the rice stems are upright and thus do not easily topple over when blown by the wind. The purchase price of Nutrizinc seeds was rated as good because the seeds are still part of an assistance program, so farmers receive them for free. If the purchase price of Nutrizinc seeds were the same as that of other varieties, it would certainly affect farmers' interest in replanting.

Attributes rated as "fairly good" include fertilizer use, pesticide/insecticide use, the selling price of paddy (GKG), and access to seed. The fertilizer use attribute was rated fairly high which is considered fairly good because the dosage and frequency of fertilizer application are considered the same as for other varieties. The selling price of paddy (GKG) was rated fairly high which is considered fairly good because some farmers do not sell their harvest, choosing instead to consume it themselves, while others continue to sell it to middlemen or seed breeders. The price received by farmers is also the same as for other varieties. Based on interviews with farmers, this may be because many middlemen still do not understand the Nutrizinc variety, particularly its health benefits. Access to seeds was rated as fairly easy, which is considered fairly good, since Nutrizinc seeds are distributed directly through the head of the farmers' group.


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Attributes rated as less favorable include productivity and ease of marketing the paddy. Productivity is rated as low which is considered less favorable because the rice grains shed easily, thereby reducing the harvest weight. This is suspected to be caused by harvesting that is done too late. Based on interviews with farmers, Inpari IR Nutrizinc rice harvested when the grains are yellow tends to shed easily, so it is better to harvest it when the plants have bent over. The ease of marketing the paddy was rated low meaning it is less favorable because farmers find it difficult to sell Inpari IR Nutrizinc paddy. The marketing of Inpari IR Nutrizinc is similar to that of other varieties, in that farmers receive the same price from the same parties, namely middlemen or seed breeders. The price received, similar to that for other varieties, is likely due to a lack of information at the marketing institution level. Some farmers do not sell their harvest because they intend to consume it themselves.

Farmers' attitudes toward rice seed attributes can be determined through assessments of evaluation levels and levels of trust in those attributes. Attitude assessment can utilize the Fishbein Multi-Attribute Attitude Model. The following presents the results of the Fishbein Multi-Attribute Attitude analysis regarding Inpari IR Nutrizinc rice seeds.

**Table 4. Assessment of Farmers' Attitudes Toward the Attributes of Inpari IR Nutrizinc Rice**

| No. | Attribute | Score | | Attitude (Ao) |
|---|---|---|---|---|
| | | Evaluation Level (ei) | Confidence Level (bi) | ei*bi |
| 1. | Productivity | 4.5 | 2.3 | 10.5 |
| 2. | Resistance to pest attacks | 3.9 | 3.5 | 13.6 |
| 3. | Resistance to disease | 3.7 | 3.6 | 13.2 |
| 4. | Fertilizer use | 4.3 | 3.0 | 12.9 |
| 5. | Harvest age | 4.4 | 4.2 | 18.5 |
| 6. | Seed viability | 4.9 | 3.5 | 17.0 |
| 7. | Seed quality | 4.7 | 4.4 | 20.7 |
| 8. | Tolerance to water stress | 3.3 | 4.2 | 13.5 |
| 9. | Plant lodging | 3.6 | 4.1 | 14.7 |
| 10. | Use of pesticides/insecticides | 4.7 | 3.2 | 14.8 |
| 11. | Selling price of paddy (GKG) | 4.3 | 2.7 | 11.6 |


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| | | | | |
|---|---|---|---|---|
| 12. | Ease of marketing unhusked rice | 4.3 | 2.4 | 10.4 |
| 13. | Access to seeds | 4.3 | 3.0 | 12.8 |
| 14. | Purchase price of Nutrizinc seeds | 3.3 | 3.4 | 11.4 |
| | **Total (Σei*bi)** | | | **195.5** |

Source: Processed primary data (2023)

Table 4 shows that the attitude rating toward Inpari IR Nutrizinc rice seeds is 195.5, which indicates a neutral attitude. A neutral attitude indicates a balanced stance because farmers perceive the seed's performance attributes and the selling price of paddy to be relatively similar to those of other varieties; although some attributes are rated as superior, post-harvest performance is considered less (Fadhillah et al., 2019) . The rice seed attribute with the highest rating is seed quality, while the attribute with the lowest rating is the ease of marketing paddy. This neutral attitude may affect farmers' interest in planting Nutrizinc, so improvements are needed both in terms of agronomy and outreach regarding Nutrizinc. Based on interviews with farmers who have previously used Inpari IR Nutrizinc rice, when asked if they would be willing to receive another supply of Inpari IR Nutrizinc rice seeds, some responded that they would be willing, but some farmers remain afraid of experiencing failure similar to what occurred during Period 1.

## CONCLUSION

### Conclusion

Farmers' attitudes toward Inpari IR Nutrizinc rice were rated at 195.5, falling into the neutral category. The rice seed attribute with the highest rating was seed quality, while the attribute with the lowest rating was ease of marketing the paddy.

### Recommendations

1. A recommendation for the Indonesian Agricultural Research and Development Agency (Balitbangtan) is the need for agronomic development of Inpari IR Nutrizinc rice seeds to improve the quality of the harvest.
2. A recommendation for the Food Crops, Horticulture, and Plantation Service is the need for assistance in marketing Inpari IR Nutrizinc paddy so that farmers can easily market their crops at while obtaining a selling price commensurate with the superior qualities of Inpari IR Nutrizinc.


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A recommendation for future researchers is the need for further research on farmers' satisfaction levels and loyalty toward Inpari IR Nutrizinc rice.

**REFERENCES**

Agfrianti, S. I., Budiraharjo, K., dan Handayani, M. 2023. Analisis Pendapatan Usaha Tani Padi (Oryza sativa L.) dan Faktor-Faktor yang Memengaruhinya. Jurnal Litbang: Media Informasi Penelitian, Pengembangan Dan IPTEK, 19(1): 17–30.

Ahmad, M. Y. dan Rahmah, S. 2020. Pengaruh Pengetahuan Kualitas Benih, Harga dan Lokasi Terhadap Pemilihan Sumber Benih Padi Varietas Unggul Baru di Kecamatan Warungkondang. AGRITA (AGri), 1(1): 33.

Arimbawa, P. D. dan WIdanta, A. A. B. P. 2015. Pengaruh Luas Lahan, Teknologi, dan Pelatihan Terhadap Pendapatan Petani Padi dengan Produktivtas sebagai Variabel Intervening di Kecamatan Mengwi. E-Jurnal Ekonomi Pembangunan Universitas Udayana, 6(8): 1601–1627.

Asgaf, K., Hifizah, A., Astati, Ananda, S., Jamili, M. A., & Mukhlis. (2025). Application of Fermented Feed Technology to Improve Beef Cattle Business Efficiency and Student Agribusiness Learning. Jurnal Penelitian Pendidikan IPA, 11(5), 604-610. https://doi.org/10.29303/jppipa.v11i5.11135

Badan Pusat Statistik. 2022. Statistik Indonesia 2022. Jakarta: BPS Indonesia.

Buri, Nanang. 2021. Rencana Diseminasi Hasil Pengkajian (RDHP): Produksi Benih Padi Nutri Zinc (ES 5 TON). Juni. Gorontalo: Kementerian Pertanian.

Damayanti, Lien. 2013. Faktor-Faktor yang Mempengaruhi Produksi, Pendapatan dan Kesempatan Kerja pada Usaha Tani Padi Sawah di Daerah Irigasi Parigi Moutong. SEPA, 9 (2): 249–259.

Desfaryani, R., Humaidi, E., Kartayoga, I. P. A. W., dan Puspitasari, E. Y. 2022. Willingness To Pay Petani Terhadap Benih Padi Hasil Irradiasi Badan Nuklir. Jurnal Agrisep, 22 (2) : 63–71.



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Emalia, Rahmanta, dan Supriana, T. 2021. Pengaruh Input Produksi Terhadap Pendapatan Melalui Produksi Padi Sawah di Desa Sitanggor, Kecamatan Muara, Kabupaten Tapanuli Utara. Jurnal Agrosains dan Teknologi, 6 (2): 77 - 88.

Fadhillah, L. E., Satmoko, S., dan Dalmiyatun, T. 2019. Pengaruh Perilaku Petani Padi terhadap Penggunaan Benih Padi Bersubsidi di Desa Tlogoweru Kecamatan Guntur Kabupaten Demak. Jurnal Ekonomi Pertanian dan Agribisnis, 3 (2): 408–418.

Fauzy, Akhmad. 2019. Metode Sampling. Tangerang Selatan: Universitas Terbuka.

Hanas D. F., E. Kriswiyanti, I K. Junitha. 2017. Karakter Morfologi Beras sebagai Pembeda Varietas Padi. J. Leg. Forensic Sci, 1: 23 - 28.

Hidayatullah, M. L., dan Aulia, B. U. 2020. Identifikasi Dampak Perubahan Iklim terhadap Pertanian Tanaman Padi di Kabupaten Jember. Jurnal Teknik ITS, 8 (2): D143 - D148.

Kementerian Sekretariat Negara RI. (2023, Oktober 3). Prevalensi Stunting Tiga Kabupaten di Jatim Masih di Atas 30 Persen. [Press release]. Diakses dari https://stunting.go.id/prevalensi-stunting-tiga-kabupaten-di-jatim-masih-di-atas-30-persen/#:~:text=Berdasarkan%20Survei%20Status%20Gizi%20Indonesia,%2C%20Situbondo%2C%20dan%20Kabupaten%20Bondowoso

Khakim, L., Hastuti, D., dan Widiyani, A. 2013. Pengaruh Luas Lahan, Tenaga Kerja, Penggunaan Benih, dan Penggunaan Pupuk Terhadap Produksi Padi di Jawa Tengah. MEDIAGRO, 9 (1): 71–79.

Mansyur, N. I., Pudjiwati, E. H., dan Murtilaksono, A. 2021. Pupuk dan Pemupukan. Aceh : Syiah Kuala University Press.

Marlina, Setyono, dan Mulyaningsih, Y. 2017. Pengaruh Umur Bibit dan Jumlah Bibit Terhadap Pertumbuhan dan Hasil Panen Padi Sawah. Jurnal Pertanian 8 (1): 26–35.

Mukhlis, M., Ismawati, I., Sillia, N., Fitrianti, S., Ukrita, I., Wisra, R. F., Raflis, H., Hendriani, R., Hanum, L., Ibrahim, H., Nofianti, S., Marta, A., & Sari, N. (2024). Characteristics of Production Factors and Production of Zero Tillage System Rice Farming. Jurnal Penelitian Pendidikan IPA, 10(8), 6013-6019. https://doi.org/10.29303/jppipa.v10i8.8542



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Mukhlis, Noer, M., Nofialdi, & Mahdi. (2019). Analysis of income and feasibility of rice-cattle integration system farming based on enterprises scale. *Journal of Advanced Research in Dynamical and Control Systems*, *11*(7), 544–553. https://www.jardcs.org/abstract.php?id=2678

Santhiawan, P. dan Suwardike, P. 2020. Adaptasi Padi Sawah (Oryza Sativa L.) terhadap Peningkatan Kelebihan Air sebagai Dampak Pemanasan Global. Agro Bali : Agricultural Journal, 2 (2), 130–144.

Suharyanto, S., Rinaldy, J., dan Ngurah Arya, N. 2015. Analisis Risiko Produksi Usahatani Padi Sawah. AGRARIS: Journal of Agribusiness and Rural Development Research, 1 (2) : 70–77.

Supartama, M., Antara, M., dan Rauf, R. A. 2013. Analisis Pendapatan dan Kelayakan Usahatani Padi Sawah di Subak Baturiti Desa Balinggi Kecamatan Balinggi Kabupaten Parigi Moutong. E-J. Agrotekbis, 1 (2): 166–172.

Syamsiah, S., Nurmalina, R., dan Fariyanti, A. 2015. Analisis Sikap Petani Terhadap Penggunaan Benih Padi Varietas Unggul di Kabupaten Subang Jawa Barat. Agricultural Socio-Economics Journal, 15 (3): 205 - 216.

Widiastuti, R. N. 2019. Bersama Perangi Stunting. Jakarta Pusat : Direktorat Jenderal Informasi dan Komunikasi Publik.

Wiettimena, M., Sau, T., dan Syahrullah. 2021. Persepsi Petani terhadap Dampak Kerebahan Tanaman Padi di Kel. Wiringpalennae Kec. Tempe Kab. Wajo. Jurnal Ilmiah Agrotani, 3 (2) : 241–25.



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