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Rice Production Decision Making in Increasing Sales Volume

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Abstract

This study aims to examine the decision making of rice production in increasing sales volume. The type of descriptive research data collection uses a questionnaire distributed to 15 respondents or experts using purposive sampling. Data analysis using hierarchy process analysis (AHP) with the help of Expert Choice 11 software. The calculation results of the criteria that have the largest priority vector are ordinary rice with a priority vector of 0.529 (52.90%). The calculation results above, the alternative that has the highest priority vector based on the criteria of ordinary rice is physical quality with a priority vector of 0.457 (45.70%) compared to organoleptic quality of 0.274 (27.40%), packaging of 0.170 (17%), and price of 0.099 (9.90%). The calculation results of the alternative that has the highest priority vector based on the criteria of ordinary rice are packaging with a priority vector of 0.383 (38.30%) compared to price of 0.280 (28%), physical quality of 0.188 (18.80%) and organoleptic quality of 0.150 (15%). The result of the strategy calculation that has the highest priority vector to achieve the goal is physical quality with a priority vector of 0.318 (31.80%) compared to price of 0.245 (24.50%), packaging of 0.227 (22.70%), and organoleptic quality of 0.210 (21%). To increase sales volume, it is necessary to produce more ordinary rice that has good quality, affordable prices, various packaging and rice that has a clean and fragrant color. Recommendations for further research are to conduct research by increasing the number of respondents, criteria and alternatives.

Keywords: Decision-making, AHP

1. Introduction

Rice is one of the main food commodities in Indonesia, contributing significantly to national food security. According to the Central Bureau of Statistics (BPS, 2023), per capita rice consumption in Indonesia reaches around 114 kg per year. With an increasing population, the demand for rice is also increasing.

Kabupaten Sumbawa is one of the largest rice (and rice) producing regions in West Nusa Tenggara (NTB). Data from the NTB Central Bureau of Statistics (BPS) shows that in 2024, Sumbawa Regency is among the three districts with the highest total rice production (GKG - Gabah Kering Giling) in NTB. Kabupaten Sumbawa has a large agricultural land area, which supports high rice production. Sumbawa Regency is considered a national food granary, with the potential for self-sufficiency and agricultural industrialisation.

In the context of agricultural industrialisation, Kabupaten Sumbawa has the opportunity to develop the agricultural product processing sector. By increasing the added value of agricultural products, such as processing rice into rice or vegetables into processed products, farmers can earn greater profits. For example, establishing a rice processing plant near rice-producing areas will reduce transport costs and improve production efficiency. In addition, processing agricultural products can also create new jobs and improve the welfare of local communities (Suprianto *et al.*, 2024) ^[11].

CV. Empat Berlian Sejahtera is engaged in the business of producing rice (premium rice and regular rice) with the trademark Beras Sejahtera. The company is located at Ai Mual Village RT. 01 RW.02 Lantung District Sumbawa Regency NTB Province.

This research examines rice production decision-making in increasing the sales volume of both premium and regular rice. Hierarchical process analysis can be used in the case of CV. Empat Berlian Sejahtera.

In this context, decision-making not only involves technical aspects of production, but also considers external factors such as market demand, price fluctuations (Sianipar *et al.*, 2024) [9]. This research also focuses on how analytical methods can be used to help make better decisions. Methods such as Analytical Hierarchy Process (AHP) have proven effective in various fields to help prioritise and select the best alternative (Khan *et al.*, 2020) [6]. Yanto, (2021) [15] explains that a decision support system is a concept that can be applied to assist humans in decision making, Analytical Hierarchy Process (AHP). AHP is able to provide results in the form of numbers from the selection process, the results given will also provide the results of the calculation of the criteria (Tao & Wang, 2023) [12]. The AHP model solution is to use a hierarchy that decomposes complex problems into simpler elements. The hierarchy of this method can be divided into objectives, criteria, and alternatives (TL, 2002). Therefore, the application of AHP in the context of rice production can provide valuable insights for decision makers. With hierarchy, a complex problem can be broken down into its groups which are then organised into a hierarchical form so that the problem will appear more structured and systematic (Dang *et al.*, 2024) [3].

Furthermore, it will explore various criteria that influence rice production decisions, including raw material quality, production costs, and market potential (Siti & Rudiawie, 2020) [10]. By understanding these factors, it is expected that more effective strategies can be found to increase rice sales volume. This research is also expected to contribute to the development of better agricultural policies in Indonesia.

2. Methods

In this study the authors used qualitative research methods. The type of research used in this research is descriptive research. According to Andayani *et al.*, (2025) [1] Descriptive research is research that aims to describe existing phenomena, namely natural phenomena or man-made phenomena, or which is used to analyse or describe subject results, but is not intended to provide broader implications (Latif & Wahyuning, 2024) [7]. The descriptive design in this study aims to determine the decision making of determining rice production in increasing sales volume. The data source used in this research is primary data in the form of the results of filling out questionnaires obtained directly from respondents / experts. Respondents were selected based on active participation in examination planning, examination implementation and the respondent's knowledge and understanding of the problem being studied (Utami, 2023) [14]. Determination of 15 respondents in this study by purposive sampling with the following criteria: (1). Know the product; (2). Have ever bought a product; (3). Based in Sumbawa City. The data analysis used is process hierarchy analysis (AHP) with the help of the expert choice version 11 application.

3. Results and Discussion

1. Results

The data collected from the results of filling out the questionnaire conducted by 15 experts / respondents is by comparing criteria based on the level of importance based on

the perceptions of experts or respondents. There are two criteria to be compared, namely premium rice and ordinary rice. Based on the results of data processing using the hierarchical process analysis method using the help of expert choice 11 software.

Table 1: Result AHP Score based on Criteria

No	Kriteria	Priority Vecktor
1.	ordinary rice	0,529
2.	premium rice	0,471
Consistency Ratio (CR)		0,000

Sumber: Data Primer, diolah, 2025

Based on table 1 and the results of the above calculations, the criteria that have the highest priority vector are ordinary rice with a priority vector of 0.529 (52.90%) compared to premium rice of 0.471 (47.10%). This result shows that plain rice is a priority to achieve the goal because the results of data analysis using AHP show that plain rice has a higher level of importance than premium rice.

Furthermore, by comparing alternative strategies based on the level of importance based on the perceptions of experts or respondents. There are four alternatives that will be compared, namely physical quality, organoleptic quality, packaging and price based on the criteria of ordinary rice. Based on the results of data processing using the hierarchical process analysis method using expert choice software.

Table 2: Result Alternatif based on Criteria Ordinary Rice

No	Alternatif	Priority Vecktor
1.	Physical quality	0,457
2.	Organoleptic quality	0,274
3.	Packaging	0,170
4.	Price	0,099
Consistency Ratio (CR)		0,003

Sumber : Data Primer, diolah, 2025

Based on table 2 and the results of the above calculations, the alternative that has the highest priority vector based on the plain rice criteria is physical quality with a priority vector of 0.457 (45.70%) compared to organoleptic quality of 0.274 (27.40%), packaging of 0.170 (17%), and price of 0.099 (9.90%). These results indicate that physical quality is a priority alternative based on the plain rice criteria because the results of data analysis using AHP show that physical quality has a higher level of importance compared to other alternatives.

Table 3: Result alternatif based on berdasarkan Kriteria Premium Rice

No	Alternatif	Priority Vecktor
1.	Packaging	0,383
2.	Price	0,280
3.	Physical quality	0,188
4.	Organoleptic quality	0,150
Consistency Ratio (CR)		0,00388

Sumber : Data Primer, diolah, 2025

Based on table 3 and the results of the above calculations, the alternative that has the highest priority vector based on regular rice criteria is packaging with a priority vector of 0.383 (38.30%) compared to price of 0.280 (28%), physical quality of 0.188 (18.80%) and organoleptic quality of 0.150 (15%). These results indicate that packaging is a priority

alternative based on premium rice criteria because the results of data analysis using AHP show that packaging has a higher level of importance compared to other alternatives.

Table 4: Result Alternatif based on Goals

No	Alternatif	Priority Vecktor
1.	Physical quality	0,318
2.	Price	0,245
3.	Packaging	0,227
4.	Organoleptic quality	0,210
Consistency Ratio (CR)		0,02

Sumber : Data Primer, diolah, 2025

Based on table 4 and the results of the above calculations, the alternative strategy that has the highest priority vector to achieve the goal is physical quality with a priority vector of 0.318 (31.80%) compared to price of 0.245 (24.50%), packaging of 0.227 (22.70%), and organoleptic quality of 0.210 (21%). These results indicate that physical quality is a priority alternative to achieve goals because the results of data analysis using AHP show that physical quality has a higher level of importance compared to other alternatives.

4. Discussion

Based on the results of the hierarchical process analysis from the respondents, the decision to be made in determining rice production is to produce ordinary rice, not rice with high quality (for example, organic or speciality rice). This is because plain rice has a wide market and can fulfil people's basic needs, especially in areas with lower income levels. However, the decision to produce ordinary rice does not mean neglecting quality. While regular rice may not have the high quality of organic rice, producers can still endeavour to improve the quality of the regular rice they produce. For example, by implementing good and sustainable agricultural practices, farmers can produce higher quality plain rice without having to incur high costs. This suggests that there is room for innovation in the production of plain rice that can benefit all parties (Salim & Lubis, 2019) ^[8].

In line with (Fauzi *et al.*, 2022) ^[4] which states that the quality of the product (goods / services) is a basic factor in consumer satisfaction in determining the product to be purchased or used. Quality control is an activity to maintain and direct that the quality of company products can be maintained as applied. Plain rice production is the right choice in the context of community needs and market potential. By understanding market dynamics and consumer needs, we can optimise rice production for mutual prosperity. While high-quality rice has its place, focusing on plain rice will provide greater benefits to society, especially in areas with low income levels. In the long run, this decision will not only help improve food security, but also support sustainable economic growth in the agricultural sector.

In addition, the results showed that price is a priority after quality, Aqsfhar *et al.*, (2024) ^[2] explained that rice prices play an important role in consumer purchasing decisions. Higher prices generally lead to a decrease in purchasing decisions, while lower prices tend to increase purchasing decisions. In addition, price can also influence the type of rice chosen, with some consumers preferring rice with a more affordable price.

The size of rice packaging is very influential in consumer purchasing decisions, both directly and indirectly. A package size that suits consumers' needs and preferences can increase

attractiveness and encourage purchases. The size of rice packaging plays an important role in consumers' purchasing decisions, influencing various aspects of their shopping experience. First of all, the right packaging can provide convenience for consumers (Fauzi *et al.*, 2022) ^[4].

Furthermore, Aqsfhar *et al.*, (2024) ^[2] suggest that package size is also related to perceived value. Consumers often compare the price per kilogram of rice in different packages. If a large package offers a more economical price, consumers will tend to choose it, feeling they are getting more for the same price.

In general, rice package size not only influences purchasing decisions directly, but also through various factors such as convenience, perceived value, design, and psychological factors. Understanding how each of these aspects is interrelated can help manufacturers and marketers design more effective strategies to attract consumers. Thus, choosing the right packaging size can be the key to increasing product appeal and driving higher purchases in a competitive market. Next, organoleptic quality, which is the sensory characteristics (sight, smell, touch, taste, and hearing) of rice, strongly influences purchasing decisions. This is reinforced by Hasan *et al.*, (2022) ^[5] who said that consumers tend to choose rice with colour, aroma, texture, taste, and stickiness that meet their preferences. Good organoleptic quality can increase consumer appeal and satisfaction, thereby encouraging repeat purchases.

5. Conclusion

Based on the results of the description in the discussion described in the previous chapter, it can be concluded that to increase sales volume it is necessary to further produce ordinary rice that has good quality, affordable prices, varied packaging and rice that has a clean and fragrant colour. Recommendations for future research to be able to conduct research by increasing the number of respondents, criteria and alternatives.

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