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Risk Management of Monoculture Rice Farming Production in Subak Munggu, Cempaga Village, Bangli Regency, Indonesia

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Abstract. Monoculture rice farming in subak institutions faces multidimensional raks that can threaten production stability and farmers cash flow, yet empirical prioritization of these risks at the subak institutional level remains limited. This study aims to identify and prioritize risks in monoculture rice farming in Subak Munggu, Balı, using Failure Mode and Effect Analysis (FMEA) Primary data were collected through structured in-depth interviews and questionnaires from 30 purposively selected farmers supported by relevant secondary sources Qualitative information was used to compile and validate risk events and rak agents, while quantitative S-O-D scoring (1-10) was applied to calculate Risk Prionty Numbers (RPN) and determine priority risks The analysis identified eight risk events (E1-E8) and twelve risk agents (A1-A12) The highest priority rak agent was demand fluctuations (A1) with RPN 490, the only factor classified in the red (intolerable) zone followed by erratic weather and climate (A4 RPN 342), human error in cultivation and input use (A9 RPN 276) declining government subsidies (A10, RPN 224), and pests and diseases (AS RPN 236) Risk mapping indicates that most risks fall within the ALARP category with one dominant intolerable risk that may control overall business stability These findings imply that mitigation should prioritize market-demand rak management and its upstream linkages to seed and input procurement, alongside climate-adaptive practices and institutional strengthening to reduce exposure in monoculture systems in subak.

Keywords: FMEA; management; risk; subak; traditional organization

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1. Introduction

Risk can be defined in a variety of ways, such as as an adverse event or as a deviation from the expected outcome (Hasanah et al., 2018). This is in line with the opinion of Wulandari & Wahyudi (2014) in (Marita et al., 2021), who said that risk is defined as the possibility of loss, uncertainty, or probability of results that are not in accordance with expectations. According to Sinha et al. (2004) in (Pujawan & Geraldin, 2009), risk is a function of the level of uncertainty and impact of an event. It is very important to remain cautious in all aspects of life because risk is very closely related to the unpleasant. This includes people, activities, companies, and more. According to Sari and Pardian (2018) in (Baroroh & Fauziyah, 2021), production risk, financial risk, market risk, and human resource risk are the sources of risk. On the other hand, increasing uncertainty requires them to expend more resources (Vanany et al., 2009).

Every agricultural or farming activity faces a situation of uncertainty and risk at any time with an unknown time (Prihantini et al., 2023). Climate change greatly contributes to production risks in agriculture (Wulandari et al., 2024). According to Kountur (2008) in (Siswani et al., 2022), whatever risks faced by farmers, whether in the form of yield or production, are caused by crop failure, pest and disease attacks, low productivity, differences in climate and weather, human resource errors and production inputs used. This is in line with the research of Offayana (2016) in (Damayanti et al., 2021) which states that the sources of risk in agricultural production are weather, pests, diseases, labor and seed quality.

To manage rice field farming in Bali, there is a practice of irrigation with farmers called Subak (Simanjuntak, 2020). The term subak is a traditional organization in Bali that regulates the irrigation system of paddy fields based on the philosophy of Tri Hita

Karana (Parhyangan, Pawongan and Palemahan) (Suamba et al., 2023). In essence, subak is a system and association of rice farmers that aims to regulate irrigation management as best as possible based on the principle of pure mutual cooperation, regardless of the origin, position and class of its members (Lesmana et al., 2022). According to Bali Provincial Regulation No. 9 of 2012 in (Budiasa et al., 2015), subak is defined as a traditional organization for water and/or plant management at the agricultural level which is a custom of the socio-agrarian society in Bali. Agriculture that has been developed since ancient times has been proven to be a buffer for development and the fulfillment of economic and cultural needs (Geria et al., 2019). Subak Sawah is usually mostly used for rice cultivation (Janiawati, 2016).

Subak has customary rules that govern all activities from planting to harvesting known as awig-awig. One of the things that is regulated in the awig-awig is the planting pattern system of its members. The term planting only one commodity in the farming system is known as monoculture. Monocultures planting patterns have advantages, such as making manufacturing, management, harvesting, and supervision easier. Monocultures have better growth and yields than other types of agriculture, so monocultures make land use more efficient. Based on the results of research by Nurmas A. et al. (2023), monoculture planting patterns have a higher potential for pest and disease attacks (Nurmas et al., 2023). This is due to the fact that one type of plant can spread diseases and pests quickly. Yield variations caused by various difficult factors during the cultivation process, such as weather or climate, and disturbance of plant pest organisms, constitute production risks (Astuti et al., 2019).

This is in line with Gliessman's theory that monocultures generally go hand in hand with modern agricultural patterns. These systems tend to encourage increasingly intensive cultivation, the use of inorganic fertilizers, planned irrigation, the use of chemicals to control pests and weeds, and the selection of specific varieties that are very specific. Because large expanses are planted with the same type of plant, plants become more Interestingly, similar problems can also arise in large-scale organic monocultures, because the root of the problem lies in the uniformity of the plant and the size of the planting area (Gliessman, 2015).

With a monoculture planting pattern, planting one type of plant definitely carries risks, both continuous and unexpected, that can affect their income and food needs. According to Noor et al. (2018) in (Fitratunnas et al., 2020), basically in carrying out risk management, several processes are needed, namely risk identification, risk evaluation and measurement, and risk management. In this study, risk is divided into two levels of analysis, namely risk events (E) and risk agents (A). Risk events (E) are events or problems experienced directly in the monoculture rice farming process. Meanwhile, risk agents (A) are causative or triggering factors that increase the chances of risk events.

One of the subaks that still exists in running rice farming to this day is Subak Munggu in Bangli Regency. Farmers in Subak Munggu every year apply a monoculture planting pattern to meet their food needs and income. Subak Munggu was chosen as the research location because it is directly in line with the focus of the study. Farmers who can reduce production risk and price risk by increasing productivity, implementing diversification, using the right planting patterns, improving farmer institutions, and improving their bargaining position will be able to increase their household food security. Monoculture vulnerability makes disruptions to one factor of production can spread quickly and have systemic impacts.

Based on the background, the formulation of the research problems is as follows 1) What are the risks that may occur in monoculture rice farming in Subak Munggu, Cempaga Village, Bangli Regency?. 2) How to determine the potential priority of monoculture rice farming risks in Subak Munggu, Cempaga Village, Bangli Regency using the Failure Mode and Effect Analysis (FMEA) method?. This study is very important because subak in Bali has existed for ten years.

2. Materials and Methods

Study Location

The research was conducted in Subak Munggu, Cempaga Village, Bangli Regency because Subak Munggu is one of the subaks that implements a monoculture pattern. This research was conducted for 6 months from March to October 2024.

Research Stages

The research is divided into stages, namely: (1) collecting primary data through interviews and filling out questionnaires by respondents, (2) analysis of primary and secondary data, and (3) discussion and drawing conclusion. In full, the stages of the research are presented in the form of hype to explain the systematics of activities is presented in Figure 1. Systematic Activities.

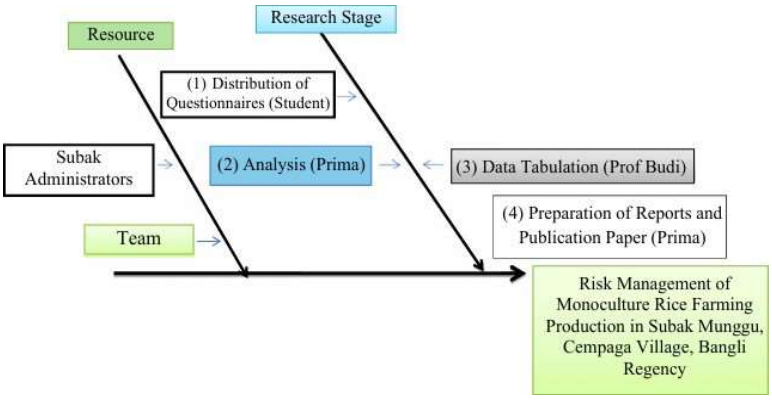


Figure 1. Activity Systematic

Recorded Parameters

The main parameters recorded in this survey are as follows: Farmer characteristics include age, education, number of children, land area, and land ownership status.

Data Collection and Processing

In this study, the two types of data used are quantitative and qualitative. Quantitative data consists of numbers that can be calculated, such as the area of cultivated land and farming costs, while qualitative data consists of words, sentences, and images. With a qualitative approach, the researcher explored the overall experience of respondents (Zakaria et al., 2023). The data collected in this study came from two sources: primary data and secondary data. The data collection methods used in this study are as follows 1) Interviews, or interviews, are used to collect information and data by conducting direct and in-depth interviews with farmers using structured interview instruments, 2) Literature study, used to collect data by reviewing and recording several relevant literature.

Population and Sample

A population is a group of objects or subjects that have certain qualities and characteristics that are determined by the researcher to be analyzed in order to obtain relevant conclusions (Iba & Wardhana, 2023). Populations can be grouped into two categories, namely homogeneous and heterogeneous (Iba & Wardhana, 2023). Samples are part of the population that is determined by the technique of determining the number of samples that the number is according to the size by paying attention to the characteristics and distribution of the population so that the sample can represent the population. Sampling techniques are grouped into 2 categories (Suriani et al., 2023). This study involved all Subak Munggu farmers, using 30 farmer samples deliberately. The selection of these 30 farmers was also considered from the performance of scoring consistently from the assessment and field clarifications.

Data Analysis

The data analysis in this study uses quantitative descriptive analysis, namely using FMEA analysis with Microsoft Office Excel software. Failure Mode and Effect Analysis (FMEA) is a method used to examine the causes of defects or failures that occur during the production process, evaluating risk priorities (Mu'adzah & Firmansyah, 2020). Failure modes can include design errors, conditions outside of predetermined specification limits, or product changes that interfere with product functionality. The main focus in the FMEA method is to proactively assess potential failure mode risks so that appropriate corrective action can be taken before failure occurs (Pangestuti et al., 2022). The FMEA element is built on the information contained in the analysis. According to the research of Sutrisno & Lee (2011) in (Prasetya et al., 2021), the FMEA method aims to increase the Risk Priority Number (RPN) results to find out other problems. The RPN score was obtained by multiplying three elements, namely severity (S), occurrence (O), and detection (D) (Widianti, 2015). Operationally, the FMEA method in this study is carried out through the following stages.

1. Determination of the scope of the analysis
2. Risk identification and coding
3. S-O-D Assessment
4. Risk Priority Number (RPN) Calculation
5. Prioritization and risk rating
6. Formulation of risk mitigation strategies

3. Results and Discussion

Risk Identification

This risk identification is based on the results of in-depth interviews and discussions as well as historical data in Subak Munggu related to monoculture rice farming. The determination of the identification of this risk event has been confirmed by all monoculture rice farmers in Subak Munggu. The risks that arise in the production chain have the potential for significant impacts if not given sufficient attention in the supply chain risk management process. Therefore, special attention is needed in determining risk events and risk agents. The risk event is exemplified by the code Ei. Then the cause of the risk is found (risk agent) exemplified by the code Ai. The code continues with the next risks. The following is the identification of risk events and risk agents in the production risks of monoculture rice farming in Subak Munggu, Cempaga Village, Bangli Regency. The results of risk identification is presented in **Table 1.** Risk Identification.

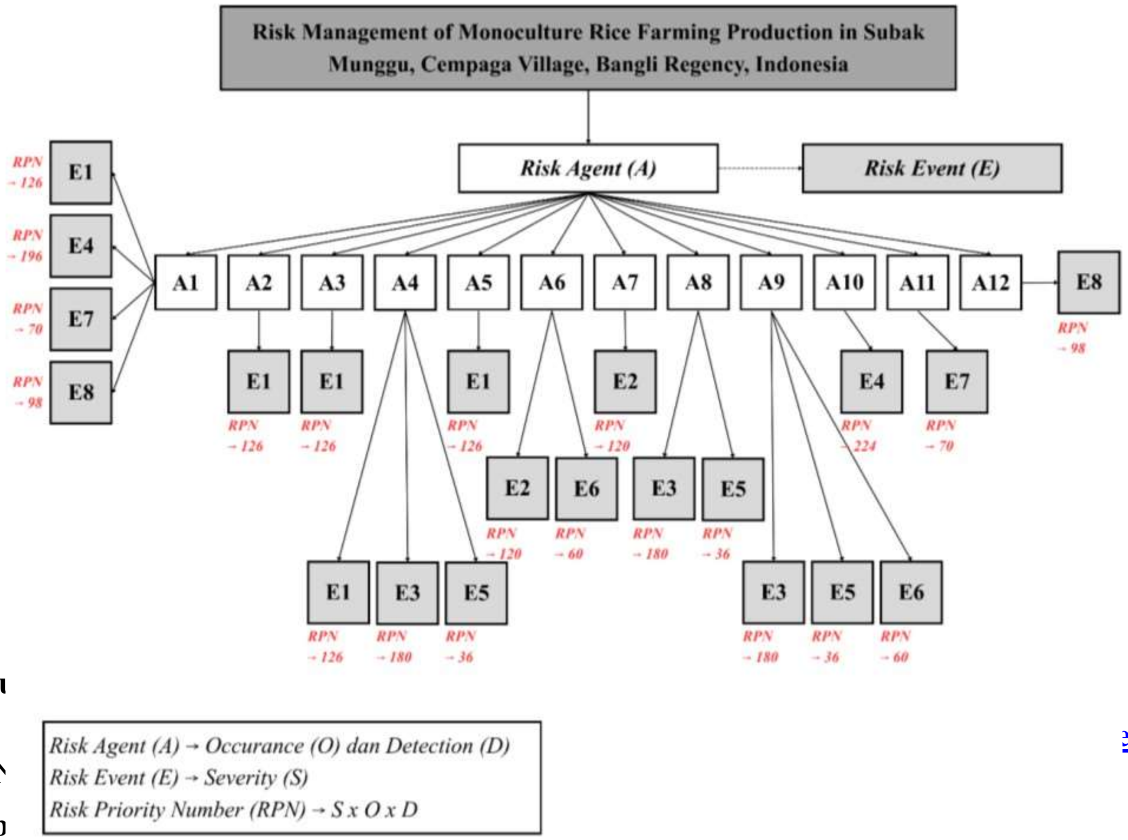
Table 1. Risk Identification

CODE (Ei)	RISK EVENT	CODE (Ai)	RISK AGENT
E1	Risk of Seed Supply Delays	A1	Demand fluctuations
		A2	Long delivery flow from manufacturers
		A3	Convoluted recruitment (licensing) requirements
		A4	Bad and unpredictable weather
		A5	Fluctuations in the price of goods
E2	Risk of Seeds Not Conforming to Standards	A6	Non-standard storage bins (temperature, humidity and more)
		A7	Human error (negligence in non-standard storage bins (temperature, humidity and more)
E3	Risk of Damage During the Planting Process Due to Pests, Plant Diseases and Climate	A4	Bad or erratic weather and climate
		A8	Plant pests and diseases interfere with growth and reduce the quality of seedlings
		A9	Human error (less diligent / intense in the planting process
E4	Risk of Rising Fertilizer and Pesticide Prices	A1	Demand fluctuations
		A10	Declining government subsidies
E5	Risk of Fluctuating Crop Yields	A4	Bad or erratic weather and climate
		A8	Plant pests and diseases
		A9	Human error (unskilled labor, irregular maintenance, inappropriate use of fertilizers and pesticides)
E6	Risk of damage during post-harvest handling	A6	Non-standard storage bins (temperature, humidity and more)
		A9	Human error (farmers' mistakes/negligence in every process)
E7	Risk of Fluctuating Demand from Companies	A1	Demand fluctuations
		A11	Price competition between farmers
E8	Risk of Competitors from Other Regional Farmers	A1	Fluctuations in demand so that it is unable to meet consumer demand
		A12	Different product quality, price competition between farmers

RPN Score Assessment

Regular and continuous risk assessment is needed so that companies can reduce potential losses due to risks that have a negative impact. Risk analysis is carried out by measuring the risks that have been identified. There are three factors assessed in the FMEA method, namely severity (level of severity), occurrence (level of probability of occurrence) and detection (level of detection ability) with a scale of 1 to 10. Then the RPN (Risk Priority Number) calculation is carried out by multiplying the assessment results from severity (S), occurrence (O), and detection (D) using a scale of 1-1000. Qualitatively, the values of S, O, and D are estimated to be in accordance with the criteria that have been set in in-depth discussions with competent

18 parties. Given their fairly high position, of course, it is correlated with the risk problems that occur. The results of the RPN assessment can be seen in the following table. Illustration of the relationship between risk agent (A) and risk event (E) is presented in Figure 2.



Figı

RPN

e 2.

Tab

2

CODE	RISK EVENT	S	CODE	RISK AGENT	O	D	RPN
E1	Risk of Seed Supply Delays	7	A1	Demand fluctuations	2	9	126
			A2	Shipping Flow from a long manufacturer	2	9	126
			A3	Convoluted recruitment (licensing) requirements	2	9	126
			A4	Bad and unpredictable weather	2	9	126
			A5	Fluctuations in the price of goods	2	9	126
E2	Risk of Seeds Not Conforming to Standards	5	A6	Non-standard storage bins (temperature, humidity and more)	3	8	120
			A7	Human error (negligence in choosing suppliers)	3	8	120

E3	Risk of Damage During the Planting Process Due to Pests, Plant Diseases and Climate	6	A4	Bad or erratic weather and climate	5	6	180
			A8	Plant pests and diseases interfere with growth and reduce the quality of seedlings	5	6	180
			A9	Human error (less diligent / intense in the planting process	5	6	180
E4	Risk of Rising Fertilizer and Pesticide Prices	7	A1	Demand fluctuations	7	4	196
			A10	Declining government subsidies	8	4	224
E5	Risk of Fluctuating Crop Yields	3	A4	Bad or erratic weather and climate	4	3	36
			A8	Plant pests and diseases	4	3	36
			A9	Human error (unskilled labor, irregular maintenance, inappropriate use of fertilizers and pesticides)	4	3	36
E6	Risk of Damage during Post-Harvest Handling	5	A6	Non-standard storage bins (temperature, humidity and more)	4	3	60
			A9	Human error (farmers' mistakes / negligence in every process)	4	3	60
E7	Risk of Fluctuating Demand from Companies	5	A1	Demand fluctuations	7	2	70
			A11	Price competition between farmers	7	2	70
E8	Risk of Competitors from Other Regional Farmers	7	A1	Fluctuations in demand so that it is unable to meet consumer demand	7	2	98
			A12	Different product quality Price competition between farmers	7	2	98

Risk Level Mapping

After conducting the RPN Score Assessment, risk rating is carried out. The results of the risk ranking is presented in **Table 3.** Risk Ranking.

Table 3. Risk Ranking

CODE	RISK AGENT	RPN
A1	Fluctuations in demand so that it is unable to meet consumer demand	490
A4	Bad or erratic weather and climate	342
A9	Human error (unskilled labor, irregular maintenance, inappropriate use of fertilizers and pesticides)	276

A10	Declining government subsidies	224
A8	Plant pests and diseases interfere with growth and reduce bib quality	216
A6	Non-standard storage bins (temperature, humidity and more)	180
A5	Fluctuations in the price of goods	126
A3	Convoluted recruitment (licensing) requirements	126
A2	Shipping Flow from a long manufacturer	126
A7	Human error (negligence in choosing suppliers)	120
A12	Different product quality Price competition between farmers	98
A11	Price competition between farmers	70

Based on the results of the farming risk research, the ranking results from the highest to the lowest RPN values were obtained, so the top position is the cause of risk with a Risk Priority Number (RPN) value of 490, namely fluctuations in demand so that it is unable to meet consumer demand (A1). The cause of risk with the lowest RPN value, namely A11, is 70, namely price competition between farmers. Clearly graph is presented in **Figure 3.**

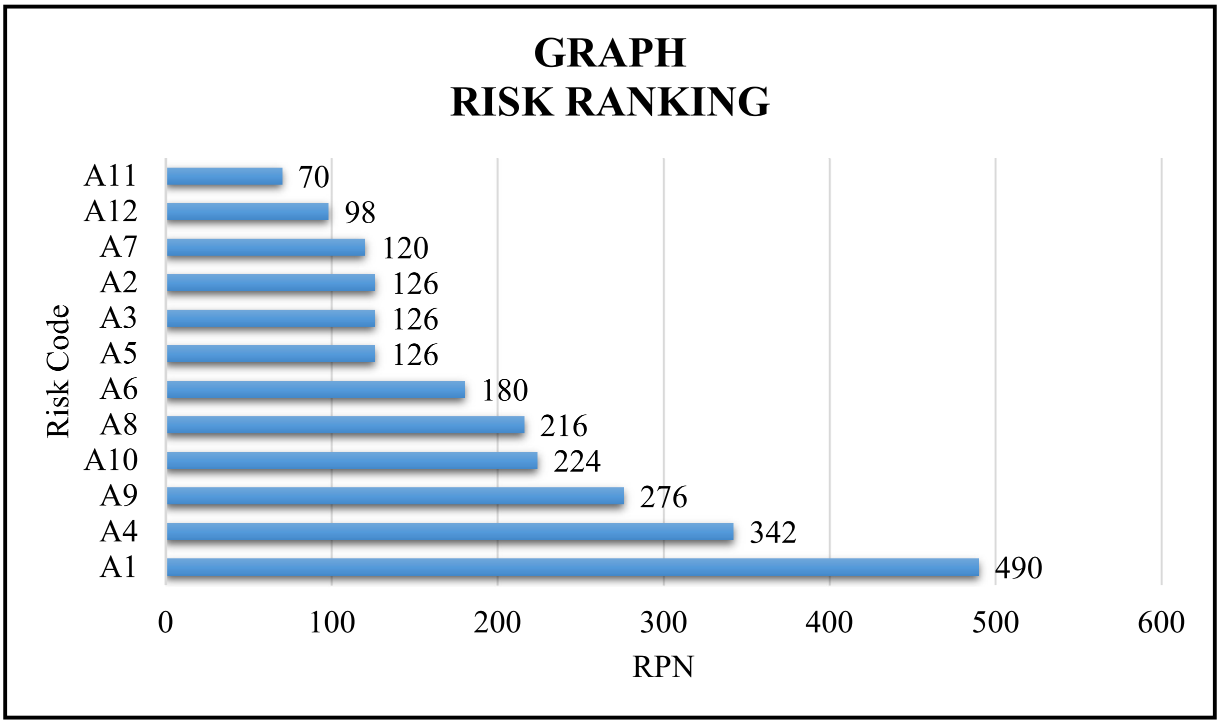


Figure 3. Graph Risk Ranking

The mapping of the risk levels that occur in monoculture rice farming is presented in the image below which shows the position of the risk causes. The numbers listed in the mapping image are the risk cause codes. After determining the risk ranking, the next step is to map the risk based on the risk level. The results of risk mapping is presented in **Table 4.** Risk Mapping.

Table 4. Risk Mapping

RISK LEVEL		**RPN**		
		<71	**>71 - <391**	**>391 - 1000**
SEVERITY	**1 - 6**	A11	A4, A6, A7, A8, A9	
	7 - 8		A2, A3, A5, A10, A12	A1

9 - 10		

Based on the map, it is known that there are 6 risk agents located in the green area, 5 risk agents that are late in the yellow area, and 1 risk agent in the red area. The green area shows the position of the Broadly Acceptable (BA) category, namely the existing risk is acceptable and only requires control with the existing system. The area in yellow shows the As Low as is Reasonably Practicable (ALARP) category, where the risk in the area is a risk that requires risk management or control actions that must be determined immediately. While the red color shows the intolerable (INT) category, meaning that the risk in the area is a risk that requires quick action from management. Risks in the ALARP and INT categories are risk agents that require mitigation action because they are considered to interfere with monoculture rice farming efforts. This risk is the focus of other risk management processes. Risk agents that require mitigation action planning are listed in the following table. After conducting risk mapping, based on the category INT, ALARP is included in the risk level mapping which is presented in **Table 5.** Risk Level Mapping.

Table 5. Risk Level Mapping

Code	Risk Agent	Category	RPN
A2	Shipping Flow from a long manufacturer	INT	490
A3	Convoluted recruitment (licensing) requirements	ALARP	126
A5	Fluctuations in the price of goods	ALARP	126
A10	Declining government subsidies	ALARP	224
A12	Different product quality Price competition between farmers	ALARP	98

The illustration is from the mapping of risk levels based on risk codes with RPN scores categorized into INT and ALARP is presented in **Figure 4.**

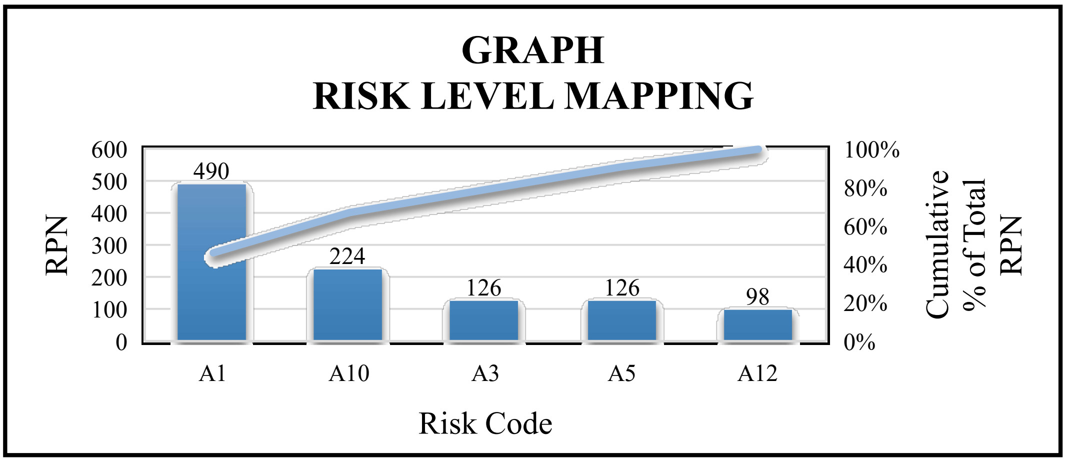


Figure 4. Graph Risk Level Mapping

A1 emerged as the most critical risk agent and was the only one to enter the red zone in the matrix (RPN threshold >391), with a severity value in the 7 – 8 group. From an agricultural economics perspective, this condition indicates a systemic market risk where demand fluctuations not only affect the sales side (E7 and E8), but also spread upstream through the price mechanism and the availability of inputs, especially when demand expectations affect the procurement of seeds (E1) and the price of fertilizers or pesticides (E4). A1 also has a strong association with risk events (E) coded E4 (increase in fertilizer and pesticide prices), E1 (delay in seed supply), and E7 and E8 (market risk).

In the monoculture rice production system, dependence on one commodity makes the level of exposure to the demand cycle higher because there is no income buffer from diversification. Therefore, A1 can not only be understood as a marketing issue, but a factor that determines the stability of cash flow and the ability to finance inputs, which ultimately affects productivity. FMEA mapping also shows an asymmetrical risk structure of monoculture rice farming. Most risk agents are concentrated in the yellow zone (moderate), while only one risk agent is in the red zone (extreme). The categorization limit on the map places the RPN <71 as low (green), 71 – 391 as medium (yellow), and >391 – 1000 as high (red). This arrangement suggests that the production system is not dominated by many small risks, but is strongly determined by one dominant risk that has the potential to control financial performance and business stability.

1. Dominance of market risk agents

The risk agent with the highest priority is A1 (RPN = 490) and the only one that enters the red zone. Substantively, this dominance is in line with the position of rice as a strategic commodity that is closely linked to price stabilization policies and demand dynamics across regions. In the rice value chain, demand shocks or market uptake can quickly spread to the producer level through changes in grain prices, uncertainty of uptake of traders or mills, as well as crop scheduling that is not aligned with market needs (Ruspayandi et al., 2022). In monocultures, the concentration of income on one commodity increases exposure to the demand cycle because farming households do not have a cushion from diversifying commodities or other sources of income.

As a result, disruptions on the demand side, such as a decrease in market absorption or price weakness during the harvest, do not stop as a marketing problem, but turn into financial risks through cash flow channels where retained receipts or price declines weaken working capital capacity to finance inputs and cultivation operations in critical phases (follow-up fertilization, OPT control, labor wages, and post-harvest costs). In such situations, farmers tend to make technical adjustments that are cost-saving, but have the potential to reduce the implementation of optimal cultivation practices (e.g. reducing fertilizer doses or delaying control), so that market risk becomes an indirect determinant of productivity and yield stability (Firmansyah et al., 2025). Thus, A1 should be treated as a systemic risk that affects the sustainability of farming through the interaction between market uncertainty, liquidity, and input use decisions. At the level of risk occurrence, such market pressure is reflected in the relatively high RPNs for E7 (RPN = 175) and E8 (RPN = 160), which generally represent demand or competition risks and in monocultures tend to strengthen when harvests occur simultaneously.

2. Climate risk as a lever for production and post-harvest risk

The A4 risk agent (RPN = 342) is at the top of the yellow zone, indicating that climate is not just a background, but a factor that probabilistic and materially magnifies the intensity of production risk events. In the FMEA results, biophysical stress was reflected in E6 (RPN = 180) as one of the highest risk events. In monoculture systems, the pressure of plant pest organisms (OPT) also often increases because the homogeneity of varieties and uniform planting calendars expand the chances of population explosions.

3. Input policy risks

The incidence of E5 risks related to subsidies and E4 (RPN = 120) related to the increase in input prices show that production costs, especially fertilizers, are the main channel for policy risk transmission to the farming level. When access to fertilizers is disrupted or prices increase, farmers' liquidity needs in the planting phase also increase. The consequences arise in two layers: 1) farmers face financing pressures that can encourage a reduction in fertilization doses or incur high costs, which ultimately suppresses productivity and increases production risks; 2) Fertilizer uncertainty emphasizes the need for more adaptive nutrient management, such as balanced fertilization based on location recommendations, partial substitution with organic inputs, and institutional strengthening of input access through cooperatives.

4. Post-harvest and quality risks

Although the FMEA map places many risk agents in the yellow zone, this does not mean that the impact is small, especially for risks that affect quality and yield shrinkage. Post-harvest loss in cereals can appear as a loss of quantity or quality, which is affected by humidity, temperature, storage infrastructure, and handling practices. In many contexts, loss is dominant in the near stages of production. Therefore, even if post-harvest risk does not always appear as the highest RPN, the economic consequences can still be great in terms of declining quality and lowering selling prices, thereby weakening farmers' bargaining position in a competitive market.

Then in the remaining 6 risk agents are in the safe area, namely green (BA) which indicates that the risk is still acceptable and sufficient to carry out control with the existing system. Based on the analysis that has been carried out, it was found that there is a tendency for risk agents to be more in the green area (BA), it is not wrong because in fact the existence of monoculture rice farming is still running until now.

4. Limitations and Future Directions

The limitations of this study are contextual and cannot be generalized to the entire monoculture rice farming system because it is only carried out in one location. In addition, the limitation of the number of samples is also a limitation of research from findings in the field. Similar research in the future is suggested to cover more locations and expand the sample count for more comparative analysis and improve the generalization of findings. In addition, combining FMEA methods with other methods can also strengthen the validation of risk mitigation priorities.

5. Conclusion

Based on the results of the analysis and discussion, it can be concluded as follows: 1) this study identified 8 risk events (E1–E8) and 12 risk agents (A1–A12) in the monoculture rice farming system in Subak Munggu. This identification shows that risks come not only from the technical aspects of cultivation, but also include market factors, inputs, climate, and farming management behaviors, 2) FMEA results show that A1 (demand fluctuation/market risk) is the most critical risk agent with RPN 490 and is the only one to enter the red zone (intolerable). Meanwhile, other risk agents such as A4 (weather/climate uncertainty), A9 (human error in cultivation/input use), A10 (decreased subsidies), and A8 (plant pests and diseases) are in the ALARP category, meaning they still need control but are under extreme risk. Suggestions for similar studies in the future can be applied to different agricultural contexts to see that the risk priority pattern remains consistent and continue at the mitigation stage by combining the FMEA method with the AHP to look at risk priorities to validate risk priority mitigation. For relevant stakeholders to prioritize A1 (market/demand risk) through mitigation efforts to strengthen absorption certainty (more synchronous harvest planting schedules, purchase agreements, or strengthening collective bargaining positions), because A1 is the only INT risk and most determines business stability.

6 **Declaration of Generative AI and AI-Assisted Technologies in the Writing Process**

During the preparation of this work, the author used AI to help proofreading, grammar correction, and improve the readability of the manuscript. This tool is not used to generate research data, conduct
9 analysis, or determine results and conclusions. After using the tool, the author carefully reviews, verifies, and revises the manuscript as needed and takes full responsibility for the accuracy and integrity of the final publication.

Authorship Contribution Statement

Ni Luh Prima Kemala Dewi[1] contributes to Conceptualization, Methodology, Investigation, Formal analysis, Data curation, Writing original draft, Interpretation of results. Furthermore, Ketut Budi Susrusa[2] contributed to Conceptualization, Methodology, Formal analysis, Writing review & editing, Interpretation of results. Then there are two people who contribute to conducting Investigation, Data curation (data tabulation), Writing review & editing, and also Report writing/documentation, namely Anak Agung Ngurah Surya Yuda Pratama Wibawa[3] and A.A. Putu Endang Sri Lestari Putri[4].

10 **Declaration of Competing Interest**

The authors state that they have neither competing financial interests nor known personal relationships, which could be considered influencing the work reported in this article. Any
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