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Supply chain risk mitigation in halal product MSMEs using the house of risk approach

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ABSTRACT
Implementing halal product assurance policies requires MSMEs not only to verify the halal status of ingredients but also to manage risks across their supply chains. The complexity of activities such as planning, procurement, production, distribution, and product returns can disrupt operations and affect the quality and sustainability of the business. This study aims to identify supply chain risks in halal product MSMEs and formulate mitigation strategies using the House of Risk (HOR) method. Primary data were obtained through observation, interviews, and questionnaires. The analysis results show 21 risk events and 23 risk agents, with three priority mitigation strategies focused on strengthening internal controls, standardizing operational procedures, and increasing supervision. These findings emphasize the importance of a systematic risk management approach in supporting the stability and competitiveness of halal product MSMEs.

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INTRODUCTION

In recent years, the issue of halal has no longer been limited to religious aspects alone but has evolved into a global trend that influences society's consumption patterns, both in Indonesia and in various other countries (Setyaningsih, 2022). The global halal market value is estimated to reach 3.1 trillion USD annually and shows a very promising growth outlook (Jaswir & Mahfudh, 2022). In Indonesia, the development of the halal sector is largely driven by Micro, Small, and Medium Enterprises (MSMEs). For MSMEs, halal certification is not only a means of regulatory compliance but also a strategic tool to enhance competitiveness and promote regional economic growth (Hakim, 2021).

The government's commitment to strengthening the halal ecosystem is reinforced through Law Number 33 of 2014, which mandates halal certification for food and beverage products. However, implementing this policy remains challenging in several regions, including Sampang Regency. Of the 37,117 MSMEs distributed across 14 districts, only around 77 businesses—representing approximately 0.2%—have obtained halal certification under the supervision of the local Office of Cooperatives, Industry, and Trade. Although data from the Ministry of Religious Affairs indicate a higher number, the overall proportion of certified enterprises remains relatively low.

This condition is partly due to relatively low human resource development, which contributes to the economic sector's slowdown (Omar et al., 2020). However, geographically, Sampang has strong potential as a coastal area with abundant fishery resources (Hasanah et al., 2022). Given that the majority of the population is Muslim (Syamsih & Chrismardani, 2022), The opportunity to develop MSMEs based on halal fishery products is very open. This large market potential should serve as a foundation for strengthening the halal industry at the local level.

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One MSME involved in processed fishery products in this area has been operating for several decades and has held halal certification since 2010. The certification allows the business to survive amid competition from similar products. However, the business's stability has not yet been fully matched by significant performance improvements. Business turnover tends to stagnate year after year, indicating internal constraints, particularly in supply chain management.

The supply chain encompasses all activities from planning and raw material procurement to production processes and distribution to consumers, including the flow of information among involved actors (Permana, 2023). The complexity of these activities demands good coordination to ensure effective operations. When risks are not managed systematically, even minor disruptions can escalate into serious obstacles to business growth.

In practice, challenges faced include maintaining employee performance consistency and quality control. Communication errors between departments often lead to suboptimal production processes. Additionally, some consumer complaints regarding product quality discrepancies highlight the need for improvements in operational control systems. This situation underscores the need for improvement strategies to be based on a comprehensive understanding of potential risks along the supply chain.

Therefore, this research was conducted to identify risks in the halal product MSME supply chain and to formulate appropriate mitigation strategies to minimize their impact. The House of Risk (HOR) approach is used to map risks at each activity stage—from planning, procurement, production, distribution, to returns—resulting in more structured control strategies. It is hoped that this research will strengthen supply chain risk management and support the sustainability of halal product MSMEs at the regional level.

RESEARCH METHOD

Materials

The data used in this study were primary data collected through direct observations, in-depth interviews, and structured questionnaires. A purposive sampling technique was used to select respondents with comprehensive knowledge of the enterprise's supply chain operations. The study involved three key respondents: the business owner and two employees directly engaged in planning, procurement, production, and distribution. Given the MSME's relatively small organizational structure, these individuals were deemed to have holistic insight into operational processes and potential risks across the supply chain. In the context of the House of Risk (HOR) method, expert judgment is essential in assessing the severity and occurrence of risks; therefore, selecting knowledgeable key informants was methodologically appropriate. To enhance data credibility, the questionnaire results were triangulated with findings from observations and interviews.

Data Analysis

The data analysis used in this research is based on the HOR (House of Risk) method. The HOR method is designed to identify risks, analyze risks, and evaluate and plan risk planning strategies in a supply chain (Ulfah, 2022). The HOR method consists of 2 phases, namely phase 1 and phase 2. HOR phase 1 is used to identify and analyze the dominant risk agent in a business, enabling the most appropriate strategy to be determined to reduce the risk of occurrence.

Phase 1: Risk Identification and Prioritization

Risk events were identified across supply chain activities, including planning, sourcing, production, delivery, and return processes. Each risk event was assessed using a severity scale ranging from 1 (very low impact) to 10 (very high impact) (Table 1). Risk agents were then evaluated based on their occurrence level using a scale from 1 (rarely) to 10 (almost certain) (Table 2).

1. Determine the severity and Occurance value.

   Determine the weighted value of each risk agent based on its severity. Based on Table 1 and Table 2. The scale used ranges from 1 to 10, where 1 indicates very low risk and 10 indicates very high risk.

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Table 1. Risk Event Assessment (Severity).

Rangking	Severity	Description
1	No	No impact
2	Very Slight	Very little effect on performance.
3	Slight	Little effect on performance.
4	Minor	Very low effect on performance.
5	Moderate	Gradual decline in performance.
6	Significant	Moderate effect on performance.
7	Major	Strong influence on performance.
8	Extreme	Inoperable.
9	Serios	Experiencing failure with a warning.
10	Hazardous	Experienced failure and no warning.

Source: (Prasetyo et al., 2022).

Table 2. Occurrence Assessment.

Ranking	Occurrence	Description
1	Rarely	Rarely
2	Remote	Very rarely
3	Very Slight	A Little Rare
4	Slight	Quite Rare
5	Low	Seldom
6	Medium	Little to Often
7	Moderate High	Quite Often
8	High	Often
9	Very High	Very often
10	Almost Certain	Almost Always Happens

Source: (Prasetyo et al., 2022)

2. Determine the correlation value

The next step is to determine the correlation value between the risk event and the risk cause, which will be represented by Table 3.

Table 3. Correlation Assessment.

Scale	Information
0	No connection
1	Low Relationship
3	Medium Relationship
9	High Relationship

Source: (Prasetyo et al., 2022)

3. Determine the priority value called Aggregate Risk Priority (ARP)

The formula for determining the Aggregate Risk Potential (ARP) value in the HOR phase 1 is as follows:

$$ARP_j = O_j \sum S_i R_{ij}$$

Description:
ARP_j: Aggregate Risk Potential
O_j: The probability value of the occurrence of a risk agent (Occurrence level of risk)
S_i: Level of impact of risk events (Severity level of risk)
R_{ij}: Correlation value between risk and risk agent

The risk agent with the highest weight value will be the top priority in mitigation efforts. Here is an example of a Phase 1 HOR on Table 4.

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Table 4. HOR Phase 1.

Business Process	Risk (E1)	Risk Agent			Severity
		A1	A2	A3	
Plan	E1	R1.1	R1.2	R1.3	S1
Source	E2				S2
Make	E3				S3
Deliver					S4
Return					
Occurrence (Oi)		O1	O2	O3	
ARP		ARP1	ARP2	ARP3	

Source: (Satria & Lubis, 2019)

Phase 2: Mitigation Strategy Formulation

Mitigation strategies were developed for the prioritized risk agents. The effectiveness of each strategy was calculated using:

1. Assess the relationship or correlation of each mitigation action with the cause of the risk

   Then measure the level of difficulty in each strategy action, and finally calculate the total risk of effectiveness with the level of difficulty. The House of Risk phase 2 formula is:

$$TE_k = \sum ARP_j E_{jk}$$

   Description:
   TE_k: The effectiveness of each action.
   ARP_j: Aggregate Risk Potential.
   E_{jk}: Correlation between each prevention action and each risk agent.

2. The next process is to determine the DK (Degree of Difficulty) value shows on Table 5.

Table 5. Degree of Difficulty Assessment.

Scale	Information
3	Mitigation Actions Are Very Easy to Implement
4	Easy to Implement Mitigation Actions
5	Mitigation Actions Are Difficult to Implement

Source: (Prasetyo et al., 2022)

3. Then calculate the ETD (Effectiveness to Difficulty) value using the formula:

$$ETD = Te_k/Dk$$

   Description:
   ETD: Effectiveness to Difficulty.
   Te_k: Total Effectiveness.
   Dk: Degree of Difficulty.

   Some examples of risk event activity indicators used are related to forecasting the amount of demand, raw material inventory, production planning, raw material procurement, raw material checking, and procurement of packing cardboard (Ulfah, 2020), production scheduling, production process, product quality checking, packaging process, shipping process (Sumantri & Marwati, 2023), returns and complaints (Wahyuni & Suprapti, 2023).

   The following is an example of a Phase 2 HOR on Table 6.

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Table 6. HOR Phase 2.

Risk Agent	P1	P2	ARP
A1			
A2			
TEk			
Dk			
ETD			
Rank Of Priority			

Source: (Al Basthomi, 2024)

RESULT AND DISCUSSION

Business Overview

UD Sumber Rejeki Hj. Diya Food is an MSME that has been operating since 1980 on Jalan Trunojoyo, Sampang City. Founded by Hj. Diya improves family welfare. This business is now managed by the second generation, namely Mr. Diman. Since its inception, this company has focused on producing chili sauce, a regional culinary product that has become a distinctive taste for the local community.

Despite operating for more than 4 decades, the performance of this company's turnover, in terms of increasing, is relatively stagnant. This indicates a few challenges faced by this business. Increasingly tight business competition in the food MSME sector, especially in chili sauce products, is one of the factors inhibiting growth. In addition, there are potential obstacles in production management and supply chains that affect this business's performance.

This company produces ready-to-eat *petis* chili sauce. *Petis* is a traditional Indonesian thick paste made from concentrated shrimp or fish extract, commonly used as a flavoring ingredient in local cuisine. The product is prepared using fish extract, tomatoes, chilies, and additional ingredients such as sugar, salt, and preservatives. The quality of the petis chili sauce largely depends on the quality of raw materials and the consistency of the production process. Production is carried out manually by seven employees. Although output reaches hundreds of bottles per day, improvements in production capacity and efficiency remain necessary to enhance business competitiveness.

Supply chain identification

The Supply Chain Operations Reference (SCOR) aims to identify supply chain activities from planning, sourcing, making, delivering, and returning. After collecting data, risk events and risk agents are identified in the production of chili sauce from this company, based on its supply chain activities.

The identification of the supply chain was carried out by interviews and by filling out a questionnaire with the perpetrators of the chili sauce industry. The next stage is weighing the severity and frequency of occurrence. Table 5 shows the risk identification value with severity.

Based on Table 7, the risk identification value (risk event) yielded 21 risk events. Several significant obstacles hinder the achievement of production targets at this company. One of them lies in the planning stage, where the risk of damage to raw materials during storage is greatest. This is caused by the humid warehouse conditions. The next risk is the lack of an adequate recording system to monitor the arrival schedule of raw materials, as the next main causal factor. As a result, raw materials are stored for too long, leading to decreased quality and damage.

The next problem arises at the production or make stage. Unachieved production targets are often due to unexpected events, such as power outages and equipment failures. Lack of emergency preparedness, such as the absence of generators and limited access to technicians, worsens the situation. When production disruptions occur, the production process stops, and repairs take a long time, resulting in decreased productivity.

At the delivery stage, quality degradation is a major cause of high severity. Factors such as natural disasters and vehicle damage result in excessively long delivery times. Poor road conditions, extreme weather, or vehicle accidents can cause product damage during delivery. In addition, long delivery times can affect product quality. At the return stage, the highest number is the high rate of product returns due

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to defects. In one shipment, almost all products were damaged, making them unsuitable for sale and requiring a return. This usually occurs due to human error during production and delivery, which greatly affects product quality.

Table 7. List of risk events and severity values.

Process	Activity	Risk Event	Code	*Severity*
Plan	Forecasting the quantity demanded.	The demand forecast is not accurate.	E1	5
	Receipt of raw material inventory.	Delay in raw materials arriving at the warehouse.	E2	6
	Production planning.	Damage to raw materials during storage.	E3	8
		Damp storage warehouse.	E4	5
Source	Procurement of raw materials.	Delay in receipt of raw materials.	E5	5
	Raw material checking.	Error in raw materials received.	E6	6
		Discrepancy in the quantity of raw materials received.	E7	8
		The quantity of raw materials received does not match the specifications.	E8	5
	Procurement of packing cardboard.	The cardboard was not on time.	E9	3
Make	Production scheduling	Errors in production scheduling.	E10	4
	Production process.	There was a delay in the production process	E11	5
		There is a broken production machine.	E12	3
		Production target not achieved.	E13	8
		The quality of raw materials decreases due to delays in the production process.	E14	7
	Packaging process.	Late in packaging.	E15	6
		Damaged packaging.	E16	5
Deliver	Delivery process.	Product damaged during shipping.	E17	8
		Decreased quality during products delivery process.	E18	8
		The packaging was damaged during distribution.	E19	6
Return	Return of goods.	Product returns due to defects.	E20	7
		Complaints from customers.	E21	4

The next step is to identify the risk agent at the source or cause of the risk with the occurrence value, as presented in Table 8.

Table 8 shows that several production risk factors have a very high frequency of occurrence. One cause of risk is high demand volatility. *Petis* is mostly consumed as a side sauce that is suitable to be paired with fresh fruits, so it is suitable to be consumed when the weather is hot, especially in the dry season, which usually increases sales compared to the rainy season, coupled with the existence of certain fruit seasons that can affect chili sauce sales.

The next risk factor is human error, which often occurs at almost every stage of the production process. In addition, ineffective communication among employees, weak monitoring systems, and minimal quality control are serious problems. Ideally, the company should have a dedicated division to handle these problems.

Another significant risk factor is the absence of a structured machine maintenance procedure. As a result, production machines quickly break down, leading to higher maintenance costs. In addition, delays in ordering packaging materials are also a production constraint. Without a clear ordering

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schedule, there is often a shortage of packaging materials during production. Even though the company has a fixed supplier, late ordering can still disrupt smooth production.

Table 8. List of sources of risk causes.

Process	Activity	Risk Agent	Code	Occurrence
Plan	Forecasting the quantity demanded.	Errors in forecasting the amount of demand.	A1	4
	Receipt of raw material inventory.	There is a problem with the supplier.	A2	3
	Production planning.	Wrong storage method	A3	3
		Inadequate equipment.	A4	4
		High demand volatility.	A5	6
Source	Procurement of raw materials.	Human Error.	A6	6
		Raw materials are not available.	A7	4
		Mistake in selecting raw materials.	A8	4
	Raw material checking.	No recording.	A9	4
	Procurement of packing cardboard.	Lack of communication between employees.	A10	6
Make	Production scheduling.	No production scheduling.	A11	5
	Production process.	Lack of employee skills.	A12	5
		Lack of monitoring.	A13	6
		Lack of quality control.	A14	6
		Cleanliness is not maintained.	A15	4
		Power failure.	A16	5
		There is no machine maintenance procedure.	A17	6
	Packing.	Delay in ordering the packaging.	A18	6
		The packaging is not of good quality.	A19	3
Delivery	Delivery process.	Distributors are less careful when distributing.	A20	5
		There are obstacles on the road (natural/technical factors).	A21	5
Return	Return of goods to the supplier.	The product does not match the order.	A22	4
		Damage during shipping.	A23	5

Supply Chain Risk Analysis

Based on the previous supply chain risk identification, 21 risk events and 23 risk agents were obtained. Furthermore, calculate the ARP value, sort it from highest to lowest, and perform a correlation analysis to assess how closely the risk impact is related to its cause. The correlation scale used is 0, 1, 3, and 9. This is done to classify the strength of the relationship between the two variables. A scale of 0 indicates that there is no relationship at all, 1 is slightly related, 3 is quite related, while a scale of 9 indicates a very strong relationship (Arif et al., 2020).

Table 9 shows that the highest ARP value is for risk agent A6 (human error), and the lowest is for risk agent A5 (high demand volatility). So far, sources of risk have often been caused by human error, such as errors in measuring raw materials during production, inconsistent maintenance of product quality, and more. A6 or human error occurs in almost every supply chain activity from plan to delivery. Human error seems trivial, even though it can have very fatal consequences (Ali et al., 2017; Ivanov & Dolgui, 2021). The lowest-risk source value is high-demand volatility. In the occurrence table, the volatility value is high, but the final ARP value is low. This shows that there is high volatility, but this can still be handled by MSMEs, so it has not had a significant impact (Pujawan & Bah, 2022; Wang et al., 2025).

Table 9. House of Risk Analysis Phase 1.

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Risk Event	Risk Agent																							Severity of Risk
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	
E1	9	9		3	3	9			9	9	3	3	3											5
E2	3	9		1		9	1	3		9	9	9	9							9	9			6
E3			9	9		9			3	3	3	3	9	9	3	9	3							8
E4			3	9		9				1		1	9	9	9	9								5
E5		9		3		9	9	9	9	9		3	9								9			5
E6	9	3				3	9	9	9	9	9	9	9	9										6
E7	9	3				3	9	9	9	9	9	9	9	9										8
E8	9	3				3	9	9	9	9	9	9	9	9										5
E9		9				3				9	9		3											3
E10						9			3	3	9	3	3											4
E11						3	9			3	9		1											5
E12				9		3						9	9	9	3	9	9							3
E13		3			3	9	9	3	3	3	9	9	3	3		3	3				3			8
E14				1		9		3	9	1	9	3	1	9	9	9								7
E15						3				3	9	3	1				9	9						6
E16						3							9			3								5
E17			3			1						3								9	9			8
E18						3													9	9	9			8
E19			3			3							3	9					9	9	9	9	9	6
E20																						9	9	7
E21																						9	3	4
Occ of Risk	4	3	3	4	6	6	4	4	4	6	5	5	6	6	4	5	6	6	3	5	5	4	5	
ARP	936	756	387	748	234	3630	343	1116	1536	2682	2805	2290	3330	2736	564	1230	774	324	378	1260	1605	612	645	
Priority Ranking	12	14	19	15	23	1	21	11	8	5	3	6	2	4	18	10	13	22	20	9	7	17	16	

The next step is to conduct a risk evaluation focusing on the dominant risk causes identified through Pareto diagram analysis (Figure 1).

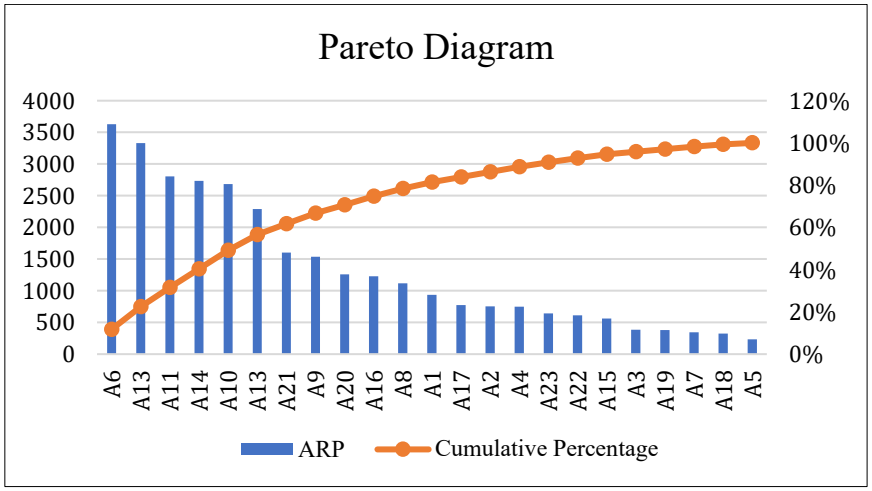

Figure 1. Pareto diagram.

The Pareto diagram (Figure 1) shows the bars arranged from highest to lowest frequency, and it shows which problems occur most often. According to Abyad (2021), the 80:20 principle states that 20% of risk causes (risk agents) account for 80% of risk events, so this is what requires priority handling. The Pareto diagram shows that A6 has the highest ARP value and the lowest cumulative value, indicating that addressing problems in A6 or Human error will have the greatest impact on business development.

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The following are the cumulative values of the five risk agents with the highest values.

Table 10. Five priority risk sources.

Ranking	Risk Agent	ARP	Total Percentage	Cumulative Percentage
1	A6	3630	12%	12%
2	A13	3330	11%	23%
3	A11	2805	9%	32%
4	A14	2736	9%	40%
5	A10	2682	9%	49%

Based on Table 10, five priority risk causes were obtained that had the greatest impact and were sufficient to represent other risk causes with smaller values. The risk with the greatest value will be the primary focus of risk control and mitigation efforts. The five risk causes are: first, A6 (human error); second, A13 (lack of monitoring); third, A11 (no production scheduling); fourth, A14 (lack of quality control); and fifth, A10 (lack of communication between employees).

A6 Human error often occurs in almost every activity of chili sauce production. Human error cannot be avoided in every business activity, from the planning stage (plan) through procurement (source), production (make), and delivery. Human imperfection in carrying out their duties can trigger various types of errors, ranging from miscalculations and production negligence to miscommunication between teams, which can cause losses. This is in line with research conducted by Putri & Widodo (2023), human error significantly affects development at PT Surabaya Industrial Estate Rungkut (Persero), where it is the main cause of financial recording errors, with a significant impact on the company's finances.

The 2nd risk source's priority is A16 (lack of monitoring). So far, during chili sauce production, all employees have been assigned to their respective job descriptions, and there is no dedicated monitoring section. Monitoring activities are handled by the owner of this company, who himself is not always in the factory because he must do other activities. This is in line with research conducted by Waluyo et al. (2021), that the lack of monitoring has a major impact on the process of delivering goods to consumers (Patricia et al., 2025; Ramingwong et al., 2024; Rokhman, 2021; Susanto et al., 2026).

The next priority is the absence of production scheduling. So far, production has been carried out without any scheduling. If the product stock starts to run low, the production process is restarted. Chili sauce is still produced traditionally, using limited tools, so the production process takes longer. The production scheduling stage is crucial to the production process. Punctuality is needed because production delays can damage the company's reputation in the eyes of customers, while completion too quickly will increase product storage costs (Syabani & Setiafindari, 2022).

The fourth priority is the lack of quality control. Quality control is an important step to maintain product quality. This process includes the use of appropriate methods, as well as the skills and knowledge of workers involved in the production process (Sarah et al., 2024). So far, there is no dedicated team overseeing production quality control, and it relies on its workers' instincts. The possibility of differences in chili sauce quality is very high.

The last priority is related to the lack of communication between employees. There are several instances of miscommunication between employees. For example, there is a miscommunication between employees in the production and delivery sections. The product is ready for distribution by the delivery team, but it has not yet been fully manufactured. The importance of establishing relationships between employees to maximize overall performance. Lack of communication or poor communication will hinder performance and cause errors and conflicts that can affect the development of the business as a whole (Monika & Kusumawardhani, 2023).

After identifying the priority risk sources, the next step is to formulate mitigation strategies to address them. This process uses the HOR phase 2 method to generate priority strategies for implementation in MSMEs. The following is a list of risk-source-handling strategies at this company.

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Table 11. Risk source management strategy.

Code	Handling Strategy	Mark
P1	Be more selective in choosing experienced and capable employees when recruiting.	3
P2	Emphasize to workers to do work according to SOP.	4
P3	Providing training to employees in various fields.	5
P4	Conduct routine evaluations of the section/everyone.	3
P5	Conduct daily supervision.	3
P6	Making production planning.	3
P7	From a special quality control team.	5
P8	Maintaining good relations, coordination, and communication between departments (Indana Farah).	3

Table 11 shows eight risk management strategies at this company. After designing various risk mitigation strategies and assessing the difficulty of each, the next step is to conduct a correlation analysis between the strategies and the dominant risk agents. This analysis aims to determine the weight or importance of each strategy in addressing priority risks. The results of this correlation analysis will be used to calculate the level of effectiveness of each mitigation strategy.

Table 12. HOR matrix phase 2.

Source of Risk		Handling Strategy								
		P1	P2	P3	P4	P5	P6	P7	P8	ARP
A6	Human Error	9	9	3						3630
A13	Lack of Monitoring		9		9	9				3330
A11	Lack of production scheduling				9	3	9			2805
A14	Lack of Quality Control		1	9				9		2736
A10	Lack of Communication between Employees								9	2682
TE_k		32670	65376	35514	55215	38385	25245	24624	24138	
Dk		3	4	5	3	3	3	5	3	
ETD		10890	16344	7103	18405	12795	8415	4925	8046	
Ranking		4	2	7	1	3	5	8	6	

Based on Table 12, the first strategic priority is P4 (conducting routine evaluations of each section) with an ETD value of 18405. This company has not conducted any routine evaluations. After production activities, employees go straight home without any evaluation. Evaluation is carried out if an error has occurred. In the House of Risk analysis, a higher ETD value indicates a more favorable balance between effectiveness and implementation difficulty; therefore, strategies with larger ETD values are considered higher priorities for implementation. Currently, UD Sumber Rejeki Hj. Diya Food does not conduct routine evaluations. After production activities, employees typically return home without reviewing their performance, and evaluation is conducted only when errors occur. This reactive

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approach may hinder business development, whereas routine evaluation enables proactive identification of operational weaknesses and improvement opportunities. Consistent with research on operational risk management by Ali et al. (2024), routine evaluation plays a crucial role in supporting better decision-making and maintaining organizational performance. Remaining proactive in identifying internal and external factors is essential for achieving operational goals.

The second-priority strategy, with a value of 16344, is P2 (Emphasize having workers do the work according to SOP). So far, the production process at this company relies more on workers' individual intuition. Variations in knowledge and experience between employees often result in inconsistent production results, especially at subjective stages such as determining the level of ripeness of the chili sauce. To ensure consistent, standardized product quality, implementing detailed standard operating procedures (SOPs) for raw material measurements and process duration is very important. This is in line with research conducted by Ulfah (2022), which states that the effectiveness value for carrying out work in accordance with the SOP obtained the second strategic priority value with a value of 9036, meaning that the strategy is easy to carry out and has a large impact on reducing the causes of risk.

The third priority strategy, with an ETD value of 12795, is P5 (conducting daily supervision or monitoring). Interview findings indicate that supervision is currently handled solely by the business owner, who is not always present due to other responsibilities. The MSME acknowledged the need for a dedicated supervisor to ensure continuous monitoring of operational activities. From a managerial perspective, structured supervision enhances operational control and reduces risk. This is consistent with previous research highlighting the role of supervision and motivation in improving production performance (Metaragakusuma et al., 2017).

CONCLUSION

UD. Sumber Rejeki Hj. Diya Food, which is one of the halal MSMEs in Sampang Regency. These MSMEs apparently have several obstacles to developing their business. After conducting risk management research with the House of Risk method, 21 risk events and 23 risk agents were obtained. Then the priority risk causes are A6 (human error), A13 (lack of monitoring), A11 (No production scheduling), A14 (lack of quality control), and A10 (lack of communication between employees). Based on the dominant risk causes, eight mitigation strategies were identified to minimize the occurrence of priority risk causes. The top three ranked risk mitigations are P4 (conducting routine evaluations of each section), P2 (emphasizing that workers do work in accordance with the SOP), and P5 (conducting supervision or monitoring every day). These findings are important to be used as a reference for formulating the strategy for agribusiness development. This research is expected to be the first step in improving the effectiveness of risk management in the MSME sector. In the future, the use of more diverse and in-depth methods is expected to formulate more effective strategies and make a meaningful contribution to the sustainable development of other MSMEs.

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