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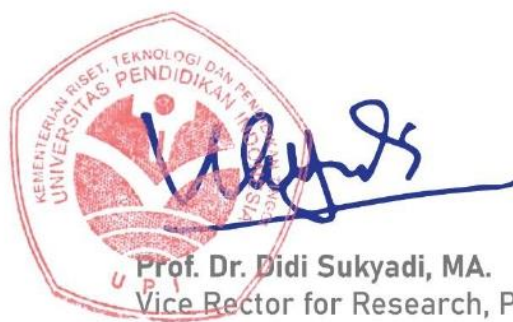
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as a **Presenter** of a paper entitled:

Supply chain strategies to minimize the risk of local potato products

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# Supply chain strategies to minimize the risk of local potato products

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# Supply Chain Strategies to Minimize the Risk of Local Potato Products

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**Abstract.** The supply chain has a strategic goal that needs to achieve to make the supply chain win or at least survive in the competition. To be able to win a market competition, the supply chain must be able to provide cheap, high-quality products while minimizing the level of risk. This study aims to describe the supply chain of potatoes and analyze the performance of potato supply chain management in Garut Regency to minimize risk. The method used in this research is The technique used is carried out through several stages namely; 1) fishbone diagram, 2) Approximate, 3) Risk Matrix Chart and 4) Risk Management Strategy. Based on the results of research shows that one of the key factors to optimize the supply chain is to create a flow of information that moves quickly and accurately between the network or the chain and the movement of goods effectively and efficiently, which results in customer satisfaction. Risk management in the supply chain actors of potato commodities in Garut Regency, aims to minimize the coming risks at each level of the supply chain, which can lead to losses, by transferring the risk (avoid), controlling the risk (mitigating), transferring the risk (transferring), and accept the risk (keep).

## INTRODUCTION

Strategy is a way to achieve company goals with a variety of company activities starting from environmental analysis, formulation, implementation and evaluation [1,2]. Supply Chain Risk Management is a risk that occurs in the flow of products, information, raw materials to the delivery of the final product that threatens the entire supply chain from the initial supplier to the consumer [3]. Several studies have shown the relationship between supply chain strategy and company performance, an appropriate and measurable strategy in minimizing risk will improve company performance [4,5]. At present the need for supply of potato products in Indonesia is increasing every year. Large consumption has not been fulfilled by the supply available.

**TABLE 1.** Average of demand and supply of Potatoes in Indonesia

Description	Years				
	2014	2015	2016	2017	2018
Consumption	1,476	2,284	2,503	2,220	2,282
Supply	1,482	1,219	1,305	1,295	1,265

In Table 1, potato consumption needs are more than the supply of potatoes in Indonesia, which is always fluctuating every year. Fluctuations in supply due to the influence of environmental factors, the availability of limited quality seeds, stagnant potato productivity, potato distortion, and accessibility due to inadequate facilities and infrastructure,

weak regulation, infrastructure, and others as well as uncontrolled supply chains resulting in information gaps between consumers and producer.

Distortion causes various problems. Among others, the supply of potatoes is not smooth, the distribution of risk is not proportional to the value-added and the benefits of inefficient supply chain actors. In this distortion, the ones who suffer the most are the farmers who provide the raw material, which carries a large risk with minimal profit. Management at each level of the supply chain will reduce the distortion of the distribution of potatoes. Research on supply chain risk management is a study that has increased every year, there were 248 studies in the United States in 2015 with the first rank of the University of North Texas [6]. Based on this research, SCRM research is research that is still relevant to the current issue.

## METHODS

This research is qualitative research, using surveys, direct observations, as well as conducting in-depth interviews (in-depth interviews) to the research location aimed at finding out the existence of the supply chain actors of potato commodities spread in Garut regency. In this study, based on the object of the research, the population used is all supply chain actors in the potato commodity in 3 Districts of Garut Regency. So that it can be seen the sample in the study, namely: Farmer (9), main dealer (3), dealer (3), retail traders (5). The total sample of potato commodity members is 20 samples. The technique used is carried out through several stages namely; 1) fishbone diagram, 2) Approximate, 3) Risk Matrix Chart and 4) Risk Management Strategy [7,8].

## RESULTS AND DISCUSSION

### Fishbone Diagram

Based on the identification of risk fishbone at the farm level, it can be known, namely, production planning, production facilities and facilities, productivity, post-harvest, and partnerships; risks at the level of small collectors, namely, the suitability of prices and procurement of goods; risks at the level of large collectors, i.e., procurement of goods and payments; while at the level of retail traders, namely procurement of goods and remaining stock. Events from each member of the supply chain can cause unwanted risks and can cause harm. Identification of the supply chain of potato commodities in Garut Regency can be seen in Fig. 1 diagram of the fishbone.

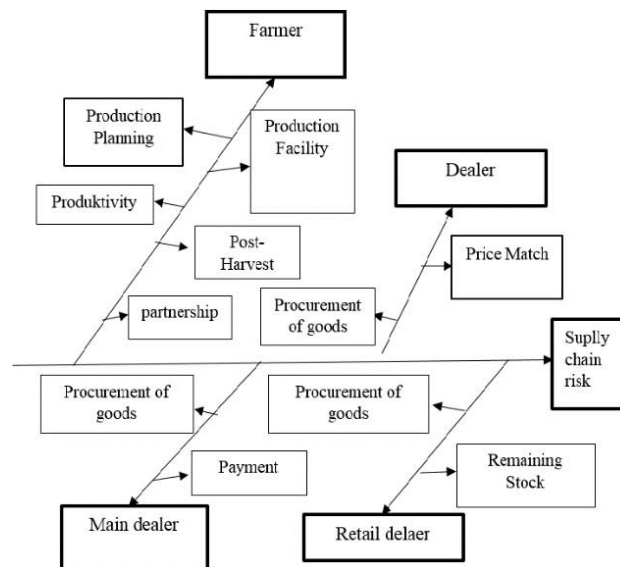


FIGURE 1. Identification of supply chain risk fishbone method (research finding)

## Approximation Method

Based on the calculation results obtained from the approximation method, the level of farmers with a risk status value of 17.3, the collector's risk status value of 13.5, the retailer's risk status value of 11.1, and the distributor's level with the status of the lowest risk value of 4.5. In the process of potato supply chain activities in Garut district shows that farmers have the highest risk status value. The second rank is the collector, the third retailer, and the lowest risk is the distributor. For a more clear supply chain risk bar diagram can be seen in Fig. 2.

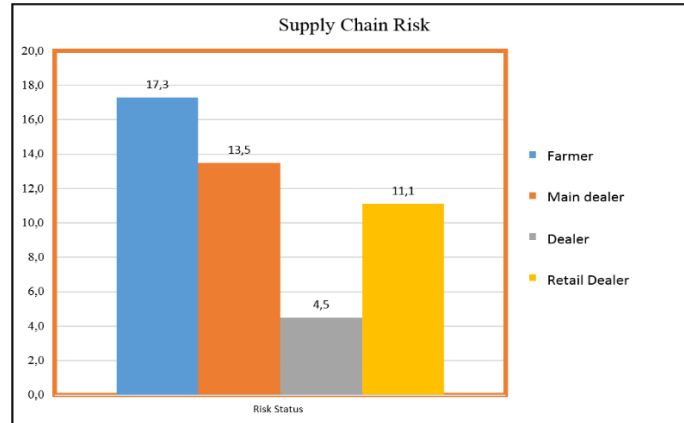


FIGURE 2. Supply chain risk

## Supply Chain Risk Mapping

The third step is risk mapping (Fig. 3), which is an advanced process of risk measurement. Sorting used to arrange risk based on each particular group to determine the priorities of the group. Furthermore, risk management is related to the two dimensions of impact (D) and also the possibility (K) of the higher risk status value, so it is increasingly necessary to get attention if the risk is large. Conversely, if the risk status is low, the focus will be smaller too. The next step priority handling is risk mapping. Risk mapping is the basis for risk structuring in each specific group. Alternative arrangements are made for risk management related to the two dimensions of impact (D) and also likelihood (P). The higher the risk status, the higher the attention required if the risk is large, but conversely, if the risk status value is lower, the lower the company's focus in dealing with the risk.

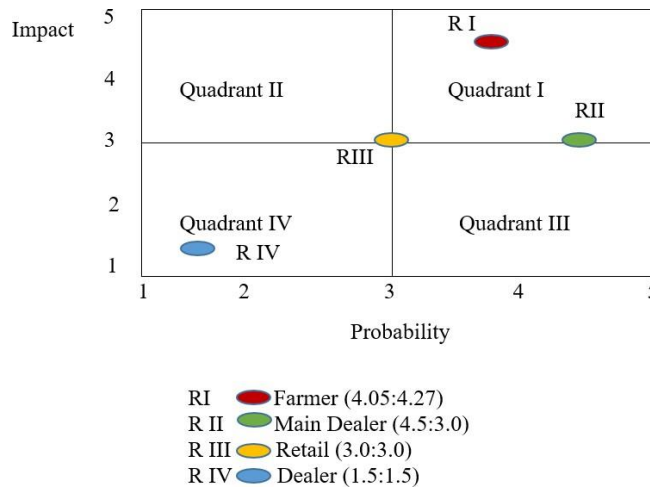


FIGURE 3. Supply chain risk mapping

## Supply Chain Strategies

Risk in quadrant I, large probability and large impact, this quadrant can lead to a risk of loss and bankruptcy, the risk is irrelevant if the risk occurs at the supply chain level. Therefore proper management in quadrant I, to minimize management by avoiding, transferring, and control. Preventing, this action serves to avoid the impact of a huge risk on the supply chain actors, or avoid activities related to the risk that will occur. Mitigating (mitigating) is an action to reduce or anticipate the negative effects of the risks that will be caused, with strict prevention and supervision must be increased. Transfer (transfer), is a function to transfer the risk to other parties who have a small risk [9].

Risk in quadrant II, the impact of a large risk, can result in losses as well, but this risk at the supply chain level is rarely encountered because it is rare. The character of this risk is very difficult to understand and difficult to predict when this risk will occur. Appropriate management in quadrant II, the best way to control (mitigate), its function is to reduce, mitigate, anticipate the possibility and impact of risks that cause negative effects.

Risk in quadrant III, the impact of the risk is small, the probability is large, at the level of the supply chain in this quadrant, monopolizing the risk in the safe zone so that the safe zone does not change has a major impact. Appropriate risk management in quadrant III, namely by way of transfer (transfer), transfer the risk to those who carry a small risk.

Risk in quadrant IV, the risk it has is not dangerous. The probability in this quadrant is very small, although it occurs, the impact of the risk caused is very small does not affect the achievement and targets in each supply chain. Appropriate risk management in quadrant IV, namely by accepting (keep), that is, its function is only to accept existing risks, even though the risks posed by this quadrant are not dangerous, but must always detect and monitor. The detect function is to detect activities, people, tools or various events that occur and can cause losses to the supply chain, while the monitor is to monitor risk factors that.

Supply chain strategy is very effective to minimize risk, this is reinforced by the opinion [10]. Several studies have explained that implementing supply chain strategies can increase efficiency and effectiveness [11,12].

## CONCLUSION

Risk management aims to minimize the risk of each member of the supply chain located quadrants I, II, III, and IV per event. Farmer-level control that is, by way of (avoiding) avoiding risk, (mitigating) controlling risk, and (transfer) transferring risk, because of high probability and significant impact. Collector level risk control namely, chances are in quadrants I and III, control to minimize by avoiding risk, (mitigating) managing risk, (transfer) transferring risk. Supply chain actors must be able to utilize information media that are now more transparent, be it product information, prices, markets and other information that has been provided either in the central government or in the regions, government intervention or related parties to develop human resources that are experts and skilled in their fields.

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