

## THE SUPPLY CHAIN ANALYSIS OF FS JASMINE RICE BY PT FOOD STATION TJIPINANG JAYA USING FOOD SUPPLY CHAIN NETWORK (FSCN) APPROACH

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**Abstract:** Supply chain of FS Jasmine rice products from PT Food Station Tjipinang Jaya still facing some problems as low stock availability, low rice quality, and high expenses but there was an increase in demand of FS Jasmine rice in 2021. Thus, the purpose of this study was to analyze the supply chain of FS Jasmine rice by using the Food Supply Chain Network (FSCN) approach comprehensively. The process of preparing Food Supply Chain Networks (FSCN) consists of supply chain structures, business processes, resources, and supply chain management. The sample in the study was 69 farmers, using the purposive sampling method by selecting farmers with the criteria of being members of the Malai Padi farmer group, CV Sandy Jaya and Tani Mulus who are partners of PT FSTJ. This research showed that the condition of the supply chain for FS Jasmine Rice in Indramayu Regency is already in good condition for each member of the supply chain because the supply chain already has clear goals, and market targets, namely domestic market and export plans, moreover development targets, namely increasing quality, product continuity, expanding market, moreover innovation and use of technology. However, optimizations are needed to strengthen the functions of farmer groups such as cultivation patterns to increase the quality, productivity per hectare, and quantity produced to meet the demand.

**Keywords:** farmers group, food supply chain networks, product continuity, rice, supply chain

**Abstrak:** Rantai pasok Beras FS Jasmine produk dari PT Food Station Tjipinang Jaya masih menghadapi beberapa permasalahan seperti rendahnya ketersediaan stok, rendahnya kualitas beras, dan juga tingginya beban biaya yang muncul. Tujuan penelitian ini yaitu menganalisis rantai pasok beras FS Jasmine produk PT FSTJ secara komprehensif. Kerangka proses Food Supply Chain Networks (FSCN) terdiri dari struktur rantai pasok, proses bisnis rantai pasok, sumberdaya rantai pasok, dan manajemen rantai pasok. Penentuan sampel pada penelitian sebanyak 69 petani dengan metode purposive sampling yaitu melakukan pemilihan petani yang dijadikan sebagai sampel dengan kriteria sebagai anggota dari kelompok tani Koperasi Malai Padi, CV Sandy Jaya dan Tani Mulus yang merupakan mitra dari PT FSTJ. Penelitian ini menunjukkan kondisi rantai pasok Beras FS Jasmine di Kabupaten Indramayu sudah pada kondisi yang baik pada setiap anggota rantai pasok karena rantai pasok telah memiliki sasaran yang jelas, sasaran pasar yaitu pasar domestik dan rencana untuk ekspor, maupun sasaran pengembangan yaitu peningkatan terhadap kualitas, kuantitas, kontinuitas produk, perluasan jangkauan pasar, serta inovasi dan penggunaan teknologi. Namun, diperlukan upaya penguatan fungsi kelompok tani seperti pola budidaya, sehingga kualitas yang dihasilkan lebih baik, produktivitas per hektar meningkat, dan kuantitas yang dihasilkan dapat memenuhi permintaan.

**Kata kunci:** kelompok tani, food supply chain network, kontinuitas produk, beras, rantai pasok

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## INTRODUCTION

The availability of rice for Indonesia is considered very important since rice is still a basic food need for the community in general. This can be proven by the level of consumption of rice per capita by the Indonesian population, as one of the highest in the world, 93.65 kg/capita/in 2019 (Indonesian Ministry of Agriculture, 2021). Since the primary component of rice, the nation's staple food, is always linked to food security in Indonesia, the government is extremely concerned about this particular commodity.

DKI Jakarta as the capital city of Indonesia is one of the provinces with the highest level of rice consumption in 2019, 1,242,188 tons (Indonesian Central Bureau of Statistics, 2019). DKI Jakarta is one of the provinces with a deficit in the rice commodity. This is due to the fact that DKI Jakarta lacks sufficient land area for rice production, necessitating the purchase of rice from other production hubs in Indonesia, including West Java, Central Java, East Java, Lampung, and South Sulawesi.

PT Food Station Tjipinang Jaya is one of the Regional Owned Enterprise (BUMD) DKI Jakarta which has the main task of maintaining the availability and affordability of rice prices by supplying both modern trade and general trade, which has a market share of 10–13% of total rice stock in Pasar Induk Beras Cipinang. The tendency of consumers to consume rice will be adjusted to what they need and what they want. Shape, color, aroma, rice integrity, taste, nutritional value, and functional quality are consumer preferences for commonly consumed rice products (Zahara et al. 2016). In 2019, the company together with partners in Indramayu Regency, the Malai Padi Cooperative, saw the potential for the development of Bawor 9 rice, so a characteristic and market analysis was carried out. The Bawor 9 variety has different characteristics, long, fluffier, and aromatic grains. The Bawor 9 variety is one of the varieties that have been planted by farmers in the Indramayu Regency. However, in general, the yields produced are only used by farmers to fulfill household consumption.

In 2020, the company has produced a new brand of rice, FS Jasmine Rice using the Bawor 9 rice variety as raw material. Furthermore, the company has succeeded

in selling FS Jasmine Rice products online and in supermarkets. From Figure 1 can be seen the monthly sales of FS Jasmine Rice in 2020-2021 still fluctuated. Whereas, the rice supply chain has the goal of fulfilling consumer demand and satisfaction, which can be measured through the aspects of quantity, quality, and continuity of goods. However, the quantity of bawor 9 rice needed by customers cannot be fulfilled if the company only has one supplier. This is indicated by the company's low service level value, which is 45.00 percent (Food Station, 2021). In 2021 the company will add cooperation partners, CV Sandy Jaya and the Mulus Farmer Group in Indramayu Regency. The addition of supply partners provides an alternative and supply network for the company. This kind of network according to Sathapatyanon et al. (2018) facilitates information sharing about market demands, internal collective action by cooperative members, and assuring trust and transparency, decreasing market uncertainties for participants in food supply chains. However, the company must have better control over the quality of raw materials delivered by supply partners, because there had been a quality issue where the water content exceeded 14 percent and contained foreign objects that affected the production cost.

In the early period of 2021, the demand for FS Jasmine rice products increased by 8.34% from the final period of 2020, since the company had customers who made regular purchases (Food Station, 2021). In addition, AEON as a new customer has set a target for the company to be able to meet demand of 20 tonnes per month. Thus, it will be a challenge for the company to be able to fulfill the continuity of procurement according to the time of consumer demand. Therefore, supply chain management is needed, because The SCM is supposed to ensure the supply of raw materials, semi-finished materials, and completed materials in this agro-industry, allowing for production continuity and meeting consumer expectations (Fristin et al. 2021). The supply chain is an activity that involves all parties, whether producing or providing services, from producers to final consumers (Saragih et al. 2017). Based on the description above, it is necessary to analyze the supply chain for FS Jasmine rice, a product of PT Food Station obtained from partners in Indramayu Regency using the Food Supply Chain Network (FSCN) approach to understand the supply chain condition comprehensively.

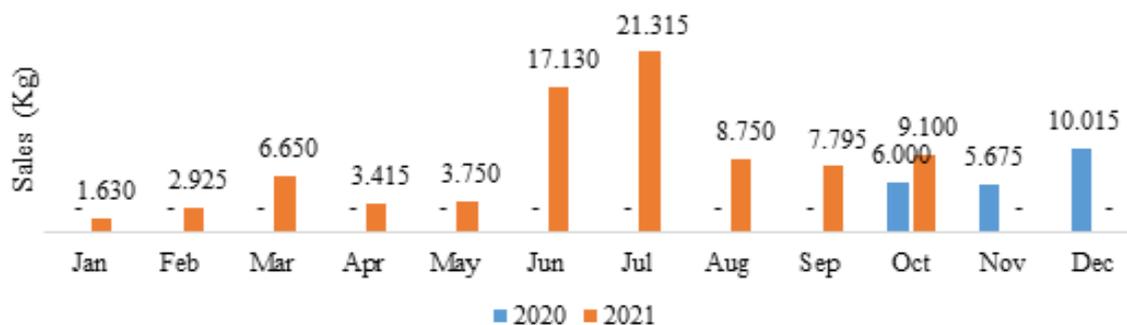


Figure 1. FS Jasmine Rice Sales 2020-2021 (Food Station Tjipinang Jaya, 2021)

## METHODS

This research was conducted in Indramayu Regency, West Java Province. The location selection was carried out using purposive sampling, since the rice production area is the raw material for FS Jasmine rice products, Bawor 9 and there is cooperation with partner farmer groups. Determination of respondents using the purposive sampling method, in which the selection of farmers, farmer groups, company employees, and consumers is done deliberately according to the criteria in this study, where the total of farmers cultivated bawor 9 and join the partner farmer groups of PT Food Station are 69 farmers and each farmer group consists of 23 farmers, Respondents from the company are company employees who have job duties and criteria according to the research.

This research used primary and secondary data, both quantitative and qualitative in order to answer questions and research objectives. The primary data collection technique used is a survey method by conducting observations and interviews that are adjusted to the distribution of questionnaires. Secondary data is data collected based on the results of literature studies related to research methods and the results of several studies. The collection of secondary data used in this study can be used as a reference and complement the primary data.

The condition of the FS Jasmine rice supply chain that occurred at PT Food Station Tjipinang Jaya using Bawor 9 rice raw materials in Indramayu Regency, West Java Province includes members, products, processes,

resources, and management, as well as the relationship between attributes allows for a clear understanding using the Food Supply Chain Networks (FSCN) process framework that developed by Vorst (2006). Before explaining the FSCN process framework, it is also necessary to understand about supply chain objectives. Supply chain objectives can be explained from two perspectives, market objective and development objective. The FSCN process framework consists of a supply chain structure, supply chain business processes, supply chain resources, and supply chain management which can be seen in Figure 2. The structure of the FS Jasmine rice supply chain describes the main members or actors of the supply chain network and explains their respective roles. Supply chain business processes, explaining the processes that occur in the supply chain whether the entire supply chain is integrated with each other with each member and whether it is running well or not, and explaining how through a certain strategic action it is able to realize an integrated supply chain. Supply chain resources consist of physical resources, human resources, technology and capital. The review of supply chain resources aims to determine the potential that can support supply chain development efforts and can be seen in Figure 2.

The FS Jasmine rice supply chain can be needs further analysis using FSCN to analyze the whole condition of the supply chain and as there are still some problems occur in the supply chain. Thus, by knowing the condition of the whole supply chain, both the company and farmer as partner could easily mapping the problems or indicators that need to be improved. For the research framework can be seen in Figure 3.

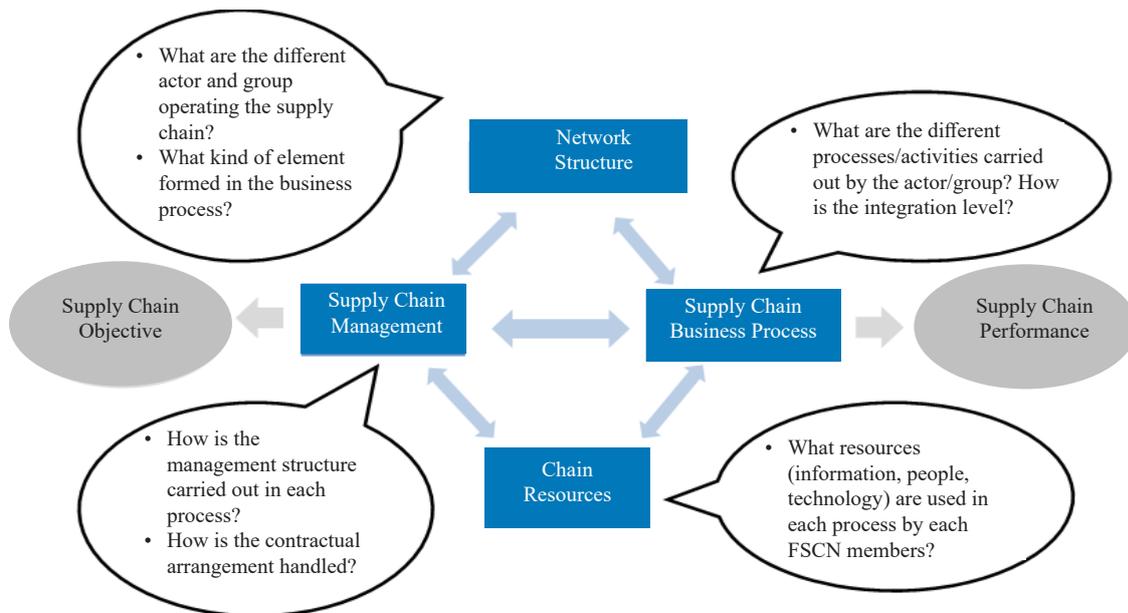


Figure 2. Food Supply Chain Networks (FSCN) Framework (Vorst, 2006)

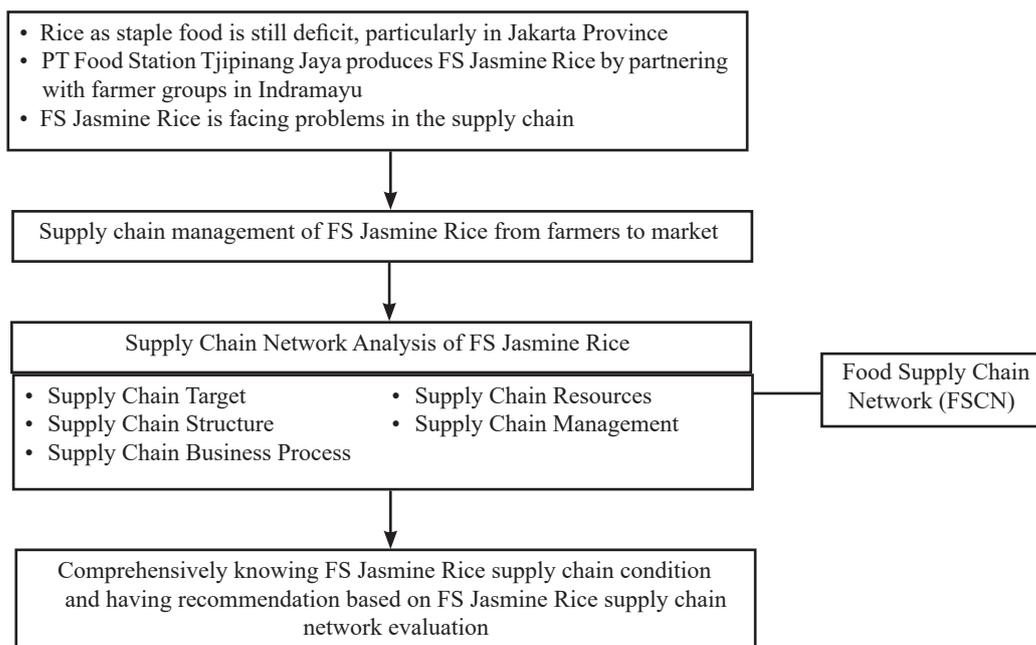


Figure 3. Research framework

## RESULTS

### FS Jasmine Rice Supply Chain Objective

The market objective and the development objective are two perspectives from which to view the target chain. The domestic retail market continues to be the primary target market for FS Jasmine rice products. This is because partner farmers, who still only produce

the Bawor 9 rice line in Indramayu Regency, have typically been unable to supply the company with large quantities of rice in a timely manner. Market segmentation efforts, integrated quality, and chain optimization can also reveal market objective. The market segmentation for FS Jasmine rice is the middle and upper class. This is since the product is a premium rice category.

The supply chain development objective to be achieved by the company include increasing quality particularly of water content below 30%, product continuity in high demand season, expanding market reach in distribution channel both modern trade and general trade, as well as innovation and use of technology that can improve performance such as I-Auditor for report system. It is expected that quality and quantity improvements can be developed by partner farmer members, so that the products they produce can meet rice quality standards exactly as desired by the company. According to Dzulfiqar et al. (2019) that production or quantity growth through greater productivity has a close association with price stability. Then, the development target of this research does not focus on cultivation training such as research by Apriyani (2022) and Sari (2015) because this has been done by PT Food Station to partner farmers and is still continuing until now, so that from the problems encountered, farmers already have solutions from the results of observations and coordination with expert staff in agriculture.

## **FS Jasmine Rice Supply Chain Structure**

### **1. FS Jasmine Rice Supply Chain Member**

Primary members in the FS Jasmine Rice supply chain are partner farmers who plant Bawor 9 rice varieties, farmers as suppliers of yields to farmer groups, farmer groups as parties that collect the yields to be sent to the company as parties that produce rice and pack it into rice. ready-to-sell products, and consumers (modern retail and general customers). Coordination between farmer group members is based on the awareness that the strength of the supply chain depends on the strength of all the elements in it (Yolandika et al. 2016). And according to Sihombing (2015) that farmer groups serve a purpose by serving as a platform for learning, a place to collaborate, a unit for supplying production facilities and infrastructure, a production unit, a processing and marketing unit, and a supporting service unit. Activities of primary members in the supply chain are carried out in exchange activities, which consist of buying and selling, physical activities consisting of cultivation, transportation, packaging, and storage, as well as activities consisting of sorting and market information. Farmers in the exchange section carry out activities to purchase production facilities for cultivation activities. Sales activities of crop yields in the form of harvested dry grain (GKP) and dry milled grain (GKG) to companies through farmer

groups. Part of the company's exchange in purchasing activities is buying crops in the form of harvested dry grain (GKP) and dry milled grain (GKG) from farmers who are members of partner farmer groups. The company's sales activity is selling products with certain specifications that have been carried out in the production process to become FS Jasmine rice products to consumers. Then for consumers, such as modern retail, purchasing activities are buying products from the company by sorting (checking) the FS Jasmine rice which has arrived if something is damaged in transit, then selling it to the end consumer.

The physical activity part of the supply chain includes cultivation, transportation, packaging, and storage. Physical activities for consumers such as retail generally only carry out product storage activities after sorting (checking) for further display and sale to end consumers. The physical activity carried out by the company is packaging after being produced into rice. After that, FS Jasmine rice products were shipped and sorted to consumers for sale. Farmers who are members of partner farmer groups mostly carry out all physical activities, starting from their role as bawor 9 providers, cultivation, transporting products after harvest from the land to the storage area. Storage activities are not carried out by all farmers, this is according to the request from the company in the form of GKP or GKG.

Facility activities, market sorting and information which all members of the primary supply chain do. Sorting activities are carried out by farmer groups before the goods are sent to the company. After the goods arrive at the company's warehouse, sorting is carried out again to match consumer demand standards and the final product sorting is carried out after the product reaches the consumer (retail). Finally, market information is provided by farmers, companies and consumers as a reference that can be used to reach price agreements in agreements between supply chain members. Secondary members are supporting parties that expedite supply chain activities in providing the raw materials needed, starting from cultivation needs, packaging to office needs. The procedure for procuring non-rice goods starts from each division which provides an estimate of the needs to the commercial division. Part of the commercial team to plan purchases from supplier companies. Different members of the supply chain are subjected to a range of processes, which can change depending on quantity, quality, and external factors. Meanwhile, any breakdown in any of

the systems could cause systemic volatility. To reduce risk factors, information technology can be used to effectively control task planning and reduce uncertainty (Lam et al. 2015).

## 2. Flow Patterns of FS Jasmine Rice Supply Chain

In the FS Jasmine rice supply chain, there are three types of flows that must be managed properly, the flow of goods from upstream to downstream, financial flows from downstream to upstream, and information flows that normally occur from upstream to downstream or vice versa. The supply chain model for FS Jasmine rice consists of farmers, farmer groups, companies, and consumers. Figure 4 shows the flow pattern in the FS Jasmine rice supply chain.

### FS Jasmine Rice Supply Chain Business Process

#### 1. FS Jasmine Rice Supply Chain Business Process Relations

According to Chopra and Meindahl (2013) there are two ways to view business processes throughout the supply chain, the cycle view and the push or pull view. In the cycle view, there are four business processes, including procurement, manufacturing, replenishment, and customer orders. Each process in the cycle view has its own role among the actors in the FS Jasmine rice supply chain.

Furthermore, the push process is a production and distribution decision based on long-term planning, so that the company is based on an estimate of consumer demand or in another sense is an action to anticipate needs with a management process as an effort to reduce the possibility of the risk of stock shortages occurring. In the pull process, production and distribution decisions are based on demand so that they are more coordinated with real consumer demand than demand estimates or in another sense are actions in serving demand so that the production process runs by considering the smallest possible inventory. It is related to Sharma et al. (2013) that inventory management in the rice supply chain necessitates accurate demand forecasts, inventory planning, and timely inventory procurement.

The series of procurement (purchasing) cycles is a cycle of ordering goods from members who were in previous positions in the supply chain. Companies in the FS Jasmine rice supply chain get supplies from partner farmer groups, so the procurement cycle is carried out by ordering Bawor 9 raw materials (harvested dry grain (GKP) and dry milled grain (GKG)) to partner farmer groups. This ordering process is carried out by the company through communication by providing a purchase order (po) document, whose information is in the form of quantity, time, price and delivery destination. The procurement cycle is included in the Push process, where the production and distribution decisions made by the company are based on long-term planning from the results of sales that have occurred in the past and estimates of additional demand so as to prevent stock shortages in the warehouse.

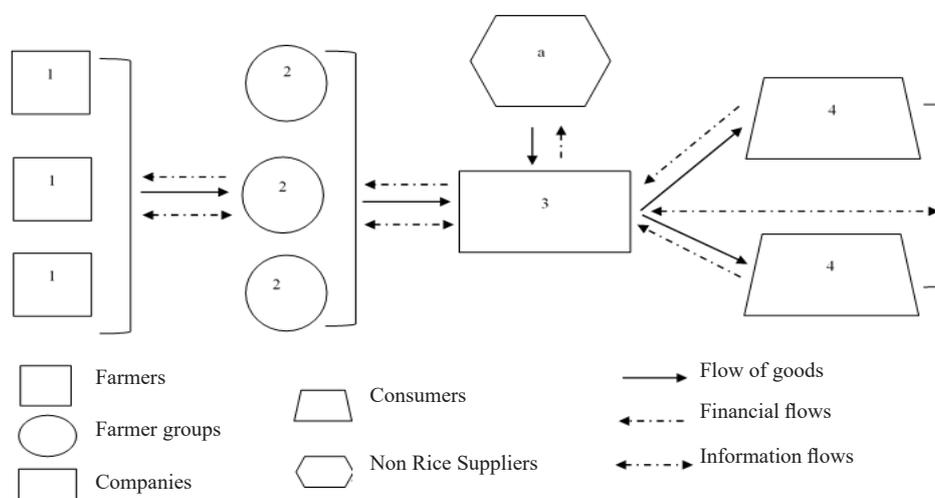


Figure 4. Rice supply chain flow pattern

The manufacturing chain is a company as a member of the supply chain that acts as a direct processor. The company will produce FS Jasmine rice at the factory. Production results will be directly distributed to Food Station warehouses in Jakarta and several consumer (retail) locations. The production activities carried out by the company involve several teams such as the PPIC, production, and quality control (qc) team. A series of replenishment cycles is carried out by companies and consumers such as retail by increasing the number of product orders from the actual order quantity, in anticipation of additional orders from consumers or if there is damage to the product. The replenishment cycle is included in the push process, production and distribution decisions based on planning or forecasting demand received by consumers within a certain period of time to anticipate needs with the management process. This planning is carried out to reduce the risk of product damage during delivery and handling of orders at unexpected times. The customer order cycle is carried out by consumers by ordering directly from the company or retail. In line with the findings by Purbaningsih *et al.* (2023), supply/procurement, transportation, storage, and processing of raw materials were all sources of business risk in the rice agroindustry. To reduce commercial risks, the rice agroindustry owners collaborate and form a partnership pattern between the government and raw material suppliers through a cooperation contract.

## 2. Distribution Pattern

The distribution pattern in the FS Jasmine rice supply chain will explain three main components, the flow of goods, finance, and information. The three flow components will be analyzed whether they are running smoothly or not and what obstacles are encountered in each distribution pattern. In the flow of goods, the product flowing in this supply chain is FS Jasmine rice in the form of raw materials and finished materials. The flow of goods starts from partner farmer groups who collect and sort the crops of farmer members. Goods flowed from the farmer groups to the company in the form of Bawor 9 raw materials (harvested dry grain (GKP) and dry milled grain (GKG)), to be further processed by the company through production and packaging activities into finished goods of FS Jasmine rice. After becoming FS Jasmine rice, flow of goods from companies to direct consumers and retail. However, the product may flow in reverse

when a problem is found. Products that are rejected by consumers will be returned to the company. Each consumer has different product qualifications.

## 3. Collaborative Planning

Collaborative planning is part of cooperation, collaboration, and unity between actors in the FS Jasmine rice supply chain. To meet consumer needs, collaboration is needed in sharing information on a reciprocal basis in each supply chain actor. According to Jaya *et al.* (2021), the supply chain is a collaborative process of players involved in creating, producing, distributing, and selling a product to end consumers. However, the basic management of supply chain management for basic ingredients of agricultural products differs from non-agricultural products in several ways, including perishability, seasonality, dispersed locations, and diverse quality. The company carries out collaborative planning with partner farmer groups. Consumers will provide information regarding the number of requests for Jasmine FS Rice. The company will carry out planning by recording demand requirements from the trading team every month. Delivery targets per week will be adjusted to demand forecasts every month. The harvesting system is not carried out simultaneously between partner farmer groups, there is a harvest schedule that can be used as a reference for harvesting that week.

## 4. Risk Aspect

Each member involved in the FS Jasmine Rice supply chain activities will have different risks. The risk that will be accepted by partner farmer groups is crop failure. When the risk of crop failure occurs, it is still fully borne by the farmer. In addition to crop failure, the risk that can occur is the return of yields since the commodities produced do not meet the standards set by the company. When supply does not meet quality and quantity goals, companies in the supply chain run the risk of being exposed. Product returns and consumer opinion of the company will both suffer if the quality of the product delivered declines or does not meet demand. The risk aspect faced by consumers (retail) is the same as that experienced by companies, in the form of quality risk. It also discovered by Bhatia and Janardhana (2020) that the durability and quality of agricultural products are critical in the supply chain.

## 5. Trust Building Process

The process of building trust (trust building) is a process of growing mutual trust between FS Jasmine rice supply chain actors. To meet final consumer demand, it is necessary to provide transparent information regarding demand and communicate it to all members of the supply chain and then carry out joint inventory control based on this information (Sari and Rita, 2013). Trust between Food Station and partner farmer groups is formed since they have known and collaborated in fulfilling the supply of rice variants other than bawor 9. The company knows the ability and commitment of partner farmer groups, while partner farmer groups believe in the company as DKI Jakarta State-Owned Enterprises (BUMD) capable of marketing rice products, guarantees purchases from companies to farmer groups, maintaining agreed price commitments, and certainty of payment.

Trust between companies and consumers, such as retailers, is established since the company is able to meet the demand for rice products in a sustainable manner and always maintains the quality of the products sent. Regarding delivery quantity, retailers can understand the company's condition if they cannot deliver according to the order quantity, but the company must provide information to retailers one week before delivery. Trust can also be seen from the exchange of information about product prices.

### FS Jasmine Rice Supply Chain Resources

#### 1. Physical Resources

The resources owned by farmers and farmer groups include agricultural land, agricultural infrastructure and equipment. In general, the average land area is 0.2 hectares to 4.0 hectares. Other physical resources are equipment used for Bawor 9 rice cultivation, such as hand tractors, hoes, machetes, rakes, sacks, and sprayers for spraying. At harvest time, farmers will use motorbikes to distribute them to locations agreed upon by the group. Furthermore, the farmer groups will collect the crops by using trucks to be sent to the FS warehouse if there is a request in the form of harvested dry grain (GKP). However, if the request from the company is in the form of dry milled grain (GKG), the farmer group will collect the harvested dry grain (GKP) harvest in the group's warehouse.

The transportation used by the company for delivery to retail consumers will be adjusted to the delivery location. If the delivery location is close to the Jabodetabek and West Java areas, then the delivery is carried out using a small truck with a capacity of 25 tons. While shipping for remote locations, it will use closed box trucks with a capacity of 40 tons. Other physical resources owned by the company are production equipment, such as dryers, huskers, whiteners, polishers, color sorters, graders, and packaging. Retail as a consumer has physical resources in the form of a warehouse building as a storage area and a store as a place of sale.

The company has implemented technology, a GPS tool to measure the area of land to be planted and I-Auditor system report technology to record and control developments from the start of activities to harvest. The technology owned by the company is good in terms of the overall recording system of the business, by using an accurate program database system. Technological resources for consumers that can be identified in the form of communication tools in ordering products from companies. The technology used is in the form of e-mail and business to business (B2B) applications as media for ordering, delivery status, payment status, and others. These kinds of improvements in technology are needed as a company that part of agro-industries to improve the agriculture sector in Indonesia (Subroto et al. 2015).

#### 2. Human Resources

The human resources used in rice cultivation activities are labor within the family and outside the family. Farmers with a land area of more than 0.5 hectares generally use a lot of labor outside the family in carrying out activities so that they can be completed properly and on time. The company has a total of 200 human resources, but for rice supply chain activities, FS Jasmine is a team that has responsibilities, commercial, supply chain management, and trading.

#### 3. Capital Resources

Farmer groups can take part in company programs that have collaborated with Bank DKI Jakarta, the Supply Chain Financing (SCF) program. SCF it self is a financing program by banks that is specifically given to suppliers who partner with companies. The aim of this program is to help accelerate the receipt of claim payments to farmer groups through taking over invoices that have been approved by the company.

## FS Jasmine Rice Supply Chain Management

### 1. Management Structure

Partner farmer groups act as producers whose task is to get the Bawor 9 harvest from all member farmer partners. Partner farmer groups have an organizational structure where the group leader is the party who negotiates with the company regarding prices and delivery quantities, while all other members work together to ensure smooth distribution and control from planting preparation to post-harvest activities.

PT Food Station as a company already has a special division that handles distribution and production activities, the supply chain management division. The commercial division is in charge of procuring rice and non-rice raw materials and is responsible for onfarm activities. The trading division that conducts sales is FS Jasmine Rice products and is responsible for fulfilling customer satisfaction. In line with Agus (2015) that said supply chain management is becoming increasingly crucial in a company's production process and strategic planning, particularly to boost market competitiveness.

### 2. Partnership

Partnership cooperation is cooperation between two or more parties that aims to provide needs, benefits, and sustainability for all parties. One of the successes of a supply chain in achieving its goals is determined by the selection of good partners. Farmer groups do not have specific criteria in selecting partners to market their crops. Partner farmer groups rely on trust and written agreements with the company, where trust arises since there is mutual need and benefit between the two parties. The benefits to farmer groups include obtaining crop guarantees, technological advancements related to rice farming, a stable selling price where the minimum agreed price is still the same as the market price and mutual agreement at the time of harvest, and the company's ability to pay on time in accordance with the agreed time frame.

The company also has criteria in selecting partners, administrative completeness, product pricing, transparency of market information, agreed cooperation commitments, and payment systems. Administrative completeness is the main thing that concerns the company in selecting consumers to ensure legality and

registration in the company's system. Determination of product prices and transparency of market information aims to maintain a bargaining position. The payment system in a timely manner is also a matter of concern, so that payment after delivery of goods and transactions can be in accordance with the agreement agreed upon in writing by both parties. To reduce risk during on-farm activities and selling risk, an integrated supply chain should be supported through a collaboration partnership between farmer and the company (Guritno at al. 2018).

### 3. Contractual Agreement

Contractual agreements made by the company with partner farmer groups are carried out with an agreement period of one year that includes planning purchase (quantity and value), payment term, and the quality standard. The term of the agreement can be extended again in accordance with the agreement and evaluation results.

Contractual agreements made by companies with retail consumers are in the form of agreements regarding payment, quantity, and quality of products according to orders. According to Setiadi (2018), contractual agreement is needed as a form of risk sharing. The company as a provider of products needed by consumers (retail). In general, retail consumers who cooperate with companies do not only make transactions on FS Jasmine products, but other commodities. A payment system made by retail consumers to consumers by paying no later than fourteen days after receiving an invoice from the company.

### 4. Transaction System

The price given to partner farmer groups is a minimum price according to the market price around Rp4.900-Rp5.000 per kg harvested dry grain (GKP) and quality according to the regulation of ministry of agriculture that stated in 31/PERMENTAN/PP.130/8/2017 and Indonesia National Standard. The company will carry out the production and packaging of FS Jasmine rice in 5 kg according to orders and sales estimates from the trading team. The selling price is set by the company to consumers by considering the profit on the cost of good sold (COGS) of the product. The selling price of FS Jasmine rice carried out by the modern team is generally stable and there will be promotional prices that can cut price 2%-3% under certain conditions such

as religious holidays, payday period, internal promotion using catalog, flyer, banner, or purchase with purchase. Meanwhile, the selling price of products made by the general trading team will follow the prices in the FS product catalog. The selling price of FS Jasmine rice in the FS product catalog will be adjusted according to the number of purchases ( 1 ball = 5 packs, 1 pack = 5kg), less than 25 balls and more than 25 balls.

The transaction between the company and the farmer group begins with a plan for the needs of the company based on sales estimates from the general trading team and modern trading. Transactions between companies and consumers begin with order communication that is carried out before delivery since the trade team will check stock with the SCM team. Furthermore, if there is stock, then communication is carried out back to consumers as a form of confirmation by using a letter of order for products that can be supplied. In contrast to transactions at the retail level, proof of transactions using sales invoices. After the agreement is reached, the company will deliver goods to retail consumers. Products that have arrived at the retail warehouse will undergo a checking process, and the retail party will be informed if any products fail sorting.

### **Managerial Implications**

This study will most likely help FS Jasmine Rice supply chain stakeholders like farmers and farmer groups. Farmers and farmer groups continue to face order fulfillment issues because to asymmetry of production prediction information between farmers and companies, according to supply chain analysis points; however, transparency of FS Jasmine Rice information can help to overcome this. The order fulfillment cycle, on the other hand, benefits from the clear production forecast information. As a result, company and farmers must collaborate to develop transparent production plans, distribution plans, and quantifiable transportation plans. Then there's information flow optimization by responding problems responsively. Furthermore, due to differences in payments to general trade customers and modern trade customers, general trade customers consist of traditional market are relatively shorter in term of payment period (7 days in average) than modern trade customers (3 weeks in average) which consist of supermarket, retail, and horeca, efforts made as an implicative solution are to add new general customers and set a shorter due date for modern customers, all

of which should be stated in the Commercial SOP. Furthermore, the still-favorable daily inventory characteristic can be improved by optimizing product flow activities, notably in manufacturing and packing operations, and implementing inventory management, such as through the use of PPIC (Production Plan Inventory Control).

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusion**

Based on the Food Supply Chain Networks (FSCN) approach, the condition of the supply chain for FS Jasmine rice in Indramayu Regency is in good condition for every member of the supply chain. Furthermore, the supply chain for FS Jasmine Rice has clear goals and development targets, increasing quality, quantity, product continuity, expanding market reach, as well as innovation and use of technology. To be able to improve the quality and optimize the supply chain is to pay attention to the cultivation activities carried out by farmers and sorting activities carried out by all members of the supply chain. The quality of rice need to meet the standards set by the company, therefore the farmer must be supervised and informed the company transparently about the field information. There are still problems in the process of the flow of goods, where fulfillment of orders is still unfulfilled from the total consumer demand for companies and companies for farmer groups. Same goes for Nurmahdy et al. (2020) and Apriyani et al. (2022) in the supply chain analysis of rice that needs attention in product continuity and quality.

### **Recommendations**

The target of the FS Jasmine Rice supply chain in Indramayu Regency, especially development targets related to efforts to strengthen the function of farmer groups, improvements should be made to cultivation practices, for example, to raise productivity per hectare and increase yields sufficient to fulfil the demand and product continuity as the problem particularly in certain season. Thus the continuous flow of goods from Indramayu Regency can improve the performance of the supply chain as a whole, the fulfillment of orders for companies to consumers. The company's efforts to carry out daily inventories both in the form of raw

materials and finished products need attention to the consistency of product quality so that it is maintained and does not reduce the value of the quality standards desired by consumers. And for further research, might be focused on the supply chain performance and efficiency of the supply chain actors to deep dive the problems quantitatively.

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