

Farmers' Decision to Switch to Edamame Commodity for Partnership with Companies (Case Study of the Guyub Rukun Farmer Group)

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ABSTRACT

This research aims to understand farmers' decisions to switch commodities from rice cultivation to edamame, as well as the partnership patterns that occur between farmers and companies. The study uses a qualitative approach with data deliberately collected from the Guyub Rukun Farmer Group. The results of the discussion show that farmers gain the advantage of higher selling prices compared to growing rice. However, not all farmers easily decide to switch commodities from rice to edamame. Farmers who own land and have more farming capital are bolder in making decisions compared to small farmers, especially farm laborers. In the partnership between farmers and companies, social polarization occurs because farmers as landowners cannot do much with the land they own due to the partnership system with the company that requires edamame cultivation. Additionally, there is a hegemonic partnership conducted by the company towards the farmers. Farmers' profits are considered illusory because although the selling price of edamame is considered better than rice, in reality, it can be sold outside for much higher prices than to the company, as it is highly favored by the community, especially in Semarang City.

Keywords: Edamame, Farmer Group, Partnership

INTRODUCTION

Agricultural land is a crucial element in maintaining food security. However, the existence of agricultural land in the food subsector has begun to be disrupted due to the progression of time, population growth, and economic demands. One of the serious problems currently facing food-producing land is the increasing prevalence of land use conversion from one farming enterprise to another (Nurmalasari & Awidiyantini, 2019). Based on Ministry of Agriculture Republic Indonesia (2020) over a five-year period from 2015 to 2019, there was a reduction in rice field area from 8.1 million hectares in 2015 to 7.5 million hectares in 2019.

Farmers primarily switch their farming enterprises due to their income. For farmers, income is an indicator of their farming success, but there are other indicators such as education, age, experience, land area, and family responsibilities. (Putri et al., 2019). The socio-economic characteristics of farmers determine their preferences for accepting or rejecting technology (Sitanggang et al., 2014). Wahyudi et al. (2022) in their study concluded that the characteristics of farmers in the village are one of the important factors underlying their involvement.

Edamame (*Glycine max* (L.) Merrill) is a type of soybean that has a higher market value compared to regular soybeans. The global market demand for edamame soybeans is considered quite high. Indonesia can only meet 3% of the Japanese market demand, while the remaining 97% is fulfilled by China and Taiwan (Ma'sum et al., 2020). Edamame is a potential crop that needs to be developed because it has an average production of 3.5 tons/ha. In addition, Edamame also has extensive export market opportunities (Hakim, 2013).

Edamame is a vegetable soybean originating from Japan and usually has a larger size than regular soybeans. Edamame can be processed into various foods, such as powdered milk, juice, pastries, chips, and so on. It is typically consumed as a vegetable when the pods are still green. (Sahputra et al., 2016). Edamame can be grown in both lowlands and highlands, but they require soil with good drainage and aeration, as well as fertile, loose soil that is rich in organic matter. (Ramadhani et al., 2016). The natural conditions of Indonesia are very ideal for edamame's development (Soverda et al., 2021).

Semarang City is the capital of Central Java Province, with its economic activities mainly relying on the trade and service sectors. As an urban area, although the agricultural sector of Semarang City has a small contribution, its potential still exists. Data compiled by Dinas Pertanian (2022) states that in Semarang City there are 2,216 hectares of paddy fields and 7,917 hectares of dry fields. Mijen District has become the center for agricultural commodity development in Semarang City because it has the largest paddy field area of 767 hectares. Paddy field agricultural land is generally planted with rice and secondary crops, while non-paddy agricultural land is planted with fruit trees, timber, and vegetables.

The Guyub Rukun Farmer Group is one of the farmer groups in Semarang City, located in Bentur Hamlet, Purwosari Village, Mijen District. According to data from the Mijen Agricultural Extension Center, there are 62 farmers who are members of the Guyub

Rukun Farmer Group focusing on rice cultivation. As time progresses, not all farmers engage in rice cultivation. The caused factors of the farmers to abandon rice cultivation include land conversion to housing and crop switching to other commodities.

In 2019, a company from Temanggung with an edamame export business established a partnership with the Guyub Rukun Farmer Group. This impacted the farmers' cropping patterns, shifting from rice to edamame. Farmers who joined the partnership stated that edamame crops were considered more profitable than rice. However, the partnership was deemed more beneficial to the company, as farmers were in a powerless position, especially regarding the determination of selling prices. On the other hand, the company did not involve local stakeholders in the partnership, resulting in a high level of company domination over the farmers. This study aims to understand the farmers' decision to switch commodities from rice to edamame, as well as the partnership patterns that occur between farmers and the company.

LITERATURE REVIEW

Edamame is a plant categorized as a vegetable with very high nutritional content. Every 100 grams of its seeds contain protein, carbohydrates, fat, vitamin A (also known as carotene), vitamin B1, vitamin B2, vitamin B3, and vitamin C, as well as minerals such as calcium, iron, potassium, and phosphorus. Edamame has gray fur, a strong nutty smell, and soft cuts and seeds. The yield potential of regular soybeans only ranges between 1.7 tons/ha and 3.2 tons/ha, but the yield potential of young pods reaches 3.5 tons/ha. Edamame usually grows in subtropical regions. This plant requires an air temperature of 20–25°C and full sunlight. To get the best results, edamame plants need rainfall of 100–200 mm/month, but they can grow well in environments with rainfall between 100-400 mm/month (S. Pambudi, 2013).

Edamame soybeans are excellent for consumption because they contain anti-cholesterol substances and proteins found in milk, eggs, and meat. Ryoko, Taiso, Surumidori, and Surunoko are widely cultivated varieties. Ryoko is the most commonly cultivated variety because its pods are larger, it tastes sweeter, and it has fewer fine hairs on it (Sahputra et al., 2016). Crop production is influenced by many factors, including climate, soil, land area, superior seeds, fertilizers, pest and disease control, irrigation systems, and organized planting techniques. All of these are implemented to ensure optimal crop yields (Hidayat, 2016).

Edamame is a legume plant that is highly sought after by the public because it contains a lot of plant-based protein. (Latif et al., 2017). The potential land for edamame development in Indonesia is quite extensive. Edamame can be cultivated on paddy fields after rice, and on dry land in medium to high altitude areas (Asadi, 2018). The price of fresh edamame ranges in between Rp. 7,500 and Rp. 9,500 per kilogram, and the price is relatively good. Because the market prospects are still wide open, edamame have a good opportunity to be cultivated. (Sahputra et al., 2016).

Research conducted by W. C. Pambudi & Sidik (2020) found that farmers' decisions to try corn farming simultaneously are influenced by factors such as land area, education, experience, and age. The partial factor opposing farmers' decisions to engage in corn farming is experience, and the factor conflicting with farmers' outcomes in cultivating corn farming is land area and education. Meanwhile Purwadi et al. (2022) on their research

found that farmers' decisions to participate in the AOTP program are influenced by factors such as age, farming experience, farm size, income, education, and farmers' perceptions.

Another study by Andriani & Yulihartika (2022) examined the factors influencing the decision to convert paddy fields to plantation crops. These factors include the level of formal education, land area, farmers' response to market dynamics, and the accessibility of paddy fields to quarter irrigation. Zulkarnain et al. (2023) concluded that income from fruit plant nursery farming is more profitable than paddy field farming, so the variables of income, age, land area, and weather constraints significantly influence farmers' decisions to convert paddy fields into fruit plant nurseries.

The company strives to maintain production to meet global market demands by collaborating with Kintamani smallholder coffee farmers. This collaboration is necessary because the company's coffee production remains low. Kintamani smallholder coffee farmers are not encouraged to become independent coffee farmers for their own self-sufficiency. Instead, they are asked to market their products to meet business market needs. The company prioritizes the quality of coffee produced by smallholder farmers to meet its needs, so the farmers must provide the best quality as expected by the company (Cahyanto et al., 2021).

The company, as a sugar production industry, cannot meet its own raw material needs. This issue arises because the company does not have its own sugarcane plantation area or land-use rights to meet the raw material requirements for sugar production. Therefore, it sources raw materials from nearby sugarcane farmers through partnership agreements. On the other hand, sugarcane farmers have no choice but to sell to the company because they cannot process their harvest independently. In practice, the company does not provide a clear schedule for the delivery of sugarcane with specified volumes, the farmers are uncertain about their production results due to a lack of transparency in production evidence, and payments from the company are often delayed, which disappoints the farmers (Azmi et al., 2019).

From the beginning of beach management, especially in the allocation of land plots, internal groups within the Sukun community emerged, fragmented in their struggle for management power. Subsequently, a regulation was established dividing parking authority between the fishermen's group (which includes those concerned with tourism) and the activities group (consisting of hamlet administrators, krempyeng market vendors, and restaurant owners). The location of parking businesses significantly influences profits; shops near parking areas generate more revenue than those farther away (Yuliono, 2022).

Agricultural modernization will influence the socio-economic polarization and stratification of rural communities. This will impact the formation of social differentiation in rural areas (Shoorl, 1982). Additionally, rice milling plants have evolved into mobile rice mills, transported by vehicles that mill the farmers' paddy. Farmers no longer need to go through the trouble of taking their paddy to the mill; they only need to wait for the mobile mill to pass by or contact the mobile mill that travels to the villages (Tahir & Et.al, 2019).

RESEARCH METHOD

This research employs a qualitative approach by describing and illustrating the state of a phenomenon or an event based on facts or data in the field (Moleong, 2019) in order to understand farmers' decisions in switching commodities from rice to edamame. This research was conducted at the Guyub Rukun Farmer Group, Bentur, Purwosari Village, Mijen District, Semarang City, with geographical characteristics of a lowland area, where the rice fields in the village are rain-fed with a typology including rice field areas or lowlands. According to Sugiyono (2012) to gain a deeper understanding of this matter, the researcher collected data from informants using purposive sampling with research objectives and to ensure that the information obtained by the researcher aligns with the needs.

The analysis consists of three concurrent processes: data reduction, data presentation, and data verification (Miles & Huberman, 1984). Additionally, the data analysis also uses literature studies drawn from various sources. A literature study is a series of activities related to the method of collecting library data, reading and note-taking, and managing research materials. Danial & Warsiah, (2009) state that a literature study is a type of research conducted by a researcher who collects many books and magazines related to their research subject and objectives.

RESULTS AND DISCUSSIONS

Existing Conditions of the Farmers

Mijen District has an area of 5,652 ha consisting of 769 ha of paddy fields and 3,730 ha of dry land. The use of paddy fields in Mijen District consists of rain-fed paddy fields that can be planted with rice twice a year covering an area of 303 ha (39.40%). Irrigated paddy fields that can be planted with rice three times a year cover an area of 251 ha (32.64%). Meanwhile, irrigated paddy fields that can be planted with rice twice a year cover an area of 215 ha (27.99%). Non-paddy agricultural land is dominated by dry fields covering an area of 1,864.59 ha (49.99%), followed by plantations covering 808.99 ha (21.72%), state forests covering 768.73 ha (20.61%), community forests covering 89.49 ha (2.4%), grazing fields/grasslands 4.50 ha (0.12%), and the remainder serves other functions covering an area of 193.80 ha (5.2%).

The Guyub Rukun Farmer Group is a farmer group that is part of the Rahardjo Farmer Group Association (Gapoktan), located in Bentur, Purwosari Village, Mijen District, Semarang City. The purpose of forming the Guyub Rukun Farmer Group is to improve the knowledge and skills of its members so that they can grow and develop into independent farming businesses and become prosperous and dignified farmers. Another objective is to strengthen cooperation among members and groups, as well as between groups and other parties.

The Guyub Rukun Farmer Group also creates an agenda as a reference to ensure that the programs developed are planned and directed in accordance with the vision, mission, and intended objectives. These activities include holding regular monthly meetings, establishing healthy pre-cooperative organizations, conducting research and innovation in agriculture and animal husbandry, and coordinating with both city and provincial agencies regarding group development. The vision is to realize an independent, sustainable, and environmentally conscious farmer group. The mission is to promote cooperation in managing natural resources and developing human resources for food security and sustainable income.

The Farmer Group was established in 2016, and according to data from the Mijen Agricultural Extension Center, by 2024 it has 62 farmer members with a total land area of 25.14 ha. The rice planting season in Bentur, Purwosari Village can reach 2-3 times a year with an average productivity of 5 tons/ha. Besides rice, during the dry season, farmers have the alternative of planting corn. This is especially true for rain-fed lands because they are not served by technical irrigation systems.

According to Handayani et al. (2019) farmer groups have three roles: a place for learning, a place for cooperation, and as a production unit. As a place for learning, farmer groups provide agricultural information and the latest technologies conveyed by extension workers through the extension process. As a place for cooperation, the form of cooperation felt by farmers is cooperation in the provision of agricultural inputs and agricultural information. However, farmers have not yet experienced cooperation in marketing and processing rice production results with the existence of farmer groups. As a production unit, it states that farmer groups already have clear leadership, so the division of tasks in each activity can be more directed.

Farmers' Decision to Switch Commodity

The Guyub Rukun Farmer Group is a farmer group formed on the basis of land territory that falls within the hamlet or neighborhood community (RW) environment, namely Bentur Hamlet. Farmers who have long been part of the Guyub Rukun Farmer Group have been cultivating their rice fields with rice as the main commodity. This is due to the potential of fertile farmland with sufficient water, and some areas having technical irrigation, making rice the most appropriate commodity choice. Additionally, farmers believe that their ancestors have been planting rice for generations.

Cultivating paddy rice is a long-standing tradition held by the community (Muhammad et al., 2022). This form of knowledge system has become a legacy that has been passed down through generations from their ancestors and has become the main guideline and model for the community when they are about to farm (Fatmawati, 2019). Land area also plays an important role in influencing one's motivation to plant rice commodities, because the larger the land owned, the more yield is obtained (Nisa, 2015).

In 2019, farmer members of the Guyub Rukun Farmer Group were approached by a company from Temanggung, which provided information about the business prospects of edamame soybean commodities. The company conveyed that they planned to invite farmers to plant edamame because it was more profitable than rice. Half of the active members of the Guyub Rukun Farmer Group followed the company's advice to partner in developing edamame commodities. Gradually, farmers in the Guyub Rukun Farmer Group switched commodities from rice plants to edamame.

After the partnership was underway, farmers could compare the benefits of switching commodities from rice to edamame. Farmers felt that the selling price for edamame plants was higher compared to rice. As shown in the research results of (Novianti et al., 2023), the factors that most influence the shift in rice crop commodities based on economic aspects are production yields and prices. Meanwhile, based on social aspects, it's the culture where farmers engage in mutual cooperation and secondary needs.

The partnership between farmers and the company has both advantages and disadvantages. Farmers gain the benefit of higher selling prices than planting rice. Additionally, farmers also benefit from a shorter planting period of 65 days compared to rice, which is almost twice as long. In terms of pests and diseases, the intensity of difficulties with rice plants is not much different. This partnership pattern then results in not all farmers easily deciding to switch commodities from rice to edamame. Farmers who own land and have more farming capital are bolder in making decisions compared to small farmers, especially farm laborers.

The village farmers cannot be viewed solely from the perspective of rational economics, because these farmers are rational beings who consider everything and various alternatives that can improve their lives and well-being (Popkin, 1986). Farmers are reluctant to take risks and focus more on efforts to avoid a fall in production yields, rather than on efforts to maximize expected profits (Scott, 1983).

Partnership between Farmers and the Company

The partnership between farmers and the company is limited to just the company and farmers without involving other stakeholders such as extension workers or local village government officials. From this partnership, farmers receive seeds directly from the company, which will be paid for at harvest time. The company absorbs all of the farmers' harvest according to a schedule determined by the company. The determination of the purchase price for the farmers' edamame harvest is adjusted based on the quality determined by the company. Grade A is priced at 6,000 IDR/kg, grade B at 4,000 IDR/kg, and grade C at 3,500 IDR/kg.

The partnership between farmers and companies was also conducted Cahyanto et al. (2021). At that time, the selling price of coffee cherries by the company was quite high compared to local collectors, at 7,500 IDR/kg, meaning a difference of 200 IDR, as previously the price never reached that level. Although the price offered was high, the price of coffee cherries afterward was the lowest compared to the previous month, which could reach 8,200 IDR/kg. The price decline was caused by the global market downturn and the quality and standards of the farmers' harvest, which decreased due to the Covid-19 pandemic. The negotiation was based on market demand and prices or offers made by local collectors to smallholder coffee farmers. As long as the price remained within market standards and relatively stable, an agreement was reached.

The company created a memorandum of understanding (MoU) with the farmers to formalize the cooperation between the farmers and the company. However, the company also used this MoU to seek capital loans from banking institutions. The MoU was considered as proof that the company had a cultivation land cooperation agreement for their business processes. The farmers were unable to refuse due to their lack of legal knowledge and the absence of advisors to assist them in the cooperation process.

In addition, although the company agreed to buy all of the farmers' harvest, they were often late in making payments, causing the farmers to struggle with capital to replant. For instance, during the Covid-19 pandemic, payments were delayed for several months, even though the farmers' harvest was of the best quality at that time. The farmers were not informed or taught the quality standards of each grade, preventing them from maximizing their selling price. If the farmers sold their produce to the community,

supermarkets, or directly to consumers, the price could increase up to three times, reaching 15,000-30,000 IDR. Indirectly, the farmers were bound to a sales agreement with the company.

In the partnership between farmers and the company, social polarization occurs. This social polarization arises because the farmers, as landowners, cannot do much with their land due to the partnership system with the company that requires them to plant edamame. Additionally, there is a hegemony in the partnership imposed by the company on the farmers. The farmers' profits are considered illusory because the selling price of edamame is perceived as better than that of rice. However, in reality, edamame could be sold at a much higher price outside the company, as it is highly favored by the public, especially in the Semarang city.

CONCLUSION

Based on the research and previous discussions, the following conclusions were drawn:

1. Farmer Group Guyub Rukun is a farmer group whose area focuses on developing rice commodity centers. However, currently, some of the rice fields have been converted to corn and edamame crops.
2. Farmers switched commodities from rice to edamame because they felt that the selling price for edamame was higher than that for rice. Another advantage is that the growing period for edamame is shorter than for rice.
3. Social polarization occurs because the farmers, as landowners, cannot do much with their land due to the partnership system with the company, which requires them to plant edamame. Additionally, there is a hegemony in the partnership imposed by the company on the farmers. The farmers' profits from the sales are considered illusory profits.

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