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"From struggle to strategy": The role of Indonesia's farming community in fostering agricultural sustainability

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Abstract

This study examines the challenges faced by small-scale farming communities in Indonesia, with a focus on the Sanggar *Rojolele* farming community in Delanggu Village, Central Java. It explores the impacts of industrial competitiveness and shifting

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market dynamics on farmers' livelihoods, and the strategies they employ to sustain resilience and competitiveness. Using a qualitative case study approach, the study draws on data from 13 purposively selected informants—including farmers, agricultural experts, and local leaders—collected through in-depth interviews, focus group discussions, and observations. The thematic analysis identified key issues such as rice trading dynamics, structural poverty among landless farmers, and stagnation in farmer regeneration. The findings highlight community strategies, including promoting *Rojolele* rice as a regional icon, adopting organic farming practices, developing direct-to-consumer markets, strengthening collective action, and advocating for structural reforms. These approaches are essential not only for preserving agricultural practices but also for fostering community-based resilience in the face of industrial pressures. The study offers valuable insights for policymakers and rural development advocates aiming to support smallholder farmers in Indonesia.

Keywords
agriculture sector, Indonesia, resistance, Sanggar *Rojolele*, farming community, organic farming, empowerment, rice cultivation, smallholder farmers

Introduction

Indonesia's agricultural sector has long been a cornerstone of the national economy, providing employment and sustenance for millions. However, in recent years, rapid industrialization and market competitiveness have significantly altered the agricultural landscape, challenging traditional farming communities in adapting and surviving (Marianto et al., 2023; Prabowo & Gischa, 2020). The increasing industrial competitiveness in the agricultural sector has introduced new dynamics that require small farming businesses to develop resilience, innovate, and engage in sustainable practices to maintain their livelihoods (Akbar et al., 2023; Bahri et al., 2023).

The urgency of studying this issue arises from the fact that small-scale farming communities are struggling to compete with large agribusiness corporations that benefit from advanced technology, extensive capital, and expansive market networks (Chan, 2021; Muthoharoh, 2023). While industrialization has facilitated economic growth, it has also intensified competition, placing smallholder farmers in precarious positions (Dimitri & Gardner, 2019). Without strategic adaptation, many farming communities face the risk of marginalization or even disappearance, which would have significant consequences for local food security and rural economies (Ashari et al., 2020; McKeon et al., 2022).

One prominent example of this phenomenon is the farming community in Delanggu Village, Central Java, known for cultivating the premium *Rojolele* rice, called Sanggar *Rojolele*. According to the findings of preliminary observation conducted by the researchers, this high-quality rice variety historically was highly sought after and even served as a staple for the Surakarta and Yogyakarta royal families (Pratiwi & Moeis, 2022). However, the rise of industrial-scale rice production, coupled with the growing presence of hybrid and genetically modified rice varieties, has threatened the sustainability of traditional *Rojolele* rice farming. As of 2021, Delanggu's population of 5,811 included only 60 active farmers, indicating a decline in the number of individuals who engage in agricultural field (Delanggu, 2021). This trend underscores the pressing need for strategies that enable smallholder farmers to navigate industrial competitiveness.

While small-scale farming typically supplies local markets, there is limited discussion about consumer awareness and demand for locally produced rice in Indonesia. As rice is produced on a small scale, just sufficient to meet the needs of the farmer and their family, there is potential for expanding local markets that can create demand for these traditional, high-quality products. Additionally, promoting consumer awareness of the value of locally grown, sustainable rice could be pivotal for ensuring the sustainability of smallholder farmers. Educational campaigns or marketing initiatives could play a crucial role in shifting consumer preferences toward supporting small-scale agricultural production. This issue becomes another reason for conducting this empirical research.

Previous studies have highlighted the impact of agricultural industrialization on small-scale farming. Alexander et al. (2022) examined how large agribusiness corporations dominate supply chains, limiting the market access of smallholder farmers. Similarly, Badhai (2022) and Utami and Gischa (2021) analyzed the consequences of industrial farming practices on soil fertility, noting that excessive reliance on chemical inputs depletes land productivity over time. While these studies offer valuable insights, they do not specifically address how smallholder farmers can counteract the effects of industrial competition through sustainable and community-driven initiatives.

This study is directed to fill that gap by examining the strategies employed by the Sanggar *Rojolele* farming community in Delanggu Village to sustain their livelihoods amid the pressures of industrial competitiveness. Unlike previous studies that primarily focus on the structural challenges faced by smallholder farmers, it seeks to highlight the agency and adaptability of local farming communities in preserving their agricultural heritage and economic viability. Hence, this study aims to examine small-scale farmers' difficulties and their strategies to maintain their livelihoods as a farming community. The novelty of this research lies in its exploration of community-based resilience strategies, which include direct market access, organic farming methods, cultural preservation, and cooperative business models. In addition to examining farming strategies, this study also aims to provide policy recommendations. Although previous studies have emphasized the importance of agricultural industrialization in the economic growth of Indonesia, the need for targeted policies that support smallholder farmers in navigating industrial pressures remains underexplored. These policy recommendations focus on enhancing local market access, promoting consumer education on the benefits of locally grown rice, and fostering sustainable agricultural practices.

To guide the study toward its objective, the following research questions were formulated:

1. What are the key challenges faced by Indonesia's farming community, particularly in the context of industrial competitiveness?
2. What strategies do small-scale farmers employ to sustain their livelihoods and remain competitive in the industrial agricultural landscape?

Using a qualitative case study approach, this research delves into the experiences and strategies of the Sanggar *Rojolele* farming community. By conducting in-depth interviews, field observations, and focus group discussions, this study provides a comprehensive understanding of how smallholder farmers can navigate industrial competitiveness while maintaining their traditional agricultural practices. The findings of this research are expected to contribute to policy discussions on smallholder farmer protection and offer practical insights for similar farming communities facing industrial challenges.

This paper begins with a comprehensive literature review that contextualizes the challenges faced by smallholder farmers in Indonesia within the broader framework of agricultural industrialization. The methodology section follows, outlining the qualitative case study approach, the selection of informants, and the data collection techniques used to capture the experiences of the Sanggar *Rojolele* farming community. The findings section presents the community's strategies for sustaining livelihoods amid industrial pressures, which are then analyzed through the lenses of the sustainable livelihoods framework, adaptive capacity theory, and the resource-based view. These theoretical perspectives offer insights into how the community adapts and leverages local resources to remain competitive. The paper concludes with policy recommendations informed by the empirical findings and theoretical analysis, aimed at supporting smallholder farmers in building resilience and promoting sustainable agricultural futures.

Theoretical Framework

This research is anchored in the sustainable livelihoods framework (SLF) theory (Natarajan et al., 2022), which offers a comprehensive lens through which to understand how smallholder farmers cultivate resilience and adapt to the challenges posed by industrial competitiveness. The SLF conceptualizes livelihoods as shaped by five essential forms of

capital: human, social, natural, physical, and financial (Jackson, 2021). These forms of capital interact dynamically, influencing how communities respond to external challenges such as market competition, technological advancements, and shifts in policy. The relevance of the SLF to this study lies in its capacity to illuminate how smallholder farmers mobilize resources and implement strategies to sustain their agricultural practices in the face of industrial challenges.

A pivotal aspect of the SLF is its focus on vulnerability contexts, which encompass external threats such as climate change, economic volatility, and industrial expansion (Yuniarti & Purwaningsih, 2017). In the case of the Sanggar *Rojolele* farming community, vulnerability arises from the increasing influence of large agribusinesses that dominate supply chains and dictate market prices. This research utilizes the SLF to investigate how farmers mitigate these vulnerabilities through resource optimization, cooperative farming, and market diversification.

In addition, this study incorporates the principles of adaptive capacity theory (ACT), which explores how individuals and communities devise strategies to cope with environmental and economic uncertainties (Williges et al., 2017). Adaptive capacity is particularly critical for smallholder farmers who must continuously modify their practices in response to changes in market demand, climate conditions, and regulatory policies. The members of the Sanggar *Rojolele* community exemplifies adaptive capacity through their practices in organic farming, direct sales models, and cultural branding.

Moreover, the resource-based view (RBV) of the firm (Taher, 2012) serves as a valuable theoretical framework for comprehending how small-scale farmers sustain their competitiveness. According to the RBV, a sustainable competitive advantage is derived from the effective management of unique resources, including knowledge, skills, and social networks. For members of the Sanggar *Rojolele* community, their competitive edge lies in their capacity to leverage traditional agricultural knowledge, build cooperative networks, and market their products based on cultural and historical significance.

The SLF, ACT, and the RBV work together to provide a comprehensive analysis of the strategies employed by smallholder farmers in response to industrial competitiveness. By integrating these three frameworks, this research avoids duplication and provides a holistic understanding of how farmers in Delanggu Village, and similar communities, navigate the complex challenges of industrialization, sustainability, and market pressures. The goal of using all three is to offer a multifaceted analysis that captures both the external challenges and the internal capabilities of farming communities, ultimately enriching discussions on rural development and agricultural policy.

Method

This study employs a qualitative case study approach to explore the dynamics (challenges and strategies) of the Sanggar *Rojolele* farming community in Delanggu Village, Klaten Regency, Central Java Province, Indonesia (Figures 1 and 2). A qualitative case study approach is defined as a research method that involves an in-depth, detailed examination of a specific phenomenon within its real-life context (Clark et al., 2021). It is particularly suited to this research as it allows for a thorough examination of a localized community and its responses to broader socio-political forces. Sanggar *Rojolele* was established in 2016 with the primary aim of revitalizing farmer groups and promoting agricultural sovereignty. The organization seeks to empower local farmers by encouraging cooperative formation, advocating for agricultural policies developed by the village government, and fostering innovations in farming practices. In practice, Sanggar *Rojolele* plays a crucial role in mentoring, training, and advocating for the interests of Delanggu Village farmers, providing them with the tools and knowledge necessary to resist capitalist pressures in the agricultural sector.

The fieldwork for this study was conducted over a six-month period, from July to December 2022. During this time, purposive and snowball sampling techniques were used to select informants. Purposive sampling is a nonprobability sampling technique where participants are selected based on specific characteristics or criteria relevant to the research study, ensuring that the sample is representative of the phenomenon being studied.

Figure 1. Map of Indonesia Showing Location of Java

Source: Map by Uwe Dedering—Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=9506522

Figure 2. Map of Java, Indonesia, Showing Location of Klaten Regency

Source: Map by RXerself/Wikimedia Commons/CC BY-SA 4.0, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=122384528

In this study, purposive sampling ensures that informants were chosen based on their relevance to the research objectives, particularly individuals with significant knowledge or direct involvement in Sanggar *Rojolele*'s activities. Snowball sampling is a technique where existing participants refer or recommend other potential participants, often used when studying hard-to-reach or specialized populations. Snowball sampling in this study was employed to expand the sample size by having initial informants recommend additional participants, either directly or indirectly, until a total of 13 informants were interviewed, providing insight into the community and its operations.

As depicted in Table 1, the participants in this study were selected to provide diverse perspectives on the challenges and strategies of the Sanggar *Rojolele* farming community. Informant 1, the founder of Sanggar *Rojolele*, is a key figure in the community, having played a significant role in its formation and development. Informants 2 to 5 are farmers who directly experience the day-to-day realities of small-scale farming in Delanggu. Informant 6, the owner of rice milling, provides insights into the rice processing and marketing aspects of the agricultural value chain. Informants 7 and 10, the head of Delanggu Village and the head of Delanggu Subdistrict, represent local government leadership and policy-making perspectives. Informant 9, the empowerment companion, works with the community on capacity-building and development initiatives. Informant 11, the agriculture instructor, and Informants 12 and 13, the agriculture experts, offer specialized knowledge on agricultural practices, innovation, and sustainability. Together, these informants offer a well-rounded view of the challenges faced by smallholder farmers and the strategies they employ to address these issues.

Table 1. List of Informants

No.	Informant	Position
1	Informant 1	Founder of Sanggar *Rojolele*
2	Informant 2	Farmer
3	Informant 3	Farmer
4	Informant 4	Farmer
5	Informant 5	Farmer
6	Informant 6	Owner of Rice Milling
7	Informant 7	Head of Delanggu Village
8	Informant 8	Farmer
9	Informant 9	Empowerment Companion
10	Informant 10	Head of Delanggu Subdistrict
11	Informant 11	Agriculture Instructor
12	Informant 12	Agriculture Expert 1
13	Informant 13	Agriculture Expert 2

Data collection was carried out using multiple techniques, including in-depth interviews, focus group discussions, and field observations. In-depth interviews were conducted face-to-face with key informants, including the critical figures and founders of Sanggar *Rojolele*, five farmers from the community, an owner of rice milling, the chair of the farmer group, the head of Delanggu Village, and the head of Delanggu Subdistrict. These interviews provided valuable insights into the perspectives and experiences of individuals directly involved with or affected by the community's initiatives.

The focus group discussions were conducted with farmers and other key informants from the Sanggar *Rojolele* community, including agricultural experts, local leaders, and members of the marketing team. To ensure a diverse range of perspectives, farmers were grouped with other informants based on their roles and experiences in the community. For example, one group consisted of farmers and the founder of Sanggar *Rojolele*, while another included farmers and agricultural experts. This approach allowed for rich discussions on farming practices, market challenges, and the community's strategies for resilience. The interactions provided valuable insights into the dynamics between farmers and other stakeholders, helping to capture a comprehensive view of the community's efforts and challenges.

Data analysis followed the Miles and Huberman (1998) model of thematic analysis, which involves three key stages: data reduction, data presentation, and drawing conclusions. Data reduction involved organizing and simplifying the raw data, while data presentation helped in categorizing and visualizing the findings. Finally, conclusions were drawn based on the patterns and themes identified throughout the process. To ensure the objectivity and validity of the findings, triangulation of sources and data collection techniques was employed. This approach allowed for a more comprehensive understanding of the research problem by cross-verifying information from multiple perspectives and data sources.

Results

The results of this study are presented in two key areas: (1) the challenges faced by Indonesia's farming community in navigating industrial competitiveness, and (2) the strategies employed by small-scale farmers to sustain their livelihoods and remain competitive in the industrial agricultural landscape. The findings are shown in narrative description supported by direct quotations from the participants to assist in delineating the key findings. The coding of the data is provided by mentioning the number of the informant (see Table 1) followed by the sources of data, either from an interview or focus group discussion (FGD). For example, code "Informant 1–Interview" means that the data was the response of informant 1 (founder of Sanggar *Rojolele*) obtained from an in-depth interview.

Challenges Faced by Indonesia's Farming Community in Industrial Competitiveness

Domination of Entrepreneurs in the Rice Trading System

The trade system established by the Klaten government tends to disproportionately benefit rice entrepreneurs while disadvantaging farmers. The marketing of *Rojolele* rice to Klaten's state civil servants,

as well as to people outside the region, is monopolized by large rice entrepreneurs. These entrepreneurs are the sole suppliers of rice to the Klaten state civil apparatus, essentially creating a controlled market dominated by capitalist interests. Only large rice entrepreneurs have the capacity to serve as suppliers for the state, while smaller-scale investors and farmers are effectively "forced" to sell their agricultural products to these dominant entrepreneurs.

In pursuit of maximum profits, rice entrepreneurs employ several strategies. First, they prefer to purchase farmers' harvests in the form of raw grain rather than processed rice. This practice forces farmers to absorb losses due to the price differential, as the selling price of rice per pathok is IDR 6 million (US$355), while the price for raw grain is only IDR 4 million (US$237) (Informant 6–Interview). Second, rice entrepreneurs source rice from outside the Delanggu region, recognizing that the Delanggu brand has market appeal. While mixing rice from outside the region with Delanggu rice, they sell it under the Delanggu branding, thus capitalizing on the region's reputation to maximize profits (Informant 10–Interview). As a result, the authenticity of Delanggu rice is compromised, and its price on the market drops (Informant 7–Interview).

Furthermore, rice entrepreneurs often collaborate with intermediaries who facilitate direct communication and sales contracts with farmers. These middlemen provide financial loans to farmers during the planting season, with repayment deducted from the proceeds once the crops are sold. Due to their financial struggles, many farmers are coerced into selling their product under unfavorable terms, using the *ngijau* system. Under this arrangement, farmers sell their rice before harvest at significantly lower prices in order to meet their immediate financial needs (Informant 9–Interview).

Structural Poverty of Landless Farmers

Delanggu is an agricultural area with exceptional soil fertility, which places rice fields in a critical and strategic position. Even though it has not yet taken the form of a conflict, ownership of rice fields in Delanggu has the potential to cause social tension. Based on 2021 Central Bureau of Statistics of Republic of Indonesia (BPS) data, Delanggu Village has 71.15 hectares (175.82 acres) of rice fields, which account for 54% of the village's total area. One informant described the land ownership map of Delanggu farmers as follows.

> Based on Delanggu Village Demographic data for 2021, it is stated that the number of residents who earn their living as farmers is only 60. Of this number, 95% of Delanggu Village farmers are smallholder farmers or cultivators. (Informant 1–FGD)

The ownership of rice fields in Delanggu is controlled by capital owners who are not farmers. They are a landowners who own approximately 15 ha, or 20%, of Delanggu Village rice fields (Informant 1–Owner of Sanggar *Rojolele*–FGD, Informants 2–5: Farmers–FGD).

Until about two decades ago, most farmers in Delanggu owned their own rice fields and enjoyed relatively prosperous livelihoods. However, due to socio-cultural changes at both the national and local levels, patterns of land ownership have shifted significantly. Many farmers who once owned rice fields have since sold their land, leading to a rise in landlessness among the farming community.

Several informants stated that farmers sold their rice fields for specific reasons: their descendants did not want to become farmers, their heirs no longer lived in Delanggu, or having multiple heirs made it easier to divide the inheritance by selling the land. As a result, almost all Delanggu farmers sold their fields to large capital owners—the only buyers willing to offer significantly above-market prices for the Sanggar *Rojolele* land (Informants 2–5: Farmers–FGD).

Stagnant Farmer Regeneration

The income earned by a farmer in Delanggu (about US$123) falls well below the threshold needed to meet basic living standards, contributing to a condition of structural poverty. One significant consequence is the younger generation's growing reluctance to pursue farming as a profession. While low income is a major factor, other issues also contribute to this trend—most notably, the limited adop-

tion of technology in the agricultural sector. Much of the work remains manual, reinforcing the perception of farming as labor-intensive, physically demanding, and undesirable. The lack of mechanization not only deters youth but also drives up production costs, further undermining the sector's viability.

As a result, most young people in Delanggu prefer to work in the industrial or service sectors. This choice is reinforced by the increasing number of industrial factories in the Klaten and Solo Raya regions. As one informant noted:

> Of the 60 Delanggu farmers, 90% are over 55. Only 5% of the 60 farmers are aged 30 to 40 years. Young people here prefer to work in factories. So one day, there will be no more farmers here, sir. (Informant 1–Interview)

The village government officials and the Delanggu subdistrict head also feel worried about the increasing generational loss of farmers. If it is not addressed appropriately, an agricultural crisis may occur and be followed by a national food security crisis. As one informant stated:

> Look, sir, I also know these symptoms. … To address this, we use the principle that whatever efforts are made must improve farmers' welfare. If being a farmer is prosperous, young people will be happy to become farmers. (Informant 10–Interview)

The Community's Strategies to Sustain their Livelihoods and Remain Competitive in Industrial Agriculture

Founding 'Rojolele Rice' as the icon of Delanggu Village

In response to the growing scarcity of *Rojolele* rice—a cultural and agricultural icon of Delanggu—the Klaten Regency government partnered with the National Nuclear Energy Agency (BATAN) to develop a new variety that could be cultivated in a shorter time frame. This collaboration led to the development of two *Rojolele* rice derivatives: Srinuk and Srinar. Both varieties retain key characteristics of the original *Rojolele* rice—such as a fluffy texture and fragrant aroma—while offering a significantly reduced growing period of just 105 days. According to an informant,

> Since 2013, local farmers here have wanted research into the possibility of creating a new variety of *Rojolele*, which is almost the same as other rice varieties in terms of planting period and height, so that it does not fall over easily when hit by the wind. Finally, the Klaten Regency government submitted research to Batan. The research ran for six years (2013-2019) through multiplanting location tests, plant resistance tests, and finally, the 2019 taste test. Finally, it passed the variety test. Only in 2020 was the decree for its plant variety protection submitted, with approval granted in 2021, and the variety was finally released in 2022. (Informant 10–Interview)

Additionally, the Klaten government, as the patent owner, has decided that *Rojolele* Srinuk and Srinar rice can only be planted in the Klaten Regency area. Klaten farmers hold monopoly rights to grow these two rice varieties, and people living outside the Klaten Regency can only be consumers.

To strengthen the market, the Klaten Regency government also issued a Regent's Instruction No. 1/2020 regulation, which contains orders to all Klaten Regency State Civil Apparatus (ASN) levels to consume *Rojolele* rice. As a result, the Klaten Regency ASN market absorbed at least 80 tons of Rojolele rice. These regulations and patents show that the *Rojolele* rice market is wide open. Communities outside Klaten, and all Klaten ASNs, are ready to become a market for *Rojolele* rice.

Building Farmer Ideology through Arts and Culture

In terms of culture and social environment, the founder and activist of Sanggar *Rojolele* is fully aware that Sanggar is an arts and culture institution. Various arts and cultural activities are carried out to develop the talents and interests of the young generation of farmers. Moreover, arts and culture activities are carried out to build solidarity among members of the Sanggar *Rojolele* farming community itself. The peak of these cultural arts activities

is the *Mbok Sri Mulih* Festival. As stated by Informant 1:

> So finally, we thought we needed a special approach. Initially, I was not a farmer either. The arts and culture will become the attraction for my movement. I passed the arts and culture route, but we only use it for vehicles. The main vision remains agriculture. (Informant 1–Interview)

Mbok Sri Mulih is an art performance held in the public village square, as opposed to an exclusive bourgeois cultural arts location. *Mbok Sri Mulih* is a colossal art performance held in various places where ordinary people live and struggle to maintain their lives. Therefore, the *Mbok Sri Mulih* Festival can be interpreted as a satire of oppressed society against government policies favoring the bourgeoisie. Borrowing the term used by Purwandani et al. (2014), what Sanggar *Rojolele* is doing is a form of "disguised resistance" (p. 240) by farmers' organizations initiated by the government.

> At first, we danced in the middle of the rice fields; people suspected that maybe this was Lekra, a leftist movement because our cultural arts differ from the mainstream. Not the *wayang* art, *ketoprak*, has its stage in the square. But this is in the middle of rice fields, on the edge of the Kali Woro river, yes, satire movements. (Informant 1–Interview)

The festival encourages members of the farming community to critically reflect on their structural position within the local social system and to recognize themselves as a marginalized group whose voices and interests are often overlooked.

> I still believe that there are many leftist Klaten artists. We use that to attract public attention without having to be leftist. But we are not an atheist communist left but a critical group. If our movement is monumental and unfocused, over time, this movement will become less rooted. Because our environment is agricultural, the focus is on agriculture. (Informant 1–Interview)

This consolidationled to a shared consensus in the Sanggar *Rojolele* farming community, solidifying a collective identity algined with the "left movement." The community developed a strong sense of class consciousness, recognizing themselves as an oppressed group in the social structure of Delanggu. As a result, members became more united in their participation in community activities and more critically engaged with the broader agricultural issues affecting their livelihoods. This shift is illustrated in the following statement from an informant:

> Negoro [country] doesn't think about the people. In the past, when we harvested, we could buy anything, save the gold. In the past, just working on two stakes was enough. But now you can't. Why? Because operational costs are now high while selling prices are fixed. (Informant 8–FGD)

Empowering Communities with Organic Farming

The loss of Delanggu's status as a premium rice producer is a concern for Delanggu farmers. Sanggar *Rojolele* represents the Delanggu farming community together with other movement elements to encourage the government to try to restore the lost Delanggu icon. As a result, in 2019, the Klaten Regency government collaborated with BATAN to develop the new Srinuk, and Srinar varieties of *Rojolele* rice. Beyond this, the Klaten Regency government finally has patent rights to these two rice varieties, which can only be planted in the Klaten Regency area. This is the basis for the return of the Delanggu icon as a premium rice producer in Indonesia.

What is interesting about the two new rice varieties of *Rojolele* is their character. Both are more compatible with organic fertilizers and insecticides. That is why Sanggar *Rojolele* collaborates with various parties to empower farming communities with training to develop organic farming. In addition, farmers' dependence on industry can be reduced with an organic approach.

> We make our organic fertilizer. The ingredients are vegetable waste. Group members make the fertilizer. Fertilizer is made collaboratively.

> Later, if you want to fertilize, take it from the warehouse. Buying materials using cash funds. (Informant 2–Interview)

Building a Direct End-user Market

Despite these empowering efforts, farmers still face structural barriers within the rice supply chain. Farmers cannot directly become rice suppliers to regional companies. Regional companies only buy rice from rice entrepreneurs who are members of an institution called *Konstraling* (Strategic Coordinator of Rice Millers). This institution is the sole holder of the right to supply rice to regional companies. Konstraling only accepts farmers' harvests in the form of grain at a cheaper price than buying it in the form of rice. Farmers lose 2 million IDR (US$) per plot of rice field by selling their harvest as grain. This is where policies emerge that are detrimental to farmers but benefit rice entrepreneurs with significant capital.

A central problem of *Rojolele* Srinuk and Srinar rice cultivation is the marketing of the product. As one informant states,

> Difficulty marketing the produce is a consequence of the price of *Rojolele* Srinuk-Srinar rice, which is indeed more expensive than ordinary rice (a difference of three to four thousand per kilogram). (Informant 12–Interview)

Sanggar *Rojolele* is trying to create a market outside of Konstraling and regional companies to avoid these losses. Only two institutions can buy rice from the Sanggar *Rojolele* farming community: the University of Sebelas Maret (UNS) Cooperative and the Serba Sambal Restaurant. They give a quota of 2 tons and 16 tons of rice per month, respectively.

> Not only specifically for cooperatives but also taking part in expos where no one necessarily buys, such as the Expo at Paragon, Car Free Day (CFD), Bank Indonesia, Sebelas Maret University, Solo Tekno Park. (Informants 12–13–Interviews)

In the markets mentioned above, farmers can sell their crops directly to end users in the form of rice. However, when the harvest is abundant, exceeding the selling power of the studio, the farmers are forced to sell their crops to mediators at much lower prices.

Gathering Strength by Networking

The Sanggar *Rojolele* farming community also resists capitalism's hegemony by building networks with various other elements of civil society. For instance, Sanggar joined the Klaten Care Movement network, a civil society that cares about social injustice and environmental damage in the Klaten Regency area.

> Meeting with networks in Klaten such as Pak Anshori, Kiai Sam, Kiai Jazuli, and Klaten political actors. There, I saw a gap in collaboration in the form of cultural arts performances. As a result of networking with the Klaten Care Community, the Sanggar *Rojolele* social movement has stronger power and a wider spectrum of influence. (Informant 11–Interview)

Second, Sanggar *Rojolele* established a relationship with Sebelas Maret University (UNS), greatly benefiting them in expanding their network. An informant states:

> UNS provides support in the form of organic agricultural science and technology, such as making liquid organic fertilizer, biopesticides, electric bird repellent technology, and rice pest trapping equipment. Apart from that, the university, through its cooperative institution, is willing to buy the production of the Sanggar farming community up to two tonnes per month. "On the other hand, UNS also made the Sanggar farming community the centre for implementing the Independent Learning Curriculum (MBKM) of the Faculty of Agriculture. (Informant 4–Interview)

Carrying Out Advocacy

From the perspective of the Sanggar *Rojolele* farming community, government policies often fail to support smallholder farmers. As a result, they believe that farmers' interests must be actively advanced through advocacy. This advocacy

includes monitoring the use of village funds for agriculture, proposing repairs to irrigation infrastructure, advocating for patent rights for the *Rojolele* Srinuk and Srinar rice varieties on behalf of the Klaten community, and calling for a national program to redistribute agricultural land.

The Sanggar farming community employs a lobby and action strategy in its advocacy efforts. Farmer demands are first conceptualized before being presented to government authorities. If these proposals are not acknowledged or acted upon, the community initiates a lobbying process involving relevant and influential stakeholders. Should lobbying efforts fail, the community then takes action. Each stage of this strategy requires collaboration with multiple actors, underscoring the importance of advocacy in amplifying farmers' voices.

For instance, in advocating for the reconstruction of the damaged Blambangan Reservoir, Exan, representing the Sanggar farming community, engaged directly with the Governor of Central Java, Ganjar Pranowo. As a result, the provincial government approved and initiated repairs to the reservoir. Additionally, the Sanggar community continues to advocate for support related to seed distribution and the patenting of *Rojolele* rice varieties.

> *Rojolele* patent rights and plant quality protection patents with Commission Two and the Department of Agriculture. By patenting *Rojolele* rice, consumers believe in the specialty of *Rojolele* rice. (Informant 1–Interview)

Discussion

The challenges faced by Indonesia's smallholder farming community in the industrial agricultural landscape are multifaceted. One of the most pressing issues is the domination of entrepreneurs in the rice trading system, which places small-scale farmers at a significant disadvantage. Powerful agribusiness and corporations exert control over the supply chain, influencing market prices and limiting direct access for small-scale farmers. This condition mirrors the findings of previous studies highlighting how agribusiness giants monopolize agricultural trade, further marginalizing smallholders (Alexander et al., 2022; Badhai, 2022; Widyanto & Subanu, 2023). Additionally, the structural poverty of landless farmers exacerbates their vulnerability. Many farmers do not own the land they cultivate, leaving them dependent on lease agreements that often favor landlords. This precarious situation forces them into cycles of debt and dependence on external financial institutions, making it even more difficult for them to compete in an industrialized agricultural economy (Ashari et al., 2020; Frye, 2023; McKeon et al., 2022). Compounding these challenges is the stagnation of farmer regeneration. Younger generations are increasingly reluctant to pursue farming as a livelihood, largely due to economic uncertainty and limited government support. As a result, traditional farming knowledge is at risk of being lost, further threatening the sustainability of small-scale agriculture in Indonesia (Muthoharoh, 2023).

The issue of stagnant farmer regeneration in Delanggu is closely tied to structural poverty, where the income from farming fails to meet basic living standards, making it an unattractive profession for younger generations. This economic challenge, combined with a lack of technological advancements in agriculture, results in farming being perceived as a labor-intensive and undesirable occupation. As a result, many young people in Delanggu prefer to seek employment in industrial or service sectors, where opportunities are growing due to the increasing number of factories in surrounding areas. To address this, the proposed strategies focus on improving farmers' welfare and making farming a more attractive profession. Initiatives like promoting organic farming and empowering farmers through training on sustainable agricultural practices aim to increase income and reduce production costs, which could help reverse the trend of young people leaving the profession. Furthermore, leveraging technology to reduce manual labor and improve farm productivity would make agriculture more appealing. These strategies could not only attract younger generations but also provide economic sustainability, addressing both stagnant regeneration and structural poverty.

Despite these challenges, small-scale farmers in Delanggu Village have devised innovative strategies to sustain their livelihoods and remain competitive in the industrial agricultural sector. One of the key

strategies has been the rebranding of '*Rojolele* Rice' as the cultural and economic icon of Delanggu. Recognizing the growing difficulty in obtaining this premium rice variety, the Klaten Regency government collaborated with BATAN to conduct research that reinforced the status of *Rojolele* rice as an integral part of the region's heritage. This initiative aligns with global examples where rice cultivation is deeply embedded in cultural and economic identities, as seen in China, Korea, and Japan (Hosoya et al., 2010; Jamil et al., 2023). Similar studies indicate that rice holds profound spiritual and symbolic significance beyond its economic value, serving as a representation of agricultural identity and resilience (Ronald, 2004; Wang et al., 2020; Zhang et al., 2022).

Another crucial strategy undertaken by the *Rojolele* farming community is building farmer solidarity through arts and culture. The *Mbok Sri Mulih* Festival, organized by the community, serves as a cultural resistance movement against capitalism and governmental indifference. The festival features artistic performances, seminars, and workshops led by "organic intellectuals" (Getman et al., 2021; Silva, 2022) who foster class awareness and solidarity among farmers; in this case, these were community-based educators. This consciousness-raising effort aligns with broader movements of agrarian resistance, where cultural expressions become a vehicle for political advocacy and empowerment (Brighenti, 2019; Egan, 2015; Ramli, 2000).

Additionally, the community has embraced organic farming as a means of empowerment and resistance against industrial agribusiness. The development of *Rojolele* rice varieties, such as Srinuk and Srinar, which are well-suited for organic fertilizers and insecticides, underscores the commitment to sustainable agricultural practices. By rejecting inorganic fertilizers and instead focusing on organic alternatives, the farmers reduce their dependence on large agribusiness corporations (Fang et al., 2024; Mulyani et al., 2023; Tilzey, 2020). Research has shown that organic farming offers an effective counterbalance to the industrial Green Revolution model, reinforcing food sovereignty and environmental sustainability (Haska et al., 2022; Jala et al., 2019; Pratiwi & Moeis, 2022; Souri & Sooraki, 2019).

In response to market challenges, farmers have also worked to establish direct end-user markets. By circumventing intermediaries and corporate-controlled supply chains, they can sell their produce directly to consumers, thereby ensuring fairer prices and greater economic stability. This model aligns with global trends where digital marketplaces and local food networks empower smallholder farmers by increasing their market access and profitability (Jin et al., 2023; Sobitxon, 2022). Studies suggest that such direct market connections not only improve economic conditions but also contribute to food justice and sovereignty, challenging the notion that smallholder farmers are powerless in capitalist market structures (Barling et al., 2022; Boillat et al., 2023; Merritt & Clark, 2024).

Networking has also played a pivotal role in the resistance of the Sanggar *Rojolele* farming community. By forging alliances with civil society groups—including interfaith leaders, academics, and cultural activists—they have strengthened their collective bargaining power. This networking effort is a classic example of Antonio Gramsci's "war of position," where marginalized groups build alliances to challenge hegemonic systems (Egan, 2016; Worth, 2023). The community's involvement in food policy literacy training further reinforces their agency, enabling them to influence agricultural policies that directly affect their livelihoods (Ramos-Gerena, 2023).

Advocacy has also been a crucial strategy in securing farmers' rights. The Sanggar *Rojolele* community has actively lobbied for agricultural reforms, including the redistribution of land, improved irrigation infrastructure, and patent rights for the *Rojolele* Srinuk and Srinar rice varieties. Advocacy efforts like these are essential in shaping government policies that align with farmers' interests, as seen in similar movements worldwide (Palma Carvajal, 2022; Prescott, 2022; Wiedemann & Ingold, 2024). Effective advocacy requires strong coalitions, and the success of the Sanggar *Rojolele* community in mobilizing support highlights the importance of collective action in addressing systemic inequalities in agriculture (Moneiro et al., 2022; Padaliya et al., 2022; Roberts, 2022; Sokphea, 2017).

Overall, while Indonesia's small-scale farmers face significant challenges due to industrial com-

petitiveness, the case of the Sanggar *Rojolele* community in Delanggu Village demonstrates that resilience and innovation can serve as powerful countermeasures. By leveraging cultural identity, organic farming, direct marketing, networking, and advocacy, these farmers have developed sustainable strategies to preserve their livelihoods. Their efforts highlight the potential for community-driven solutions in addressing the broader structural challenges facing smallholder agriculture in Indonesia.

The findings of this study have important implications when viewed through the lenses of SLF, ACT, and RBV. According to the SLF, the strategies implemented by the Sanggar *Rojolele* farming community—such as promoting *Rojolele* rice, empowering farmers through organic farming, and building direct market access—illustrate how smallholder farmers utilize various forms of capital (human, social, natural, physical, and financial) to enhance their resilience in the face of industrial competitiveness. From the perspective of ACT, these strategies reflect how the community adapts to changing environmental and economic conditions by developing innovative ways to sustain their livelihoods, demonstrating strong adaptive capacity. Additionally, the RBV highlights how the farming community leverages unique resources, such as cultural heritage and regional agricultural products, to maintain competitiveness. Collectively, these theories underscore the importance of community-driven resilience strategies that capitalize on local strengths to overcome broader economic challenges.

This study suggests several policy recommendations to support small-scale farmers in Indonesia. First, policies should promote better market access for farmers by facilitating direct sales channels, such as cooperatives or direct consumer partnerships, to reduce reliance on intermediaries and ensure fair compensation. Second, government support for regional agricultural products like *Rojolele* rice should be strengthened, positioning them as unique local specialties to create niche markets that value sustainability. Third, training programs in organic farming should be expanded to empower farmers with sustainable, cost-effective practices. Finally, policies addressing land access and tenure security for landless farmers are crucial to reducing poverty and ensuring long-term stability. These recommendations aim to enhance the resilience of smallholder farmers and promote sustainable agricultural practices in the face of industrial pressures.

Conclusion

The present study has explored the challenges and strategies of smallholder farmers in Delanggu Village, particularly in the context of the growing industrial competitiveness in Indonesia's agricultural sector. The key challenges identified include the domination of entrepreneurs in the rice trading system, structural poverty of landless farmers, and stagnant farmer regeneration. These challenges have placed significant pressure on local farming communities, leading to difficulties in maintaining their traditional agricultural practices. In response, members of the *Rojolele* farming community have employed several strategies to sustain their livelihoods and resist the dominance of industrial agriculture. These strategies include founding '*Rojolele* Rice' as the icon of Delanggu Village, building farmer ideology through arts and culture, empowering communities with organic farming, establishing a direct end-user market, strengthening networks, and advocating for policy changes. These findings contribute to the theoretical understanding of how smallholder farming communities can employ a combination of cultural, economic, and political strategies to resist external pressures and assert their agency in an increasingly industrialized agricultural landscape. Practically, these insights can inform policies and initiatives aimed at supporting smallholder farmers through sustainable agricultural practices, market access, and community empowerment.

Despite the valuable insights provided, this research has some limitations. The study is geographically focused on Delanggu Village, which may limit the generalizability of the findings to other regions in Indonesia or to different agricultural sectors. Additionally, the reliance on qualitative methods such as interviews and field observations means that some of the broader, quantifiable aspects of the agricultural challenges and strategies may not be fully captured. Future research could

expand this study to a larger number of farming communities across different regions to better understand the diverse challenges faced by smallholder farmers in various contexts. Moreover, quantitative studies that assess the impact of specific strategies, such as organic farming practices or direct market initiatives, would provide more robust data on the effectiveness of these approaches. Further research could also explore the role of government policies in supporting or hindering the sustainability of small-scale farming and the potential for policy reforms to address the challenges identified in this study.

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