

## ***The Role of Local Farmers in Karangturi Village Contributes to Achieving Food Self-Sufficiency and Global Resilience***

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**Abstract:** *The food self-sufficiency program is a strategic government effort to strengthen national food security, but its effectiveness at the farmer level is still influenced by various supporting factors and obstacles. This study aims to analyze the role of local farmers in Karangturi Sumbang Village in supporting food self-sufficiency and identify the main challenges they face in the production process. The research method uses a qualitative approach through literature review, utilizing secondary data in the form of scientific literature, policy documents, and relevant previous research results. The research findings indicate that farmers have a good understanding of food self-sufficiency and play a vital role in maintaining regional food availability. However, various obstacles such as limited subsidized fertilizer, high production costs, pest attacks, weak institutions, and lack of technological assistance still hamper the optimization of farming efforts. This study confirms that efforts to achieve food self-sufficiency require more responsive policy support, increased access to production facilities and financing, and strengthening farmer extension and institutions. With strengthened structural support, the role of local farmers in supporting food self-sufficiency and food security can be more effective and sustainable.*

**Keywords :** *Self-sufficiency, Food, Farmers.*

**Abstrak:** Program swasembada pangan merupakan upaya strategis pemerintah untuk memperkuat ketahanan pangan nasional, namun efektivitasnya di tingkat petani masih dipengaruhi oleh berbagai faktor pendukung dan hambatan. Penelitian ini bertujuan untuk menganalisis peran petani lokal di Desa Karangturi Sumbang dalam mendukung swasembada pangan serta mengidentifikasi tantangan utama yang mereka hadapi dalam proses produksi. Metode penelitian menggunakan pendekatan kualitatif melalui studi kepustakaan, dengan memanfaatkan data sekunder berupa literatur ilmiah, dokumen kebijakan, serta hasil penelitian terdahulu yang relevan. Temuan penelitian menunjukkan bahwa petani memiliki pemahaman yang baik mengenai swasembada pangan dan memiliki peran penting dalam menjaga ketersediaan pangan daerah, namun berbagai kendala seperti keterbatasan pupuk bersubsidi, tingginya biaya produksi, serangan hama, lemahnya kelembagaan, dan kurangnya pendampingan teknologi masih menghambat optimalisasi usaha tani. Penelitian ini menegaskan bahwa upaya mewujudkan swasembada pangan memerlukan dukungan kebijakan yang lebih responsif, peningkatan akses terhadap sarana produksi dan pembiayaan, serta penguatan penyuluhan dan kelembagaan petani. Dengan penguatan dukungan struktural tersebut, peran petani lokal dalam mendukung swasembada pangan dan ketahanan pangan dapat berjalan lebih efektif dan berkelanjutan.

**Kata kunci:** Swasembada, Pangan, Petani

## Introduction

Meeting food needs is fundamental to a nation's sustainability and the well-being of its people. Food serves not only as a biological necessity but also as a foundation for strong social, economic, and political stability. The Food and Agriculture Organization (FAO) notes that threats to global food security are increasing due to climate change, population growth, supply chain disruptions, and unequal food distribution (FAO, 2023). This situation demonstrates that equitable access to and availability of food remains a major challenge for many countries, particularly in regions with economic vulnerability. This situation makes strengthening resilient and adaptive food systems increasingly crucial to ensure that food needs can be met sustainably.

As an agricultural country, Indonesia has significant potential to achieve food self-sufficiency. However, various obstacles remain, ranging from land conversion, unequal access to agricultural inputs, to stagnant farmer productivity (Martanto, 2021; Li et al., 2023; Sustyaningrum et al., 2024). Research by Duffy et al. (2021) shows that the agroforestry model implemented by smallholder farmers in Indonesia contributes significantly to household food security through food diversification and increased income. These findings emphasize that strengthening local agricultural systems cannot rely solely on conventional production approaches but must leverage the potential of adaptive agricultural communities and ecosystems. Therefore, enhancing the capacity of local farmers is a key factor in achieving sustainable food self-sufficiency.

Farmers are key actors in national food security because they not only produce primary commodities but also maintain the social and ecological sustainability of their villages. A study by Isnan et al. (2025) shows that the resilience of smallholder farmers is largely determined by access to social assistance, community empowerment, and the adaptive capacity of farming households. In Karangturi Village, Sumbang District, Banyumas Regency, farming remains the primary livelihood, making farmers' contributions to regional food security significant. Research by Tasnim et al. (2025) confirms that the economic resilience of farming households is significantly influenced by factors such as land assets, access to basic services, and the adaptive capacity of farming families. These findings indicate that ownership of productive assets, particularly land and agricultural equipment, significantly increases household economic stability and protects them from recurring business risks in the agricultural sector. Furthermore, adequate access to basic services also helps strengthen farmers' ability to maintain their livelihoods when facing economic and environmental shocks. Therefore, strengthening the capacity of local farmers is a crucial step in strengthening food security, both at the regional and national levels.

In addition to production factors, local wisdom plays a crucial role in the sustainability of rural food systems. Research by Rahman (2024) shows that cultural values and traditional practices such as mutual cooperation, community-

based water management, and the use of local organic fertilizers can maintain household food diversity. Similarly, Lubis (2023) found that food security strategies based on local wisdom can improve community food access in Deli Serdang Regency. These local values demonstrate that food security depends not only on modern technological interventions but also on the social and cultural strengths of rural communities. Therefore, studies on the role of local farmers need to incorporate aspects of social institutions and communal dynamics as part of the foundation of food security.

Achieving food self-sufficiency requires synergy between government policies and local community capacity. Research by Sumartini & Nasrudin (2024) demonstrates that farmer participation in farming partnerships can improve household food security, although its effectiveness depends on the quality of mentoring and financial access. Aditi & Cen (2025) also found that green innovation and agrarian economic transformation significantly influence farmer productivity and income increases in Indonesia. Furthermore, research by Nurarifin & Kurniawan (2025) shows that the challenges of farmer regeneration can threaten the sustainability of food production if not promptly addressed through education, social support, and economic incentives. Therefore, the integration of national policies, local innovation, and strengthening farmer capacity is a crucial foundation for achieving equitable food self-sufficiency.

Based on the overall presentation, the study entitled "The Role of Local Farmers in Karangturi Sumbang Village in Contributing to Achieving Food Self-Sufficiency and Global Resilience" is highly relevant for study. This research is expected to illustrate the strategic role of local farmers, the challenges they face in supporting food security, and community-based solutions that can be implemented sustainably. With this understanding, farmers' contributions to achieving the Zero Hunger agenda can be strengthened through an inclusive, participatory, and village-based policy approach.

### **Research methods**

This study uses a descriptive qualitative method to deeply understand the role of local farmers in Karangturi Sumbang Village in supporting food self-sufficiency. According to Moleong (2018), a descriptive qualitative approach is used to describe phenomena as they are based on the experiences and views of research subjects. In line with this view, this study relies on primary data obtained through in-depth interviews with farmers as key informants to understand production conditions, the obstacles they face, and their perceptions of the implementation of agricultural programs. This study also uses secondary data through a literature review that includes scientific literature, official government publications, statistical documents, and relevant previous research. According to Sugiyono (2019), content analysis is used in qualitative research as a technique to systematically examine and

interpret data. Therefore, in this study, this approach is applied to identify patterns, themes, and relationships between findings related to the role of farmers in food self-sufficiency efforts at the village level.

### **Results and Discussion**

Farmers in Karangturi Village demonstrated a good understanding of the concept of food self-sufficiency, which refers to efforts to independently meet food needs without relying on imports. This understanding aligns with the view of Duffy et al. (2021), who stated that smallholder farmers often understand the concept of food security through direct experience in managing land and navigating production dynamics. For Karangturi farmers, food self-sufficiency is not only about the availability of staple foods but also about the stability of family life. This demonstrates that farmers view their role within a framework that is not only technical but also social. This emerging understanding serves as an important foundation for supporting national food policy.

Farmers' awareness of the importance of food self-sufficiency influences how they view agriculture's strategic role in village development. Many farmers believe that regional food security can be achieved if production can be maintained consistently throughout the year. According to Isnain et al. (2025), farmers' perceptions of production stability are closely linked to the well-being of their families and surrounding communities. This indicates that food sustainability encompasses not only production but also social welfare. With this perspective, Karangturi farmers view agricultural sustainability as the foundation of their village's future.

The role of local farmers in maintaining food security is a crucial aspect highlighted in this study. They are the ones who best understand the potential and constraints of the land they manage. This aligns with the findings of Tasnim et al. (2025), who emphasized that the economic resilience of farming households is largely determined by their adaptive capacity and local knowledge. This awareness encourages Karangturi farmers to maintain agricultural activities despite facing various obstacles. Therefore, farmers are key actors in the village food chain.

Despite their strategic role, Karangturi farmers still face various obstacles in increasing productivity. One major challenge is limited access to modern agricultural technology. A similar situation was also found by Li et al. (2023), who stated that stagnant farmer productivity in Indonesia often occurs due to limited access to technology and training. Lack of understanding of technology makes farmers more reliant on traditional, less efficient methods. This situation indicates that the level of technology adoption in villages remains low.

Based on field findings, another serious challenge faced by farmers is the recurring pest attacks every season. These attacks significantly reduce crop yields and increase production costs. This phenomenon aligns with the findings of Sustyaningrum et al. (2024), who explained that plant pests are a major threat to

efforts to increase food security. Furthermore, the high cost of production inputs such as seeds and pesticides further burdens farmers. This situation indicates that agricultural production is not running optimally.

The scarcity of subsidized fertilizer is one of the most significant obstacles facing farmers in Karangturi Village, occurring almost every planting season. This situation forces farmers to purchase non-subsidized fertilizer at higher prices, significantly increasing production costs. This situation also makes it difficult for farmers to apply fertilizer at the right time, especially during the plant growth phase, which requires optimal nutrition. Delayed fertilization results in uneven plant growth and less than optimal yields. This problem indicates that the fertilizer distribution system is still ineffective, necessitating a restructuring to ensure fairer and more consistent access for farmers.

In addition to fertilizer constraints, farmers also face increasingly unpredictable climate change, which impacts their cropping patterns from year to year. The rainy and dry seasons no longer follow a stable pattern, forcing farmers to frequently adjust planting schedules abruptly. This uncertainty increases the risk of crop failure, as crops are highly dependent on specific weather conditions. Farmers who start planting at the wrong time often experience less than optimal crop growth. This phenomenon highlights the importance of a stronger climate adaptation system so farmers can adapt agricultural practices to changing environmental conditions.

Some farmers are trying to find a solution to the fertilizer problem by making their own fermented organic fertilizer. This effort aims to reduce dependence on chemical fertilizers, the availability of which is unstable. Although the use of organic fertilizers has not completely replaced chemical fertilizers, farmers see this alternative as a way to reduce production costs and maintain soil fertility. Besides being more environmentally friendly, organic fertilizers provide farmers with a nutrient reserve when subsidized fertilizers are unavailable. This initiative demonstrates farmers' creativity and adaptability in the face of limited production facilities.

Some farmers have also begun using mechanized tools such as tillage machines and rice threshers to increase work efficiency. Mechanization helps speed up land cultivation and reduce the previously significant labor burden. However, not all farmers can afford these tools due to limited capital. Some choose to rent or borrow from farmer groups when they become available. This situation illustrates that mechanization is gaining popularity, but its distribution remains uneven, requiring wider access to support.

The lack of extension services is another persistent complaint among farmers in Karangturi. Farmers report rarely receiving visits from extension workers to provide guidance on cultivation and agricultural technology. This lack of assistance makes it difficult for farmers to implement new, more efficient or environmentally friendly methods. This situation aligns with Sumartini & Nasrudin (2024), who

emphasized the need for quality extension services to increase farmers' capacity to face the challenges of modern agriculture. Without regular assistance, farmers tend to stick to traditional methods that require more time and effort. The suboptimal extension services demonstrate the need to increase the role of relevant agencies.

Farmer institutions, such as farmer groups, have significant potential to serve as centers for coordination and collaborative learning. However, in practice, these institutions have not been functioning optimally due to a lack of guidance and supporting facilities. Many farmer groups lack a strong organizational structure, resulting in inconsistent implementation of their work programs. This situation makes farmer groups' function as a forum for expressing aspirations and seeking collective solutions less effective. Nurarifin & Kurniawan (2025) state that institutional strengthening is a crucial factor in driving the success of agricultural programs. Therefore, farmer groups in Karangturi require more intensive mentoring to improve their organizational capacity.

Limited access to capital is the most common obstacle farmers face when starting the planting season. Most farmers rely on personal capital derived from previous harvests, so when yields are poor, their next business venture's capital is affected. This situation makes it difficult for farmers to purchase superior seeds, quality pesticides, or rent mechanization equipment that can support increased productivity. The lack of accessible financial institutions forces them to postpone several essential needs in the production process. This situation demonstrates the critical need for inclusive financing to support the sustainability of farming businesses in Karangturi.

Limited capital also forces farmers to use low-quality production inputs. Many farmers choose cheap seeds because they lack the funds to purchase superior seeds with higher yield potential. Consequently, harvests are less than optimal and productivity does not increase significantly. This aligns with the findings of Tasnim et al. (2025), who explained that the economic capacity of farming households directly influences the quality and quantity of production inputs used. The inability to improve input quality leads to stagnant crop production over time. Therefore, financing interventions need to be directed at providing quality production inputs for farmers.

Fluctuations in agricultural commodity prices create income instability for farmers. This situation makes it difficult for farmers to plan family expenses and farm investments. When prices fall, farmers often experience losses even when harvesting large quantities. This uncertainty places farmers in an economically vulnerable position. Rahman (2024) explains that unstable local markets often result in farmers not receiving prices commensurate with their production costs. This situation demonstrates the importance of price stabilization policies that favor farmers.

The potential of local markets is actually quite large to support the rural economy, but farmers have not yet optimally utilized them. Many farmers still sell

their crops to middlemen because they lack direct access to more profitable markets. This dependence results in the selling price received by farmers being significantly lower than the market price. Furthermore, the lack of supporting facilities such as transportation, price information, and village markets leaves farmers with no alternative options. This situation highlights the need to strengthen local marketing systems so that farmers obtain better economic value from their crops.

To mitigate the risk of loss, some farmers are attempting to implement a crop diversification strategy in their farming operations. Diversification allows farmers to generate income from more than one commodity, thus balancing the risk when the price of one crop falls. This strategy aligns with Li et al. (2023), who stated that diversification can be an adaptive measure in the face of market dynamics and climate change. However, farmers' understanding of the market potential for alternative crops remains limited, resulting in suboptimal implementation. In some cases, farmers choose additional crops through trial and error without understanding the price outlook. This situation highlights the need for market information support for optimal diversification implementation.

Farming families also play a crucial role in maintaining the sustainability of agricultural activities in villages. Many family members assist with planting, maintenance, and harvesting, even if informally. This involvement lightens the farmer's workload and helps expedite various production processes. However, there is a trend of declining interest among younger generations in continuing their farming careers. They often view farming as tiring work with uncertain income. This situation has the potential to lead to a future shortage of agricultural labor.

The issue of farmer regeneration poses a major challenge to the sustainability of the agricultural sector in Karangturi Village. Younger generations are more interested in working in the industrial and service sectors, which are considered more economically and socially promising. A lack of government support, facilities, and incentives makes agriculture an unattractive career option. Nurarifin & Kurniawan (2025) stated that this regeneration crisis could hamper the sustainability of food production if not addressed immediately. Without adequate regeneration, the agricultural sector risks declining quality and production capacity. This situation demands special development and support programs to attract young people back to the agricultural sector.

These findings demonstrate that successful food self-sufficiency requires strong collaboration between farmers, the government, financial institutions, and other supporting institutions. Government programs must be tailored to farmers' real needs, extending beyond conceptual policies. Support in the form of access to production facilities, technical assistance, and adequate financing are crucial factors. Sumartini & Nasrudin (2024) emphasize that the effectiveness of agricultural policies is largely determined by the quality of their implementation on the ground. Meanwhile, farmers also need to improve their adaptability and technical skills to face the challenges of a constantly changing market and

environment. This synergy between these parties can strengthen the foundation of regional food security.

Local farmers play a significant role in achieving food self-sufficiency in Karangturi Village, despite facing various structural and technical constraints. Challenges such as limited access to fertilizer, limited capital, weak institutions, and unstable commodity prices mean farmers work under less-than-ideal conditions. Nevertheless, their enthusiasm for continued production demonstrates significant potential for further development. Aditi & Cen (2025) highlight that agricultural innovation and policy support play a crucial role in sustainably increasing farmer productivity. The success of food self-sufficiency depends heavily on the ability to overcome these constraints through a comprehensive approach involving various stakeholders. With appropriate policy support, farmers can become a key pillar of village food security.

### **Conclusion**

The conclusion of this study indicates that farmers in Karangturi Village have a good understanding of the importance of food self-sufficiency and play a strategic role in maintaining regional food security. However, the implementation of the food self-sufficiency program at the field level still faces several significant obstacles. These challenges include limited access to subsidized fertilizer, high production costs, recurring pest attacks, and minimal technological assistance and extension services, which should be the primary support for farmers. This situation is exacerbated by weak agricultural institutions and limited access to financing, which makes it difficult for farmers to increase the capacity and scale of their farming businesses. These findings indicate that structural problems in the agricultural sector remain a major obstacle to achieving optimal food self-sufficiency.

Based on these findings, this study recommends several strategic steps that need to be strengthened by the government and relevant stakeholders. Prioritized efforts include improving the governance of production input distribution, expanding access to agricultural financing, increasing the intensity and quality of extension services, and utilizing agricultural innovations relevant to local conditions. Furthermore, strengthening farmer institutions, developing fairer markets, and improving cross-sector coordination are crucial to promoting production stability and farmer welfare. With responsive and collaborative policies between the government, financial institutions, extension workers, and farming communities, the goal of food self-sufficiency can be achieved more effectively and sustainably, thus having a tangible impact on regional and national food security.

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