

A Study of Farmers' Perceptions of the Use of Organic Fertilizers on Agricultural Land

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Abstract

This study aims to analyze farmers' perceptions of organic fertilizer use on agricultural land and identify factors influencing these perceptions. The study employed a qualitative approach with a descriptive design. Data collection was conducted through interviews, observation, documentation, and questionnaires distributed to 30 farmers actively engaged in agricultural activities. Respondents were selected purposively based on their farming experience and use of organic and chemical fertilizers. The results of the study indicated that most farmers have a positive perception of the use of organic fertilizers, especially in maintaining soil fertility and environmental sustainability. Farmers believe that organic fertilizers can improve soil structure, maintain moisture, and reduce dependence on chemical fertilizers. However, several obstacles remain in their application, such as the processing process being considered impractical, the need for additional labor, and the perception that organic fertilizers take longer to show results than chemical fertilizers. Experience, knowledge, and support from farmer groups are important factors influencing farmers' perceptions of organic fertilizer use. This study indicates that increased education and mentoring for farmers is needed to support the implementation of sustainable agriculture through the wider use of organic fertilizers.

Keywords: farmer perception; organic fertilizer; sustainable agriculture; soil fertility; agricultural land

INTRODUCTION

The agricultural sector plays a strategic role in maintaining food security, improving community welfare, and supporting sustainable economic development (Padila, 2025). In agricultural cultivation practices, fertilizer use is a key factor determining land productivity and crop quality. Over the past few decades, farmers' dependence on synthetic chemical fertilizers has increased due to their perceived rapid yield and ease of application. However, the continued use of inorganic fertilizers without proper soil management has led to various environmental problems, such as decreased soil fertility, soil structure degradation, water pollution, and reduced soil microbial diversity (Fanani et al., 2025).

Globally, the issue of sustainable agriculture is gaining increasing attention as awareness of the negative impacts of conventional agricultural practices grows. Organizations such as the Food and Agriculture Organization (FAO) are encouraging countries to adopt more environmentally friendly agricultural systems by optimizing the use of organic inputs, including organic fertilizers (Soekamto et al., 2023). Organic fertilizers are seen as a solution to naturally improve soil quality, increase organic matter content, and maintain the long-term balance of agricultural ecosystems. Furthermore, the use of organic fertilizers aligns with the sustainable development agenda, which emphasizes a balance between economic productivity and environmental preservation.

In Indonesia, efforts to encourage the use of organic fertilizers have been implemented through various government policies, such as organic fertilizer subsidy programs, composting training, and the development of community-based organic farming (Darwis & Rachman, 2013). However, the adoption rate of organic fertilizers among farmers still faces various challenges. Many farmers still view organic fertilizers as a less practical option than chemical fertilizers, primarily due to the perceived more complicated application process, the need for larger doses, and the perceived inability to see immediate results (Umam et al., 2023). These perceptions are important factors influencing farmers' decisions regarding the type of fertilizer used on their farms.

Farmers' perceptions of organic fertilizers are not only influenced by technical knowledge, but also by farming experience, level of education, access to information, extension support, economic conditions, and social influences from the surrounding environment. (Charina et al., 2018). In many cases, even though farmers are aware of the benefits of organic fertilizer for soil health, they remain reluctant to switch due to concerns about the risk of reduced yields during the transition period (Soedarto & Ainayah, 2022). On the other hand, some farmers who have used organic fertilizer have experienced long-term benefits in the form of improved soil quality and production cost efficiency. These differences in perceptions indicate that the decision to use organic fertilizer is highly complex and influenced by various multidimensional factors.

Several previous studies have examined the use of organic fertilizers in the context of sustainable agriculture. Research by Damayanti et al. (2025) showed that farmers' knowledge levels were positively related to their interest in using organic fertilizers, particularly in farmer groups actively participating in extension activities. Another study by Sari et al. (2025) found that the main obstacles to organic fertilizer adoption were limited access to raw materials, low market support for organic products, and the perception that organic fertilizers were less effective than chemical fertilizers. Meanwhile, Selvia et al. (2025) emphasized that social factors, such as the influence of fellow farmers and the presence of local agricultural figures, play a significant role in shaping farmers' attitudes toward environmentally friendly agricultural innovations.

While these studies have provided insights into the factors influencing organic fertilizer use, there is still room for further research, particularly regarding how farmers develop their overall perceptions of organic fertilizer use in their daily agricultural practices. Many previous studies have focused on technical aspects or adoption rates, while a deeper understanding of farmers' perceptions as a basis for decision-making has been underexplored. Yet, perception is a crucial element in determining the successful implementation of sustainable agricultural policies.

This research was conducted because farmers' perceptions can serve as an early indicator in assessing the readiness of farming communities to transition to more sustainable farming systems. By understanding how farmers perceive the benefits, barriers, and opportunities of organic fertilizer use, policymakers, agricultural extension workers, and academics can design more targeted mentoring strategies. Furthermore, the results of this

research can also form the basis for developing agricultural education programs that focus not only on technology transfer but also on changing farmers' mindsets and attitudes.

This research seeks to delve deeper into how farmers' experiences, knowledge, socioeconomic conditions, and interactions with their agricultural environment shape their views on organic fertilizers. Thus, it is hoped that this research will provide a more comprehensive perspective on the dynamics of adoption of sustainable agricultural innovations at the grassroots level.

The purpose of this study is to analyze farmers' perceptions of organic fertilizer use on agricultural land and identify the factors influencing these perceptions. Furthermore, this study aims to understand the obstacles and opportunities farmers face in implementing organic fertilizer as part of more environmentally friendly agricultural practices.

Theoretically, this research contributes to the development of agrotechnology studies, particularly in the areas of soil fertility management and agricultural innovation adoption. Practically, the results are expected to provide input for the government, agricultural extension workers, and related institutions in designing policies and mentoring programs to support increased organic fertilizer use among farmers.

Furthermore, the implications of this research extend beyond increasing agricultural productivity to contributing to environmental conservation and natural resource sustainability. If farmers' positive perceptions of organic fertilizers can be firmly established, the transformation toward a healthier, more efficient, and more sustainable agricultural system will be easier to achieve. Therefore, understanding farmers' perceptions is not merely an academic issue, but a strategic step in supporting a more resilient and long-term agricultural future.

METHOD

This study used a qualitative approach to deeply understand farmers' perceptions of organic fertilizer use on agricultural land. A qualitative approach was chosen because this study focuses on understanding the experiences, perspectives, attitudes, and reasons behind farmers' decisions to use or not use organic fertilizer. Through this approach, researchers can obtain a more comprehensive picture of the realities in the field from the perspectives of the research subjects directly.

The research design used was a qualitative descriptive design. This design was used to systematically, factually, and in-depth describe social phenomena related to farmers' perceptions of organic fertilizer. Qualitative descriptive research allows researchers to explore various information regarding farmers' understanding of the benefits of organic fertilizer, obstacles in its use, experiences during the cultivation process, and factors influencing their views on organic farming practices. In this study, the researcher acted as the primary instrument, directly involved in the data collection and interpretation process in the field.

The research was conducted in an agricultural area where the community is still actively cultivating food crops and horticulture. The research location was selected purposively, considering that the area has farmers who use organic fertilizers as well as

farmers who still rely on chemical fertilizers, thus providing a variety of data relevant to the research focus. The research subjects consisted of farmers who actively manage agricultural land and have experience in the use of organic and inorganic fertilizers. Subject selection was carried out using purposive sampling, namely selecting informants based on certain criteria who are considered capable of providing in-depth information related to the research topic. Informants in this study included farmers, heads of farmer groups, and agricultural extension workers who understand the conditions of organic fertilizer use in the research area.

The primary instrument in this qualitative study was the researcher herself. The researcher played a key role in determining the research focus, collecting data, conducting observations, conducting interviews, and interpreting the data obtained in the field. To support the data collection process, the researcher used interview guidelines, field notes, a voice recorder, and documentation in the form of photographs or other supporting data. The interview guidelines were semi-structured to maintain focus while allowing informants to share their experiences and perspectives more openly.

Data collection techniques in this study included observation, interviews, and documentation. Observations involved directly observing agricultural land conditions, farmer activities, and the use of organic fertilizer in daily cultivation practices. Through observation, researchers were able to understand the real-world situation on the ground and obtain supporting data related to farmer behavior in agricultural management.

In-depth interviews were conducted with research informants to obtain information regarding farmers' perceptions of organic fertilizer use, reasons for use, perceived benefits, obstacles encountered, and farmers' hopes for organic farming development. The interviews were conducted in a direct and flexible manner, allowing informants to express their opinions comfortably and openly. Documentation techniques were also used to supplement the research data through the collection of documents, photographs of research activities, farmer group data, and other archives relevant to the research focus.

The data obtained was then analyzed descriptively through the stages of data reduction, data presentation, and conclusion drawing. The collected data was sorted according to the research focus and then systematically organized to facilitate interpretation. Next, the researchers drew conclusions based on the information patterns discovered during the research process, thus gaining a deeper understanding of farmers' perceptions of organic fertilizer use on agricultural land.

RESULT AND DISCUSSION

Based on in-depth interviews with farmers, farmer group leaders, and agricultural extension workers, it was found that farmers' perceptions of organic fertilizer use tend to vary. Most farmers understand that organic fertilizers have positive benefits for soil fertility and long-term agricultural sustainability. However, in practice, not all farmers are able to consistently implement organic fertilizer use due to various factors, both economic and technical.

Some respondents stated that using organic fertilizers improved soil conditions, making them looser and easier to cultivate. One farmer revealed that after using organic fertilizers for several growing seasons, the soil was no longer as hard as it had been with the continuous use of chemical fertilizers. This statement indicates that farmers are beginning to recognize the long-term impact of organic fertilizer use on agricultural land quality.

Furthermore, farmers also believe that organic fertilizers are safer for the environment because they don't cause excessive pollution. Some farmers have reported using livestock waste and crop residues as compost to reduce fertilizer costs. This demonstrates a shift in farmers' mindset toward more sustainable agricultural practices.

However, interviews also revealed some farmers' skepticism about the effectiveness of organic fertilizers in rapidly increasing crop yields. Farmers accustomed to using chemical fertilizers tend to believe that organic fertilizers take longer to produce visible results. Furthermore, the processing of organic fertilizers is perceived as requiring additional labor, making them less practical than chemical fertilizers, which can be applied immediately.

Interpretation of the interview results indicates that farmers' perceptions are shaped not only by theoretical knowledge but also by personal experience and economic circumstances. Farmers who have experienced positive results from using organic fertilizers tend to have a more positive perception and are more open to environmentally friendly farming. Conversely, farmers who have not experienced direct benefits still have low levels of trust in the full use of organic fertilizers.

The results show that the majority of respondents have a fairly positive view of the use of organic fertilizers. Seventy percent of respondents stated that organic fertilizers can improve soil fertility in the long term. This indicates that farmers are beginning to understand the importance of maintaining soil quality as a key asset in agricultural activities.

Furthermore, the majority of respondents stated that organic fertilizers are more environmentally friendly than chemical fertilizers. This awareness emerged as farmers began to see the impacts of excessive chemical fertilizer use, such as increasingly hard soil, decreased land productivity, and increased fertilizer requirements each planting season. Therefore, the use of organic fertilizers is seen as an alternative to reduce environmental damage to agriculture.

However, the questionnaire results also showed that some farmers still expressed doubts about the effectiveness of organic fertilizers in increasing crop yields. This hesitation was primarily related to the longer adaptation process for organic fertilizer use compared to chemical fertilizers. Furthermore, some respondents felt that using organic fertilizers required larger amounts, making them less efficient in terms of labor and time.

These findings indicate that farmers' perceptions of organic fertilizers are in a transitional stage. Farmers are beginning to understand the ecological benefits of organic fertilizers, but are still considering practical factors and economic benefits in their use. Therefore, changing farmers' perceptions cannot happen instantly but requires a continuous process of education and mentoring.

Based on field observations, differences in land conditions were found between farmers who regularly use organic fertilizers and those who still rely on chemical fertilizers. Land that regularly uses organic fertilizers exhibits looser soil structure, darker soil color, and more stable moisture levels. These conditions indicate an increase in organic matter content, thereby improving the soil's physical quality (Ranesa & Tejowulan, 2024).

Conversely, land that frequently uses chemical fertilizers appears to have a harder soil texture and is prone to cracking during the dry season. Some farmers also complain that the dosage of chemical fertilizers used increases year after year to maintain crop yields. This indicates a decline in soil quality due to the continuous use of chemical fertilizers without balanced organic matter management.

In addition to soil conditions, observations also show that farmers using organic fertilizers tend to be more active in utilizing agricultural waste as compost. This activity reflects farmers' awareness of sustainable agriculture and the efficient use of local resources. Thus, the use of organic fertilizers not only benefits the soil but also supports better agricultural waste management.

These observations reinforce interview and questionnaire data, which indicate that the use of organic fertilizer has a positive impact on agricultural land conditions in the long term. Although yields don't increase immediately, improved soil quality is the primary benefit experienced by farmers.

The results of this study align with research conducted by Kusworo et al. (2023), which found that farmers' knowledge levels influence their interest in using organic fertilizer. In this study, farmers with a better understanding of the benefits of organic fertilizer tended to have a more positive perception of its use.

Furthermore, this study supports the findings of Hasanuddin et al. (2017), who explained that the main obstacle to organic fertilizer use lies in farmers' perceptions of its effectiveness and practicality. In this study, some farmers still consider organic fertilizer less practical because it requires a longer processing time than chemical fertilizers.

This study also shares similarities with the findings of Gani et al. (2022), which showed that farmer groups and agricultural extension services significantly influence farmers' perceptions of environmentally friendly agricultural innovations. In this study, farmers who actively participate in farmer group activities tend to be more open to the use of organic fertilizers.

However, this study focuses more specifically on farmers' perceptions of organic fertilizer use as a whole, rather than solely on adoption rates. Thus, it provides a more in-depth look at the factors influencing farmers' perspectives on sustainable agriculture.

The results of this study offer several practical implications for the development of the sustainable agricultural sector. First, there is a need to improve agricultural extension programs that focus not only on the technical aspects of organic fertilizer use but also on changing farmers' mindsets regarding the importance of maintaining long-term soil quality.

Second, the government and agricultural institutions need to provide more concrete support in the form of providing organic fertilizer production facilities, composting training,

and mentoring for farmer groups. This support is crucial for increasing farmer confidence in the effectiveness of organic fertilizer.

Third, the results of this study can serve as a basis for developing agricultural policies that are more environmentally sustainable. If the use of organic fertilizers can be gradually increased, dependence on chemical fertilizers can be reduced, thereby maintaining agricultural soil quality (Zendrato et al., 2024).

This study still has several limitations. First, the relatively limited number of respondents used means the results cannot broadly reflect the conditions of all farmers. Second, the study was conducted in only one agricultural region, so the social and economic characteristics of farmers in other areas may yield different results.

Furthermore, this study focused more on farmers' perceptions and did not quantitatively analyze the impact of organic fertilizer use on crop productivity. Therefore, future research is expected to combine qualitative and quantitative approaches to obtain more comprehensive results regarding organic fertilizer use in the agricultural sector.

CONCLUSION

Based on the research results, it can be concluded that farmers' perceptions of the use of organic fertilizers on agricultural land tend to be positive, particularly regarding their benefits in improving soil fertility and preserving the environment. Most farmers understand that the use of organic fertilizers can improve soil quality in the long term, such as by making the soil looser, maintaining soil moisture, and reducing dependence on chemical fertilizers. This awareness indicates that farmers are beginning to understand the importance of more sustainable agricultural practices. Interview and questionnaire results indicate that experience, knowledge, and support from farmer groups significantly influence farmers' perceptions of organic fertilizer use. Farmers who have directly experienced the benefits of organic fertilizer tend to have a more positive outlook and are more open to environmentally friendly farming practices. Furthermore, agricultural extension and mentoring activities also play a significant role in increasing farmers' understanding of the benefits of organic fertilizer. However, this study also found that several obstacles remain in the application of organic fertilizers, such as the perception that organic fertilizers take longer to show results, the perceived impracticality of the processing process, and concerns about reduced yields during the initial application. These conditions have led some farmers to continue combining organic fertilizers with chemical fertilizers in their agricultural practices. Field observations show that land regularly using organic fertilizers has better soil conditions than land using only chemical fertilizers. The soil structure appears looser, soil moisture is more stable, and agricultural waste is utilized more optimally through composting. This indicates that the use of organic fertilizers has a positive impact on agricultural land quality in the long term. Thus, this research shows that the use of organic fertilizers has significant potential to support sustainable agricultural systems. Therefore, increased education, outreach, and mentoring for farmers are needed to ensure wider and consistent adoption of organic fertilizers. Support from the government, agricultural extension workers, and farmer groups is also crucial in

fostering positive farmer perceptions of more environmentally friendly and sustainable agricultural practices.

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