

# Optimalisasi Peran Petani Milenial dan Digitalisasi Pertanian di Indonesia

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## ABSTRACT

This research discusses the importance of optimizing the role of millennial farmers and digitalizing agriculture in agricultural development in Indonesia. In this study, it discusses the performance of agricultural digitalization in increasing agricultural productivity as well as efforts to encourage the involvement of the millennial generation in the agricultural sector. The research method used is a quantitative approach using secondary data from various related institutions. The results show that agricultural digitalization still needs to increase, and the involvement of the millennial generation in the agricultural sector is also still low. Therefore, this study provides an overview of the importance of agricultural digitalization and the involvement of the millennial generation in agricultural development in Indonesia.

**Keywords:** agricultural, digitalization, millennial

## INTRODUCTION

In recent years, agriculture in Indonesia has faced various challenges, including low productivity and lack of involvement of young farmers. To overcome this challenge, optimizing the role of millennial farmers and digitalizing agriculture is an interesting topic. Agriculture is an important sector in the Indonesian economy. However, the sector still faces various challenges, such as low productivity and lack of involvement of young farmers. Therefore, optimizing the role of millennial farmers and digitizing agriculture are interesting topics to discuss. In this paper, I will discuss the identification of sustainable agricultural opportunities, conservation of natural resources, the application of digital technology, increasing the involvement of young farmers, and government support in the form of tax exemptions and financial assistance. I also reviewed the successful case of Septian Prasetya Utama, a millennial farmer who successfully developed an integrated farming system in Pacitan. In this introduction, we will briefly discuss these issues and the importance of optimizing the role of millennial farmers and digitalizing agriculture in agricultural development in Indonesia. Through this discussion, it is hoped that innovative solutions can be found to develop the agricultural sector in Indonesia.

## LITERATURE REVIEW

Research and innovation in agricultural technology are used to manage natural resources wisely in identifying and seizing opportunities. In addition, efforts to conserve natural resources, such as water management and organic farming practices, are also opportunities in creating more sustainable agriculture. Digital technology has a huge impact on agricultural productivity. This technology can

monitor water and nutrient supplies in plants, monitor the condition of farm animals, and expand access to market information through mobile applications. With the application of digital technology, farmers are expected to achieve better production resilience. There is an increase in the interest of the younger generation in agricultural business. Backing Government and the provision of relevant training is an important step in increasing the involvement of young farmers in the agricultural sector.

## METHOD

The scope of this research is Indonesia's agricultural sector from 2016-2020. This study used a quantitative approach. Qualitative data serves to explain or reinforce facts that cannot be explained quantitatively. Qualitative data also aims to answer the formulation of in-depth research problems, namely the formulation of the third problem in this study. The data used are secondary data, sourced from publications from the Central Statistics Agency (BPS), the Ministry of Agriculture and publications from other agencies or institutions relevant to the research. The data analysis used is descriptive analysis. The stages of analysis include the process of data collection, data processing, and data analysis.

## RESULT AND DISCUSSION

### 1. Identifying sustainable agriculture opportunities

Identifying sustainable agriculture opportunities is a step in improving the agricultural sector in Indonesia. Research and innovation in agricultural technology are used to manage natural resources wisely in identifying and seizing opportunities. In addition, efforts to conserve natural resources, such as water management and organic farming practices, are also opportunities in creating more

sustainable agriculture. Identifying sustainable agriculture opportunities will help achieve the sustainability goals of Indonesia's agricultural sector, while delivering better economic and environmental benefits.(Santoso et al., 2020)

**Figure 1. Comparison of Average Value of Variable Complexity of Organic Farming Practices**

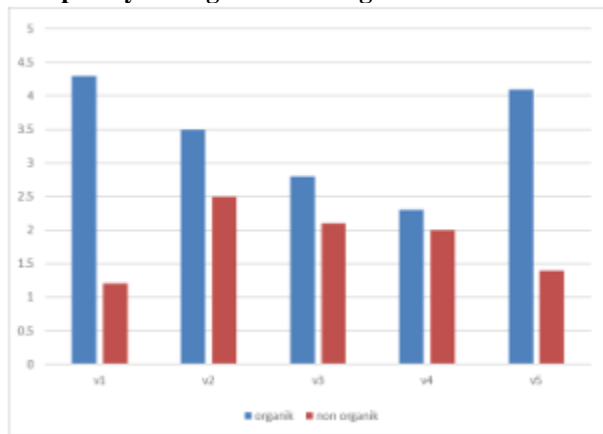


Figure 1 contains information on the average value of the level of complexity of each variable of organic and conventional farming practices according to the perception of the organic farmer group. Analysis of the complexity of organic and conventional farming practices aims to determine to what extent the level of complexity of organic farming practices compared to conventional agricultural practices according to the perception of conventional farmer groups. According to the assessment of organic farmer groups, the majority of people consider that organic farming practices are more complex or more difficult than conventional farming practices. However, the decision to accept or reject the research hypothesis is still determined by the significance value of the level of complexity on each variable of agricultural practice. (Widiarta et al., 2011)

Organic farming itself is one of the alternative technologies that provide various positive impacts, which can be applied to farms whose products have high commercial value and do not reduce production. In an effort to implement environmentally friendly and sustainable agriculture, it is necessary to carry out a socialization effort on the importance of environmentally friendly agriculture and encourage the consumption of organic agricultural products. (Miarso, 2023)

## 2. Application of digital technology in agricultural development in Indonesia

In the context of age, old farmers are on average less productive than young farmers and that the aging of the labor force has a negative impact on productivity growth and makes the overall development of agricultural production not conducive, so millennial farmers are needed to provide good opportunities for agricultural improvement in Indonesia. (Arvianti et al., 2022)

The millennial generation was born and developed along with the achievement of various new technological leaps, so it is believed that they will also become a generation that is very proficient in the technology. With the existing technology and facilities, the millennial generation has many opportunities to be far ahead of the previous generation. (Sondakh et al., 2021)

Modern agriculture is faced with a variety of challenges, including rising food demand, climate change, degradation of natural resources, and economic imbalances. Therefore, it is important to continue to develop approaches and innovations in agricultural practices to improve productivity, sustainability, and food security. This study provides a comprehensive overview of various approaches and innovations in agriculture that have been developed and implemented in different parts of the world.(Siregar, 2023)

Therefore, the application of digital technology has a major impact on agricultural productivity. Digital technology can monitor supply of water and nutrients to plants for farmers can manage efficiently. Digital technology is also able to monitor the condition of livestock and the environment to minimize the risk of loss or damage. The use of mobile applications also greatly allows farmers to reach a wider target market and increase access to market information. With the efforts that digital technology always implements, it will greatly help farmers to achieve better production resilience. (Sibarani, 2021)

**Tabel 1. Indeks Produksi Pertanian Menurut Sub Sektor Tahun 2016 – 2020**

Sub Kategori	2016	2017	2018	2019	2020
Tanam an Pangan	113,10	119,84	95,30	94,42	91,95
Holtik utura	122,62	113,33	95,18	112,43	119,26
Perkeb unan	121,62	124,91	143,45	151,92	155,53
Peterna kan	135,07	139,19	272,78	275,63	280,08
Perika nan	162,46	193,84	198,55	96,47	-
Kehuta nan	69,86	83,86	95,66	96,47	-
Pertani an	125,51	122,56	150,11	162,43	167,55

In table 1 above, we can see that in the last 5 years, the total agricultural production index in Indonesia has increased significantly. But the food sub-crop in the last 5 years has decreased significantly, meaning that the dream of

food self-sufficiency in Indonesia is still far from reality. Therefore, imports of food commodities must continue to be carried out because the food crop production index continues to decline. (Ilyas, 2022)

### 3. Increased involvement of young farmers in the agricultural sector

In recent years, there has been an increase in the interest of the younger generation in agricultural business. Providing relevant training for young farmers is one of the steps to advance agriculture in Indonesia. The role of the government is also needed to provide access in the form of financial assistance to make it easier to develop their agricultural businesses. Tax enforcement can also encourage their participation in the agricultural sector. The efforts that have been made will motivate young farmers and of course they are ready to contribute to the agricultural sector. (Anwarudin et al., 2020)

According to Mahudin & Shabahati (2017), efforts to increase the interest of the younger generation in agriculture are (1) optimization of village funds for agricultural progress, (2) addition of vocational education institutions to increase interest in building the agricultural sector, (3) the role of educational institutions to change politics, (4) direct contributions of students in the agricultural sector who are expected to make updates in the field of agricultural technology and provide direction on the use of the technology To conventional farmers, (5) Support agripreneurs. (Arvianti et al., 2019)

The way to attract the younger generation to work in agriculture can be done with agricultural activities that are carried out using technology packages. Agricultural development at this time is oriented to technology and absolute requirements when wanting to grow agriculture. Incentives and training in agriculture can also be encouraged to attract the younger workforce to engage directly in agriculture. (Salamah, 2021)



**Figure 2. Young Farmer Septian Prasetya Utama**

Septian Prasetya Utama is a young generation from Pacitan who has successfully developed an integrated agricultural system. Together with his father who had already processed the agricultural sector, this millennial

born in December 2000 also processed waste from farms into organic fertilizer which is useful for growing various types of crops both for their own purposes and for market. Septian also joined several Poktan and Gapoktan, including the Prosperous Farmers Poktan, Sari Mulyo Poktan, to P4S Sari Mulyo until he was chosen to be one of the Millennial Farmer Ambassadors (DPM) of the Ministry of Agriculture. As DPM, he has a strong determination that he will resonate with the youth in Pacitan district to participate together in the success of agricultural development. "We prove that from Pacitan regency successful agricultural entrepreneurs will be born," said Septian optimistically. (Taopik et al., 2019)

## CONCLUSION AND RECOMMENDATION

There are several conclusions in this study, namely in the five years from 2016-2020 the agricultural production index has always increased. Except for the food crop subsector which is still declining. Digitalization of agriculture is still minimal, one of which can be seen in the low number of farmers who use the internet. In addition, this study also found that there is still a low number of millennials who are interested in becoming farmers. In recent years, the role of millennial farmers and digitalization of agriculture in Indonesia has become a major focus in agricultural development. This study aims to determine the performance of agricultural digitalization in increasing agricultural productivity and encouraging millennials to join the agricultural sector. The digital era has affected the way agriculture in Indonesia works, with the use of digital-based technology to increase productivity, reduce time, and facilitate access to information. Optimizing the role of millennial farmers and digitalizing agriculture in Indonesia is important to increase productivity, reach consumers widely, and create advanced, independent, and modern agriculture.

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