

The Government's Role in Increasing Millennial Farmers through Technology

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Abstract. Technological progress cannot be separated from people's lives. Advances in technology cause major changes in human life with all its culture. The agricultural sector plays a very important role in the economy in Indonesia. Many Indonesian people work in agriculture and farmers should be able to push themselves to be able to develop agricultural products. By making agriculture a sector of the economy, it should be followed by technological developments in agriculture. The purpose of this research is to improve information technology in the agricultural sector so that farmers can collaborate with millennial farmers. This study uses a descriptive method with a qualitative approach and analyzes the results based on the literature study. The presence of millennial farmers will develop innovation, especially in employment regardless of age from young to old. The agricultural sector in Indonesia can be expected to adapt itself in the fields of technology and information so that the existence of millennial farmers will become a driving force in the future and the influence of technology on Millennial Farmers has a positive influence and can produce good quality. thus, people become creative with ideas that are initiated and realized with the tools that are in the masses now.

1. Introduction

The main policy implemented by the government and regional governments to advance agricultural development is through a program to empower farmers with various types of activities, which started from the New Order era to the current reform era. This is stated in various policies, such as Law of the Republic of Indonesia No. 16 of 2006 concerning Agricultural Fisheries and Forestry Extension Systems, and Law no. 19 of 2013 concerning Protection and Empowerment of Farmers.

Technological progress cannot be separated from people's lives. Advances in technology cause major changes in human life with all its culture. Of course, this change has a considerable impact on the value information that exists among the public. Rintho (2018: 3)¹ says information technology is a technology related to processing information data and distributing this information within a time limit. Meanwhile, according to Romney & Steinbart (2016: 4)² says that information technology is a computer that can be used to store and manipulate data.

In line with the global economy which is increasingly moving towards the digital era with the availability of reliable internet infrastructure, it is a very crucial prerequisite in a developing economy. The government is also required to encourage the spread of internet use. Agricultural digitization efforts will certainly not be achieved properly if it is not supported by an internet infrastructure that is evenly distributed and can be accessed easily by farmers.

The recent research by Kyle Emerick, Manzoor H. Dar, The literature on Inadequate learning is an oft-cited friction impeding the adoption of improved agricultural technology in the developing world. We provide experimental evidence that farmer field days, an approach used throughout the world where farmers meet, learn about new technology, and observe its performance, alleviate learning frictions and increase adoption of an improved seed by 40%. Further analysis demonstrates that these field days are both cost-effective and have a greater impact on poorer farmers. In contrast, we find no evidence that selecting the first adopters of new technology in participatory village meetings has any effect on future adoption (Kyle Emerick, Manzoor H. Dar, 2021)³.

In terms of history, Indonesia is the most impressive agricultural country whose people depend on the country's agricultural livelihoods. Supposedly, the majority of Indonesian people are rich people from their agricultural production. The agricultural sector plays a very important role in the economy in Indonesia. Many Indonesian people work in agriculture and farmers should be able to push themselves to be able to develop agricultural products. By making agriculture a sector of the economy, it should be followed by technological developments in agriculture. However, technological developments in the agricultural sector have not been maximized (Savira, 2020)⁴.

Previous research on the agricultural sector Benjamin Lakitan, examined the Double-Track Strategy in the Advancement of Indonesian Agriculture Facilitating the Millennial Generation and Welfare of Small Farmers. The researcher concludes that the increase in the welfare of farmers is highly dependent on the availability of technology that is quite relevant and economical as well as beneficial for farmers. The younger generation who are active in agriculture need to be facilitated so that they remain active and are able to inspire more young people to follow in their footsteps. Technology-based urban and suburban farming is suitable for millennials (Benjamin Lakitan, 2019)⁵. Meanwhile, according to Reviza Rika Rachmawati, Endro Gunawan. researched the Role of Millennial Farmers in Supporting Exports of Agricultural Products in Indonesia. The researcher concluded that technology to increase the added value of agricultural products and develop the potential of various agricultural startups needs to be continuously supported so that generations can overcome existing problems. Government support needed includes aspects of agricultural cultivation, export procedure training and export market surveys via the internet, conducive regulations, and easy access to institutions providing financial services. This is important to

maintain the spirit of the millennial generation to continue to take part so that the Ministry of Agriculture's goal of increasing agricultural exports threefold can be realized (Reviza Rika Rachmawati, Endro Gunawan, 2020)⁶. And then Puji Hartati, Amarilia Harsanti Dameswary, researched Farmer Capacity Building in the Marketing of Agricultural Products with Information Technology in the Industrial Age 4.0. Researchers mentioned internal factors and external factors in determining the capacity of farmers to market products by utilizing information technology by 46.89%. The contribution of internal and external factors to the ability of farmers to market their products using information technology is an average of 12.5%, the highest percentage of 21.7% is in aspects of government policy. Efforts to strengthen the capacity of farmers in utilizing marketing through information technology by providing education through counselling (Puji Hartati, Amarilia Harsanti Dameswary, 2020)⁷.

In the modern era, there are still many people who have not been able to improve or utilize maximum facilities. Because, lack of developing facilities and lack of information knowledge. Technological developments in the agricultural sector have also not been effective in handling land, this will trigger difficulties if problems occur in the future. There are still many farmers in Indonesia who still use traditional techniques, but that does not rule out several other farmers who have entered the realm of millennial farmers. This can be seen through in the Figure 1. below:



(Source: Research Processed Results by Mohammad Ayudha 2022)⁸

Based on this figure, the condition of farmers is that there are still many who are not optimal in utilizing or using technology to improve the quality of their agricultural products. The trigger factor is the lack of knowledge and information and the lack of education and information. Education must be provided so that farmers get profitable access in the future.

The recent research by Palis, Florencia G, The literature on The goal of this paper is to show how culture – shared norms and values – is challenged and used to facilitate cooperative behavior within the context of farmer field schools (FFS) in central Luzon, Philippines. The success of the FFS is primarily associated with cultural norms that encourage experiential and collective learning and eventually lead to the adoption of integrated pest management (IPM) methods among the farmers. The study was conducted in central Luzon, the rice granary region of the Philippines, from 1992 to 1995 and again in 1999 (Palis, Florencia G, 2006)⁹.

The agricultural sector will experience changes with the presence of millennial farmers who will develop innovations, especially in employment regardless of age from young to old. The agricultural sector in Indonesia can be expected to adapt itself in the field of technology and information so that the presence of millennial farmers will become a driving force in the future.

Rotating with advances in agricultural technology in the digital era must make a breakthrough to advance agricultural technology. Among them, by creating accurate information so that there will be an increase in millennial farmers in Indonesia, with the many millennial generations in Indonesia, they must be able to be used to be interested in becoming young farmers. Millennial farmers are more able to provide information on social media regarding millennial farmers because social media has a positive impact that can invite the millennial generation to be more interested in the agricultural sector (Arianto, 2021)⁹. Smart farming in agricultural modernization was born when telematics and data management were combined with agricultural concepts in order to increase accuracy (Rubio, 2020)¹⁰ said that modern agricultural principles currently use processed data systems to make the right and strategic decisions.

2. Method

The research method used is descriptive method with a qualitative approach. Provide analysis of the results as for data collection based on literature on agricultural sector data, journals, books etc. The research used is a approach descriptive method, which combines qualitative approaches in terms of methodology. Qualitative research is a type that investigates and understands the meaning in a number of individuals or groups of people originating from social problems, (Creswell, 2016)¹¹. Qualitative research can also be defined as research that has the aim of understanding the phenomenon of something that is experienced by the object of research in a holistic manner, and is described in the form of words and language (Sugiyono, 2010)¹². The technique of determining informants used by researchers is the technique of determining informants' accident, which is a technique of determining informants by chance who are in the object of research. Informants in this study used a purposive technique, namely people who researchers think know about the Government's Role in Increasing Millennial Farmers through Technology, making it easier for researchers to get the data needed.

Sugiyono (2017)¹³ The sampling technique that will be used in this study is accidental sampling which is part of non-probability sampling, which is a form of sampling based on chance, meaning that anyone who happens to meet the researcher and is considered suitable to be a source of data in this study.

Data Collection Techniques

In this study, data collection techniques were carried out through two stages, namely:

1. Research desk study (desk study research), in this case the researcher collects data and information through examination and analysis of data and information that uses secondary data, both in the form of company internal / external documents, related government, local government, implementation, public policy, electronic government, local regulations/ policy, reports, the Tangkar application, statistical data, literature studies, and so on.
2. Field research (field research), in this case only as supporting data in research to support and complete library studies, by conducting structured interviews (guided interviews) with relevant parties.

3. Data Analysis

All data obtained were analyzed descriptively qualitatively. In this case the analysis is carried out by about the Government's Role in Increasing Millennial Farmers through a qualitative descriptive analysis.

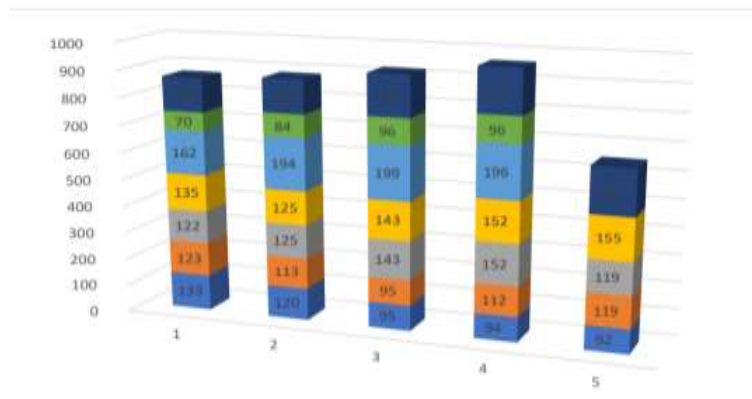
4. Research Location

The location of the study was carried out in Communities or Farmers in West Java, Indonesia.

3. Results and Discussion

3.1 Technology Improvement for Millennial Farmers.

The agriculture has an important role and is a key sector of the Indonesian economy. Technological improvements in Indonesian agriculture are still not fully maximized with agricultural production experiencing a decline. Judging from the number of Millennial Farmers who do not know about farming management and obstacles in agricultural development. The agricultural sector through the millennial farmer program in human life requires farmers to increase their productivity and performance. The following is a graph of the Agricultural Sector Index by Sub-sector for 2016 – 2020, This can be seen through in the Figure 1.2 below:



(Sources of processed research results of the Agricultural Sector Index by Sub-sector 2016 – 2020 by Ilyas, 2022)¹⁴

The graph shows the agricultural sector index by sub-sector for 2016 – 2020. The total agricultural index in Indonesia has increased quite significantly. Although the agricultural index decreased by 30.67%. Increasing the agricultural sector must always be increased all the time because in the future there will be a lot of population growth and there must be more information about the agricultural sector to be able to encourage a generation of young people to become farmers, and farmers can collaborate with millennial farmers. In this way the agricultural sector can increase dramatically.

The low interest of the millennial generation in agriculture can also lead to a lack of internet use for farmers. The lack of human resources from farmers is an obstacle for agriculture because not many farmers have and are familiar with digital communication. The lack of agricultural land in urban areas is also an obstacle that makes the millennial generation less interested in agricultural matters. (Arianto, 2021)¹⁵.

The recent research by R K S Tomar, The literature on Chickpea (*Cicer arietinum* Linn.) is a major winter pulse crop grown in India. Among the pulses, chickpea occupies 30 per cent of area with 38 percent of annual production in India. Chickpea is the pre dominant crop among pulses in Madhya

Pradesh, occupying 279.0 thousand ha area with 258.0 thousand tonnes production accounting 38 and 44% of the national chickpea area and production, respectively. Tikamgarh is the main chickpea growing district under Bundelkhand agro-climatic zone of Madhya Pradesh (R K S Tomar, 2010)¹⁶.

The agricultural sector requires knowledge and information and government policies to improve quality and in view of the various problems that occur the government provides ideas with the birth of Millennial Farmers, it is also hoped that the presence of millennial farmers can accelerate agricultural regeneration. Millennial Farmers can be a bridge between Young Farmers and Farmers who have been trying to farm for a long time. This can be seen from the millennial generation who are adaptive in using technology. Because the Younger Generation is more interested in agriculture in a modern concept. Modern farming requires skills and agricultural production tools to be able to apply ever-evolving technology. The recent research by DS Ehiakpor, G Danso-Abbeam, G Dagunga, Sylvester N. Ayambila, the literature on is *Zai* a technology employed to rehabilitate degraded farmlands and to restore soil fertility to the benefit of farmers dwelling mostly on drylands. It serves as a water-harvesting mechanism and thus helps to reduce the amount of water that would have been lost through run-off. However, the potential roles of this technology in enhancing rural welfare has not been adequately explored. This study identified the determinants of farm households' decision to adopt *Zai* technology as well as its impact on their welfare using randomly collected cross-sectional data from northern Ghana (DS Ehiakpor, G Danso-Abbeam, G Dagunga, Sylvester N. Ayambila, 2019)¹⁷.

3.2 The Influence of Millennial Farmer Technology in the Digital Era

The agricultural sector is affected by the global economy which is increasingly moving towards the digital era, the existence of reliable internet infrastructure is a very crucial prerequisite. The agricultural sector also has the influence of technology, which can combine various types of data from various sources to increase productivity and efficiency. Transparency can be emphasized in supply chains and commodity values so that planning in the agricultural sector becomes strategic. Technology can have a positive influence on millennial farmers because technology can reduce production costs, which previously always relied on the use of human resources. By using technology, it can minimize production costs and produce production or yields of fairly good quality. This can be seen through in the Figure 1.3 about The Application for Modern Farmers below:



(Source from The Application for Modern Farmers)

The government has technology specifically for millennial farmers, namely in the form of the Millennial Farmer Application which can be accessed by farmers throughout Indonesia, of course by using smartphones and can only be accessed by farmers who have registered through the millennial farmer program in their respective regions. Therefore technology has a significant influence on the progress of the agricultural sector, especially to attract young people to be actively involved in the millennial farmer program that has been initiated and implemented by the Government. The negative side is the failure of the millennial farmer program to reach 30%. the millennial farmer program from the West Java Provincial Government was complained by the participants. They claimed to be in debt of up to tens of millions of rupiah.

4. Conclusion

Technological advances have been integrated with various sectors at the government, private and community levels, with the rapid pace of technology in the current era it will be better and optimal if it is collaborated with the needs of farmers. So that millennial farmers and local farmers can contribute to improving the agricultural sector in Indonesia. The digital era should make people, especially farmers, more creative and innovative with ideas that are initiated and realized with modern agricultural tools in the masses today that can be useful in increasing agricultural production in Indonesia.

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The Tri Dharma College includes education / teaching, research and community service. For this reason we as part of the Higher Education develop knowledge through research implementation, as part of the implementation of the tri darma. Unikom's internal research is expected to help the community, so that there is scientific development in the university environment, and the results of lecturer and student research from universities are expected to be applied directly in the community.

This study examines The development of theories in the Governmental Science Study Program in accordance with the problems in this research, especially regarding The Government's Role in Increasing Millennial Farmers through Technology

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