

Best Practices For Sustainable Agriculture In Narrow Land: Case Study of Young Farmers in Sriharjo Village, Yogyakarta, Indonesia

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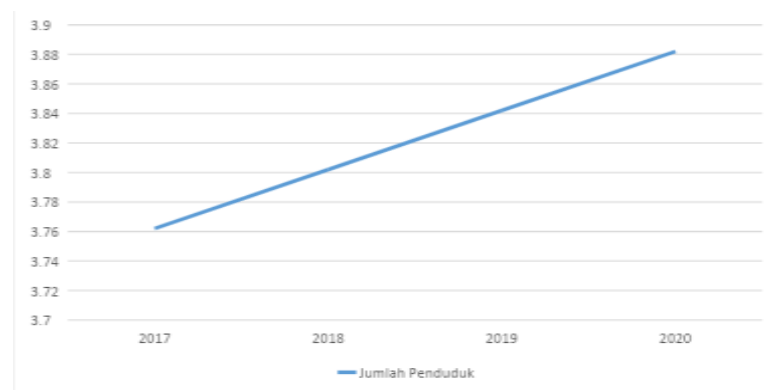
ABSTRACT

The population increase, decrease of farmers, crisis of the young farmer generation, chemical products used in agriculture, and climate change potential have impacted agriculture. Therefore, it is increasingly important for the young generation to continue farming. This is in accordance with the Sustainable Development Goals (SDGs), namely ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture. However, not all young people are able to proactively anticipate the impact of climate change and practice sustainable agriculture. In Yogyakarta, there is a community of young farmers who focus on regeneration and sustainability agriculture. This research aims at analyzing agricultural programs managed by young farmers in Sriharjo Village, Yogyakarta Regency. This research method uses a qualitative approach with a case study conducted in Sriharjo Village, Yogyakarta Regency. Eight young farmers were selected by means of purposive sampling techniques. Data is collected through in-depth interviews, observation, and documentation. Analysis for data using the thematic analysis and testing the data for validity using the triangulation technique. The result showed that sustainable agriculture managed by young farmers has been managed well by planting hydroponic techniques, making organic fertilizers, using alternative feed, and managing household waste for farming. Hopefully, this research can be used as the basis for a sustainable agriculture policy for young farmers.

Keywords: *young farmer; sustainable agriculture; farming*

INTRODUCTION

Yogyakarta has 3,762,167 populations in 2017; this number increased to 3,802,872 the next year. This number increased by 3,842,932 persons in 2019 and then increased to 3,882,288 as a result of the epidemic. The population of Yogyakarta has grown substantially between 2017 and 2020. The accelerated economic development of Yogyakarta has an impact on this.



Source: Statistics Indonesia (BPS-Badan Pusat Statistik), 2017-2020

Figure 1. Total Population of Yogyakarta 2017-2020

Changes in land use will affect the population's access to food. Every year, farmers in Yogyakarta produce less rice. A report to the 2018 research results, rice production has decreased by an average of 1835.93 tons annually during the last ten years. Food security in the Yogyakarta region can be impacted by a loss of rice output (Prasada & Tia Alfina Rosa, 2018: 222).

The land issue is one of the contributing reasons to the issue of food security. Land conversion has been a contributing factor to the results drop over time (Ridwan, 2009: 8). A portion of the land in Yogyakarta experienced a function change from rice fields to non-rice fields, changing its use from 1,133.00 hectares in 2017 to 2,818.00 hectares the next year. It typically decreases by 392.34 hectares in 2018. The small area of land used for agriculture is another indicator of a post-transfer trend. 94,462.82 hectares of land were used for agriculture in 2018, 69,295.50 hectares in 2019, and 95,575.99 hectares in 2020.

The number of farmers has decreased as a result of this land shortage. Yogyakarta is losing farmers on every day. The proportion of the workforce was 88.59% in 2016, 88.50% in 2017, 88.55% in 2018, 88.35% in 2019, and 87.59% in 2019. When the Covid-19 pandemic epidemic reached Indonesia in 2020, it truly had a significant impact on the growth of farmers, which increased by 88.57%. In contrast, it will fall again by 88.43% in 2021 (Statistics Indonesia, 2018b).

Farmers used chemical fertilizers for increased productivity, failure risk, and for faster harvests. Although the soil fertility may be adversely affected by these pollutants. The usage of chemicals can result in soil issues and soil contamination. These chemicals should not be used in agricultural practices that are sustainable (Amin, 2021).

The Sustainable Development Goals (SDGs) program's aims are in accord with those of sustainable agriculture. Instead of causing climate change, sustainable agriculture practices may support and expand agricultural companies. Goal 2 of the SDGs, to end hunger, ensure food security, enhance nutrition, and promote sustainable agriculture. It is aligned with the aforementioned challenges.

Since farmers are currently pursuing faster yields, conventional agriculture is no longer concerned with sustainable agriculture. Different from The young farmers in Sriharjo Village, Bantul, Yogyakarta. Young people who own farms are more likely to employ sustainable resources and modern methods. Young are concerned about agriculture and the land. which is why, researcher focus on sustainable agriculture for young farmer. many research result has not been a focus of previous studies. Research focuses on sustainable agriculture in general as well as the motivating and impeding elements. Therefore, experts are interested in how Sriharjo Village's young farmer program works within the context of sustainable agriculture. Based on the background above, the research question of the problem studied in this study is how the good practice of Sriharjo village youth in carrying out sustainable agriculture?

FRAMEWORK

A. Young Farmer

Farmers' more significant land-changing decisions result in a decrease in farming area, which ultimately decreases agricultural productivity. A few young individuals who stay in the agriculture sector. Today's farmers have no land, less access to markets and

getting poorer (Pattinama, 2009). Farmers become a group that gets eliminated when a region develops. Increased development and global industrial growth are not consistent with farmer welfare. This has an effect on lowering youth interest in agriculture, resulting in a decline in the number of young farmers.

Young people range in age from 16 to 35 years old on general. According to explanations from various countries, it is defined as being under 35 or even 40 years old (Naafs, S., & White: 2012). Indonesian youth legislation specifies that the age must be under 30. It can be concluded that the average age of young people is 16 to 35 years.

Being a young farmer has many challenges, which include issues with education, job, limited access to land, an imbalance of resources and skills. Furthermore, government policies and procedures do not promote the regeneration of young farmers. According to Ben White (2019) Young farmers may be supported by taking into the issues of livelihoods, agricultural and non-agricultural jobs, and developing charming communities for everyone. Young people are currently going through changes in their growth and development. Young farmers are very optimistic, departing from the Ben White theory, since they believe that young have the capacity, ingenuity, energy, and imagination to advance agriculture (White, 2015: 331).

The participation of the younger generation as agents of change can help sustainability agriculture. Adults are obliged to assist youth in organizing activities and include them as a generation of change. Although we also contend that adults have a responsibility to provide spaces and opportunities for young people's participation, it is all too common for adults to prescribe participation opportunities without acknowledging how creative and dynamic young people are in getting up with their own ideas for action (Barry & Burns, 2012).

B. Community Development

Community-based youth programs work to improve the wellbeing of young people by expanding their engagement and offering concrete benefits. These programs make good on the promise to support youth as capable community builders. In community development carried out by youth, it is necessary to pay attention to several things. 1) The youth involvement—how much they take action concerning family issues; 2) capacity building—how much they contribute in a tangible way to individual, organizational, and community development; 3) collaboration—how much youth and adults work together to create teaching-learning partnerships about agriculture practice; 4) cultural awareness in agricultural processes (Finn & Barry, 1998).

Empowerment is realized by several steps taken by stakeholders. Participation in question is participation that involves youth starting from decision making, problem identification, needs identification, program planning, program implementation and evaluation (Astuti, 2019). The active participation of youth is a manifestation of sustainable empowerment. The goal of this involvement technique is to make young people feel that they are a part of the program and are helping to improve the community.

C. Sustainable Farming

Environmental concern is concentrated on the five in creating a sustainable

agriculture, namely water, climate change, human well-being, food security, and land conversion (Reytar, 2014). To solve this problem, it is necessary to change agriculture with sustainable agriculture. The main indicators for sustainable agriculture that must be met are economic, ecological and social feasibility.

Economic feasibility means that farmers are able to provide sufficient livelihood. Ecological feasibility means that the agricultural system that is carried out can be long-term and helps soil fertility. Social eligibility is meant by having a positive view of community work. Communities point out that farming is a decent job (Ningsih & Sjaf, 2015). Sustainable agriculture is important to do by carrying out 3 indicators.

To achieve a sustainable agricultural system requires changes, especially in the aspect of institutional management. It needs to implement institutional changes and developments in order to carry out these three possibilities. To change institutions, there needs to be actor collaboration. The community (farmers), the government, and the commercial sector must all be involved in these improvements (Ningsih & Sjaf, 2015). 3 actors need synergy in developing sustainable agriculture.

The impact of climate problems and food security is starting to be felt by young people. So young people concerned about climate change and food security issues. Young farmers also carry out agricultural activities that have a good impact and with the goal of sustainable agriculture. Young people active for innovators who are crucial for getting the Sustainable Development Goals (SDGs).

RESEARCH METHODS

The research took place out in the south of Bantul Regency, around 20 kilometers from Yogyakarta. The Sriharjo Village is located at the confluence of the Oya and Opak Rivers. Many people are interested in doing research and visiting in Sriharjo because of its abundant natural resources. Sriharjo Village has an area of 502.36 Hectares. The research has been covered in a year, since 2021 to 2022, during the Covid-19 epidemic, so there were challenges and barriers during data collecting.

This study employs a qualitative approach. Because the data required is straight from the field, this qualitative technique is employed in problem solving. According to the features of this study, qualitative research tends to collect extensive data in relevant location. Researchers are involved in obtaining thorough data through asking questions, observing behavior, and collecting numerous supporting papers (Creswell & Creswell, 2018: 257).

Case studies are an appropriate tool for this study since researchers may closely evaluate young people's agricultural methods on restricted land. It is vital to utilize an intentional sample approach when identifying informants to complete qualitative data (Creswell & Creswell, 2018: 33). This method is used to map informant characteristics in order to augment study data (Leavy, 2017: 79). The informants chosen have unique features and are directly involved in organizing youth agriculture. This study seeks informants who have been personally involved in agricultural operations during the previous two years. There are also three administrators and three members of Taruna Tani Hijaunya Cinta aged 16-45 years old who meet these requirements. The youth group is the unit of analysis in this study.

Interviews, observations, document reading, and digital material analysis were

used to collect research data (Creswell & Creswell, 2018: 264). Researchers carried out face-to-face or telephone by in-depth interviews with various persons who were directly active. Telephone use continues as long as there are social constraints during the Covid-19 epidemic. In-depth interviews were carried out to assist researchers in delving further into the data and understanding the informant's perspectives (Seidman, 2006: 9). This research by interview guide for basic interview (Brinkmann, 2013:60). Researchers also observe farmer activity, examined report documents, documented activities, and saw records in the form of images and videos.

Main documents are collected because they are utilized in analyzing human behavioral patterns (Flick, 2017: 273). The material serves as a reminder of the existence of agricultural activity, profiles, harvest reports, attendance, and tractor rental outcomes are all included in these records.

The data collected is analyzed at the time of collection and managed. The first step is to offer all of the data that is required. The second step is coding to compress the data so that the category of the data may be seen (Saldana, 2012; 3-7). The next step is to assign a theme to the data that was collected using the code provided. It is simpler for researchers to double-check data and assign codes to topics (Nowell, Norris, White, & Moules, 2017: 4). Data that has been processed and then carried out exploration with interpretation.

Interpretation of data is measured and validated for correctness. Data validation is crucial for ensuring research legitimacy. Researchers used triangulation using diverse data sources as well as triangulation by comparing data gathering methods. Conducting interviews, participatory observations, and reviewing existing documents are all required to contribute to the results and increase their credibility.

DISCUSSION

A. Young Farmer Actor Initiator

Young Farmer group was founded as a result of young agricultural activities that took place in 2017. Anton helps his parents in the fields while working as a toy seller in Sriharjo. The Head of the Farmers Group "Sedyo Maju" identified at the time extended an invitation to Anton to participate in activities. Mr. Sakip/Hadi Sumarta of the "Sedyo Maju". Anton was invited by Mr. Sakip to participate in Gapoktan festivities at Mr. Warijo's home. Mr. Sakip requested his participation after noticing Anton's actions in the fields.

During the meeting with farmer's group, Anton frequently went to gatherings hosted by Gabungan Kelompok Tani (Gapoktan) and Gadjah Mada University. The only farmer in Gapoktan who is younger than everyone else is Anton. A young farmer and an activist for the leader of the Sriharjo Village Youth Organization "Sedyo Bhakti," Anton is recognized for as a lecturer at the Faculty of Technology Food in University Gadjah Mada, he met lecturer Sigit.

After the entire event, Anton attacked Taruna Tani with a from Sriharjo Village. Anton was designated as the key person to represent Taruna Tani and Hijaunya Cinta his name. Taruna Tani collaborates with Gadjah Mada University on projects including the Irigase System, Agriculture Modification, Industrial Innovation, Hydroponics, Aquaponics, and many other things.

Taruna Tani was founded with the approval and determination of the Bantul Regency and Sriharjo Village. Taruna Tani are legitimate since the Department of Agriculture, Food, Maritime Affairs and Fisheries, Bantul Regency, grants them license. Taruna Tani is granted permission to be responsible for all controlled actions.

B. Program of Taruna Tani

The village treasury land was handed over by Taruna Tani to be managed with the assistance of UGM FTP. the original land area was 2000 m². In 2019 the village government has planned the development of a tourist village. the agricultural land was displaced. Youth are disappointed with this development because young people have contributed to tourism branding. the area has been converted into a tourist area, so the agricultural program is still being innovated to date.

1. Vegetable Market

Through the use of social media and vegetable market initiatives, this program aims to end the cycle of middleman farmers. The initiative is designed as a market for vegetables that may be expanded to attract customers. This idea could attract those who are looking to buy into the area.

2. Farming Activity

Young people initiated hydroponics projects are supported through Gadjah Mada University programs. This hydroponic system is housed in the green house owned in Sompok and Wunut, Sriharjo Village. Vegetables of all kinds may be grown in the 5000 planting holes. The three types of hydroponic systems are DFT, NFT, and aquaponics. Young people also create activities in greenhouses in addition to planting activities utilizing the hydroponic concept.

Growing vegetables like kale, mustard greens, cabbage, chopped spinach, eggplant, and chilies is known as horticulture. With the help of the educational tours offered, it is hoped that this horticultural model will be able to provide the society further insights. Nurseries in the form of tomato, chili, and other vegetable seeds.

The young people also reared lambs, which they then brought to the Sompok Padukuhan. 19 heads of animals are available. Young people engage in activities that can be used to make sheep kohe fertilizer and operate instructional sites for integrated sheep farming in addition to buying and selling farming.

Farmer integration is Malea (magot, lele, ayam). Chickens to produce meat and eggs. Chicken feces may be bought or sold and used as fertilizer for Taruna Tani plants. In Padukuhan Sompok, catfish farming was carried out using a biofloc technology. Residents, dealers, and suppliers in the area can buy and sell catfish. Magot eats leftover produce and other domestic garbage. This can utilise garbage and lessen household waste. Although magot cannot currently be traded, it may be fed to chickens and catfish as food.

3. Educational Tour and Learning Program

Program for educational tours that include direct participation in agriculture. There are many other sorts of educational tour packages offered, including planting and harvesting crops, and caring for animals. All the tour guide and the activity leader are Taruna Tani members. Taruna Tani offers chances for academics to study and research agriculture as part of its mission to advance the field of research.

4. Consultant and Rental of Agricultural Equipment

Taruna Tani also provides free consultations as well as rental of agricultural equipment. Taruna Tani also leases out his tractor with a four-wheel drive. Residents who desire to utilize it are the target audience for this renting scheme.

C. Contribution for Society in Sriharjo Village

The benefits to the society include getting consumers directly, cutting trade routes, maintaining soil fertility and participating in planting for food security in the family. According to Agus as a member of Taruna Tani, this farming has a positive impact on agricultural sustainability. Agus and all members of Taruna Tani helped society for developed agriculture management.

Same with society, a Society explains that the community gets knowledge. The knowledge he has previously gained has never been practiced, such as planting plants in polybags, making fertilizer, and managing soil. A society got many benefit for sustainable agriculture. So, Taruna Tani also developed society with program, joined in training and learned with professor.

CONCLUSION

Young farmers is one of the companies that engages in farming is Taruna Cinta. The driving force behind farming operations in Sriharjo Village is Anton. The operations are diverse and employ sustainable agriculture and integrated systems. The growth of farming in the neighborhood is the result of Taruna Tani's influence. The government may give farmers capital infusions in the form of money, equipment, and knowledge. Researchers and academics help the society or community by funding projects and accompanying activities.

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