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ORGANIC AGRICULTURE: SUSTAINABLE AGRICULTURE SOLUTIONS IN PROVIDING FOOD FOR THE COMMUNITY

[1]Yudi Garnida, [2]Willya Achmad
[1,2] Universitas Pasundan, Bandung, Indonesia

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E-mail:
yudi.garnida@unpas.ac.id

ABSTRACT

The excessive use of inorganic compounds has negative effects on the land and vegetation. Alternative agricultural systems that can produce healthy quantities and quality of products in a sustainable manner must be developed. Organic farming is one of the agricultural systems that support this concept. Organic farming is a method of agriculture that excludes the use of environmentally damaging synthetic pesticides, chemical fertilizers, and cultivation techniques. This research employs a qualitative methodology based on descriptive analysis. The findings of the study indicate that organic farming is a promising strategy for attaining a sustainable food supply through agriculture. By prioritizing the use of renewable resources, reducing the use of non-renewable resources, and avoiding the use of synthetic chemicals, organic agriculture is able to maintain environmental balance, increase the quality and quantity of production, and provide safe and healthy food for consumers. The conclusion of this research will underline the importance of organic farming in providing healthy, safe and quality food for the community. In addition, this research will highlight the benefits of organic farming in maintaining environmental sustainability, such as increasing soil fertility, maintaining biodiversity, and reducing negative impacts on ecosystems.

1. INTRODUCTION

The development of agriculture has a significant meaning in terms of its contribution to the economy of the country. This is accomplished through the provision of industrial raw materials, the creation of employment opportunities, and the generation of foreign exchange. However, traditional agricultural development, which is dependent on the use of synthetic pesticides, chemical fertilizers, and intensive farming practices, has had a harmful influence on both the environment and human health. This is due to the fact that conventional agricultural development relies on the use of these man-made substances. In addition, conventional agriculture is dependent on natural resources that do not regenerate, such as phosphate and petroleum (Mayrowani, 2012).

For agricultural enterprises in tropical nations like Indonesia, it is essential to ensure the long-term viability of agricultural land resources, environmental quality, and the production system itself. This model of agricultural development is predicated on the capacity of the nation to improve the well-being of its citizens via the utilization of its own resources, while also giving consideration to the possibility of preserving the natural environment. The idea of development in the agricultural sector should pay attention not only to growing product productivity but also to natural balance, product quality, and product safety (Lagiman, 2021). This should be the primary emphasis of development in the agricultural sector.

The demand to implement sustainable agriculture in Indonesia is an important issue in agricultural development. Many parties are pushing for a sustainable agricultural system to be widely applied and able to form a healthier agricultural climate for the realization of welfare and justice for farmers in Indonesia, sustainable agriculture is the management of natural resources with technology and institutions to ensure the fulfillment and satisfaction of human needs in a sustainable manner. Rahmawati & Gentini, 2008).

Agriculture plays an active role in efforts to preserve the environment by reducing industrial waste and exploitation of natural resources that can damage the earth's ecosystem as a whole, then improving the economic welfare of the community and becoming more aware of a better quality of life supported by a healthy and clean environment, and finally The public is increasingly aware of the importance of health, so they are very concerned about the quality of food and how it is produced. Agriculture plays an active role in these efforts (Rivai & Anugrah, 2011).

Organic farming has a significant role in minimizing the negative impact on the environment. By not using synthetic pesticides and chemical fertilizers, organic farming reduces the risk of soil, water and air pollution. The use of natural methods such as composting, crop rotation and organic pest control helps maintain ecosystem balance and biodiversity. In addition, organic farming also supports soil conservation with practices such as intercropping, erosion control, and restoration of soil quality (Juarsah, 2016).

In addition to environmental benefits, organic farming also makes a significant contribution to public health. Organic food contains less residue of pesticides and synthetic chemicals, thereby reducing exposure to harmful substances. Research also shows that organic foods tend to be higher in nutrients, such as antioxidants and omega-3 fatty acids. In addition, organic farming also encourages local agricultural practices that support economic sustainability and reduce the impact of climate change (Efendi, 2016).

However, although organic farming has shown its potential as a sustainable agricultural solution, adoption of this practice is still limited and uneven in many countries. Constraints such as lack of understanding and awareness of the benefits of organic farming and technical challenges are still obstacles in developing organic farming as the main production system. Therefore, this study aims to dig deeper into the role of organic farming in providing food for the community and as a solution to achieving sustainable agriculture.

2. LITERATURE REVIEWS

A. Sustainable Agriculture

Agriculture that continues to exist not just now but also in the foreseeable future and into the indefinite future is referred to as sustainable agriculture. This indicates that agriculture will continue to exist, which will be to everyone's benefit and will not result in a catastrophe for anyone. Another definition of a sustainable agricultural system describes it as a set of alternate methods for accomplishing the objectives of an agricultural production system that is both economically lucrative and ecologically friendly (Lubis, 2010). This definition of a sustainable agricultural system is equally acceptable. It is also possible to understand sustainable farming systems as the successful management of resources for agricultural objectives in the context of addressing human needs while simultaneously maintaining and increasing environmental quality and conserving natural resources. According to Sudalmi (2010), environmentally conscious agriculture always prioritizes the needs of its various consumers, including land, water, humans, animals/livestock, food, revenue, and health.

In the meantime, the goal of environmentally sound agriculture is to preserve and improve the fertility of the soil; increase and keep results at optimal levels; preserve and enhance biodiversity and ecosystems; and, most importantly, preserve and improve the health of the population as well as other living things. Because of this, one can draw the conclusion that sustainable agriculture is a form of farming that takes into account all aspects of agriculture, including its physical, biological, socio-economic, environmental, and human aspects, and that achieves its potential both today and in the future..

Sustainable agriculture with a systems approach and is holistic in nature links various aspects or gatrs and established scientific disciplines including agronomy, ecology, economics, social and culture. The sustainable agricultural system also contains a moral invitation to do good to the natural resource environment by considering the following three aspects (Mayadewi, 2011):

a) Environmentally Conscious (Ecologically Sound), agricultural cultivation systems cannot deviate from the current ecological system. Harmonization of ecological systems whose mechanisms are governed by natural principles is indicated by equilibrium.
b) Economically Valuable agricultural cultivation systems must refer to profit and loss considerations for oneself and others, for the short and long term, as well as for organisms within and outside the ecological system.
c) Having a social or societal character (Socially Just), the agricultural system must be compatible with the social and cultural norms adopted and upheld by the surrounding community, such as a farmer raising chickens in his own backyard. Perhaps economically and ecologically, it holds promise, but from a social standpoint, there are potential drawbacks, such as air pollution caused by the scent of chicken manure.

B. Organic agriculture

Organic farming can be interpreted as the practice of farming without using inputs from outside the land and only relying on nature by returning all plant residues to the ground as organic fertilizer (Agustina, 2011). According to Supartha et al. (2012), organic farming is a holistic production management system that enhances and develops the health of agroecosystems, including biodiversity, biological cycles, and soil

biological activity. Organic farming is a non-chemical (non-synthetic) agricultural practice that employs organic materials. According to the National Standardization Agency (2002), "Organic" is a labeling term that indicates a product was produced in accordance with organic production standards and was certified by an official certification authority or body. Organic cultivation relies on minimal external inputs and eschews synthetic fertilizers and pesticides.

The cultivation standards used for organic vegetables in accordance with SNI 6729:2013 (Permentan No 64/Permentan/OT.140/5/2013) are as follows: 1) Former conventional agricultural land must undergo a conversion period of at least 2 (two) years before stocking seeds, at least 3 (three) years before the first harvest of organic products, or, in certain cases, at least 12 (twelve) months. Do not prepare land by burning, including the disposal of trash. 2) Seeds must originate from organically grown plants and not be the result of plant genetic engineering. Synthetic compounds and other contaminants are absent from water sources. 4) Management of Soil Fertility, specifically by planting legumes (leguminoceae), green manure, or deep-rooted plants in accordance with a suitable annual rotation program. 5) Control of plant-disturbing organisms and plant maintenance should not involve the use of synthetic pesticides and genetically engineered organisms or products, the burning of weeds, or an integrated pest and disease control system. 6) Postharvest management, storage, and transport are carried out according to specifications.

3. METHODS

This study employs qualitative case study research to investigate a phenomenon pertaining to organic farming: the use of sustainable agricultural practices to provide food for the community. According to Arikunto (2010), qualitative research is a technique used to examine natural objects in which the researcher is the central instrument, data collection techniques are combined, data analysis is inductive, and qualitative research results emphasize meaning over generalization. This research utilizes two sources of data, including both primary and secondary data, and the facts of the findings are described in a very simple manner so that researchers can find a complex and structured understanding in a directed manner.

4. RESULTS AND DISCUSSION

The public's awareness of organic farming has grown along with the popularity of healthy lifestyles. As the organic agricultural business has become more competitive, a plethora of new players have entered the scene. Organic farming is crucial for the restoration of agricultural ecosystems, which have been severely depleted due to the widespread use of synthetic or chemical compounds like pesticides. Synthetic pesticides aren't the only option for managing pests and diseases; homemade fertilizers are less toxic and more cost-effective. beneficial to farmland ecosystems (Syarifuddin, 2021).

Organic farming is an agricultural cultivation technique that is oriented towards the use of natural (local) materials without the use of synthetic chemicals such as fertilizers, pesticides (except for permitted materials), based on increasing production, income as well as being environmentally friendly and sustainable. Organic cultivation also aims to increase biological cycles by involving microorganisms, flora, fauna, soil, maintaining and increasing soil fertility, increasing all forms of pollution and considering broader socio-ecological impacts (Permatasari et al, 2021).

Substantially organic farming is not new. Before the discovery of synthetic chemical fertilizers and drugs, it could be said that all agricultural production activities were organic farming. Fertilization in organic farming must use organic fertilizers. Types of organic fertilizers that are allowed are green manure, manure, compost and their variants. Organic farming can also use soil fertilizers or also called biological fertilizers. This soil fertilizer is an isolate of bacteria that can improve soil fertility. Currently, many biological fertilizers are sold in the market such as EM4, Bioculture, and others. Biofertilizers can also be made by isolating microbes from organic materials. Mineral materials that can be used in organic farming: Dolomite, Gypsum, Lime chloride, Phosphate rock, Sodium chloride (Imani et al, 2018).

Pest control in organic farming should apply the concept of integrated pest control. Things that are prohibited are using drugs such as pesticides, fungicides, herbicides and the like to eradicate pests. control of plant pests can utilize the concept of integrated pest control 1) Selection of suitable varieties, 2) Crop rotation, 3) Applying good technical culture, such as tillage, fertilization, land sanitation, etc., 4) Utilizing natural enemies or pest predators, and 5) Applying diverse agricultural ecosystems, not monocultures. If forced, for example there is an explosion of pests or diseases, pest control can also be used with natural pesticides or organic pesticides.

Increased long-term yields at a reasonable cost is just one of the many advantages of organic farming, which also includes better livelihoods and food security, increased resilience to climate change, and decreased financial risks thanks to the substitution of renewable, locally available resources for costly

chemicals. Natural and locally sourced food improves human health and maximizes environmental services while also reducing greenhouse gas emissions and increasing soil carbon storage, which all contribute to slowing the rate at which the planet is warming. Farmers also benefit from increased access to domestic and international markets (Anto, 2015).

Organic farming aims to provide safe food for its people because it avoids the use of synthetic pesticides, chemical fertilizers and other synthetic additives that may have a negative impact on human health. In conventional agriculture, high use of synthetic pesticides can leave residues in food consumed by humans. Long-term exposure to pesticide residues can potentially cause health problems, including hormonal problems, reproductive disorders, nervous system damage, and cancer risk (Risdianto, 2015).

In organic farming, the use of synthetic pesticides is avoided and replaced with natural and integrated pest and disease control methods. This includes the use of natural predators, the role of certain animals in maintaining the balance of the ecosystem, the use of traps, and the selection of plant varieties that are resistant to pests and diseases. In addition, chemical fertilizers are also avoided and replaced with natural organic fertilizers such as compost and green manure, which not only improve soil fertility, but also minimize the risk of exposure to harmful chemicals.

By adopting organic farming practices, consumers can have confidence that the food they consume is free from pesticide residues and other synthetic chemicals. This gives them a sense of security and confidence that the food they eat will not have a negative impact on their health. Particularly for groups of people who are more vulnerable to exposure to pesticides, such as children, pregnant women, and people with weakened immune systems, consumption of organic food can provide greater protection against the health risks associated with pesticides.

Organic farming can be used as a sustainable agricultural solution because this method utilizes renewable resources and non-renewable resources while minimizing the negative impact on the environment. Sustainable agriculture aims to maintain and improve the quality of natural resources used in agricultural production, while minimizing the use of non-renewable resources such as petroleum and phosphates.

One important aspect of sustainable agriculture is the efficient use of resources. In organic farming, the use of synthetic chemical fertilizers is reduced or completely eliminated, and replaced with natural organic fertilizers such as compost, green manure and other organic materials. This method helps improve soil fertility by improving soil structure, providing balanced nutrition, and increasing the soil's water holding capacity. Thus, organic farming can reduce dependence on non-renewable resources and create a more sustainable production system in the long term.

In addition, organic farming also pays attention to the quality and quantity of production. Organic farming practices that prioritize biodiversity and the use of natural pesticides help maintain the balance of the ecosystem and reduce the risk of the spread of pests and diseases. This can reduce dependence on synthetic pesticides that damage the environment and have negative effects on non-target organisms. Thus, organic farming contributes to production that is of high quality, safe for consumption, and at the same time maintains environmental sustainability.

Environmental aspects are also an important focus in sustainable agriculture. Organic farming promotes soil conservation practices, such as the use of soil covers, minimal tillage and crop rotation, which help prevent soil erosion and maintain soil quality in the long term. Additionally, the use of natural pesticides and sustainable pest control practices in organic farming helps maintain biodiversity and healthy ecosystems. By maintaining environmental balance, organic farming can reduce negative impacts on ecosystems and promote long-term sustainability.

Overall, organic farming can act as a sustainable agricultural solution by utilizing renewable resources, reducing the use of non-renewable resources, and reducing negative impacts on the environment. Through the use of natural cultivation practices, sustainable pest control and protection of biodiversity, organic agriculture is able to meet the food needs of the present without compromising the ability of future generations to meet their needs. Support for organic farming and the development of policies that support sustainable agriculture will be important steps in realizing agriculture that is environmentally friendly, sustainable and able to provide food for the community.

5. CONCLUSION

Indonesia is known as an agricultural country because the main livelihood of the Indonesian people is farming. But it is very unfortunate, that Indonesia's agricultural land is getting narrower and Indonesia's agriculture is not in accordance with existing resources. In addition, what is also concerning is the mindset of the people who often underestimate the agricultural sector. Therefore, a step is needed to promote

environmentally friendly Indonesian agriculture so that it does not harm the living things in it. One solution that is familiar is organic farming as a solution for sustainable agriculture in Indonesia. Organic farming is a promising solution to achieve sustainable agriculture in providing food for the community. By prioritizing the use of renewable resources, reducing the use of non-renewable resources, and avoiding the use of synthetic chemicals, organic agriculture is able to maintain environmental balance, increase the quality and quantity of production, and provide safe and healthy food for consumers. Through natural cultivation practices, sustainable pest control and biodiversity protection, organic agriculture creates farming systems that are efficient, environmentally friendly and able to meet the food needs of the present without compromising the capabilities of future generations. Support for organic farming and the adoption of policies that support sustainable agriculture will be important steps in achieving this goal.

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