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FARMERS' PERCEPTIONS OF ORGANIC AGRICULTURE: A REVIEW

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ABSTRACT

Management of the agricultural environment is an important side of sustainable development which discusses how to meet the needs of the present generation without causing future generations to not be met. For this reason, the agricultural environment is managed towards a healthy and sustainable environment in the long term (Fao, 2018, Hendrik, 2019). Management of the agricultural environment can be done using conventional techniques from generation to generation, or with organic farming, namely agriculture without chemical fertilizers and pesticides which in the long term causes environmental degradation of agriculture and unsustainable agriculture, to overcome this problem a more friendly agricultural system is needed. Organic agriculture is one of the agricultural production systems that are often considered as an approach to achieve healthy and sustainable agricultural goals. Although the government continues to encourage farmers to switch to organic farming, in reality only a few farmers have switched to this system. This is also influenced by farmers' perceptions of organic farming, the factors that become obstacles why farmers are reluctant to adopt organic agriculture into their farming, including: 1) farmers' perception that although organic products have a higher price than inorganic products, organic agricultural production is lower; 2) dependence on chemical fertilizers and pesticides because farmers have been using them for a long time; 3) the view that organic fertilizer processing is complicated and takes a long time; 4) difficult to get organic fertilizer.

KEY WORDS

Perception, organic farming, farmers.

Organic farming is one of the agricultural production systems that are often considered as an approach to achieve sustainable agricultural goals. In this system, in fact, there are several techniques that have often been used by traditional farmers, such as intercropping techniques, the use of livestock manure as fertilizer or crop residues as ground cover. Thus it can be said that organic agriculture is an agricultural system that displays tradition, innovation and science to produce healthy and sustainable agriculture (Oyedele et al., 2018; IFOAM, 2019; Hendrik 2019).

The development of organic agriculture in Indonesia since 2001, the Ministry of Agriculture launched the "Go Organic 2010" program. The target of this program is to develop eco-agribusiness, with the aim of increasing food security and social welfare, as well as promoting Indonesia as a leading organic market player in the world and to increase farmers' income (Hidayat and Lesmana 2011 in Ashari et al. 2017).

Nevertheless, the development of organic agricultural land in Indonesia until 2020 covers 75,793 ha (0.1% of the total global organic agriculture) this number is lower than 2019 which covered 121,535 ha or reduced by 45,743 ha (IFOAM, 2022). In addition, Indonesia's organic agriculture statistics show the level of organic rice certification in 2013 covering an area of 1,537.16 ha (monoculture), 81.81 ha (rice and secondary crops) and 5.93 ha of rice/flour processing (Indonesian Organic Alliance, 2013 in Ashari et al. al. 2017), the area of certified organic rice is only 1,542.38 ha out of 13.4 million ha of paddy fields (Ministry of Agriculture, 2014). With data like the above it means that agriculture that produces organic rice is very low as well as the adoption rate of organic agriculture is very slow among farmers in Indonesia (Ashari et al., 2017). Organic farming is one of the agricultural production systems that is often considered as an approach to achieve sustainable agricultural goals. In this system, in fact, there are several techniques that have often been used by traditional



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RESULTS AND DISCUSSION

Agricultural sustainability is closely related to how to avoid the adverse effects of modern agricultural practices which not only have an impact on agriculture but also on the health of all living things. The application of technology, especially in terms of the use of chemical fertilizers and pesticides, has had negative effects on the environment such as soil degradation, soil pollution, and human and livestock health. To achieve sustainable agriculture, one approach that can be taken is the practice of organic farming.

Organic agriculture is "Agriculture with a production management system that promotes and improves the health of agroecosystems, including biodiversity, biological cycles and soil biological activities". This is achieved by using, wherever possible, agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfill specific functions in the system (FAO, 1999, Santhoshkumar, *et al.* 2017). Organic farming attracts farmers all over the world because of its many advantages over modern farming practices. Organic agriculture is an agricultural system that supports and strengthens biological processes without the help of inorganic drugs such as chemicals or genetically modified organisms (Reddy, 2010 in Patidar, 2015, FAO, USDA in Santhoshkumar, *et al.* 2017).

IFOAM (2014); defines organic agriculture as "a production system that sustains soil, ecosystem and human health, depending on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects". Thus, organic agriculture combines tradition, innovation and science. knowledge for the mutual benefit of the environment and promoting fair relations and a good quality of life for all involved.

Some benefits of organic farming as stated by Santhoshkumar, et al. 2017 are: Maintaining environmental health by reducing pollution., Helping to increase agricultural production in a sustainable manner, Helping to improve soil health., Agricultural products obtained from organic farming are of better quality (Bigger size, taste, size and aroma) , The capacity of the soil to hold water is increased through organic farming, Increase the availability of nutrients needed and essential for plants (Macro-Nutrition & Micro-Nutrition) , Underground water in organic farming areas is free from toxic chemicals, Maintains C:N ratio in soil and increases fertility and productivity soil.

Organic agriculture is an agricultural system that can provide solutions to the degradation of agricultural land and the environment.(Lampkin and Padel, 1994 in Ashari et



al, 2017), describe organic farming as an agricultural approach that aims to create integrated, humane, environmentally sound, and economically sustainable agricultural production systems, by maximizing dependence on agricultural derivative products, resource management processes renewable energy and ecological and biological interactions.” Thus the main goal of organic farming is the sustainable production of quality food with little or no effect on the environment.

Perception can be defined as 'the way you think about or understand' someone or something' (Merriam-Webster 2015). Or in colloquial terms: 'perception' is shaped by what we know, by what we think we know, and what we don't know (Renko et al. 2012 in Methorst, 2016). Leeuwis, C., and Aarts, N (2021), stated that it is the individual's intrinsic perception that plays a key role in reasoning and is thus a key factor in explaining farmer practices (Aubert et al. 2012; Leeuwis and Van de Ban 2004; Mathé and Rey-Valette 2015; Meijer et al. 2015). Perception is socially constructed, shaped by a combination of cultural, economic, biophysical, and spatial factors (Glover et al. 2019; Leeuwis and Van de Ban 2004 in Kenfack Essougong et al. 2020). In addition, farmers' knowledge and beliefs are important perception categories related to farmers' awareness of certain phenomena and their understanding of cause and effect relationships between phenomena and practices. Thus, knowledge and beliefs support the perceived consequences of adopting a particular technology or management practice. Whether the consequences are evaluated as favorable or unfavorable is determined by: farmers' aspirations and values (Glover et al. 2019; Leeuwis and Aarts 2021), which is the second category of perception.

Farmers tend to have different aspirations, for example, financial profit, peace of mind, independence, productivity, which they perceive as more or less important depending on the given context. The third perception relates to the individual's ability and capacity to adopt new behaviors with available resources and existing biophysical and social conditions (Leeuwis and Aarts 2021; Leeuwis and Van de Ban 2004). Another factor that also contributes to shaping farmer perceptions is the socio-economic characteristics of farmers (Leeuwis and Van de Ban 2004; Meijer et al. 2015 in Kenfack Essougong et al., 2020; Leitner and Vogl, 2020).

In Indonesia, the organic area for the last ten years, although it increased sharply in 2015 but in 2019 there was a significant decrease, namely from 121535.2 ha to 75792.59 ha in 2020, with the share of farmland also decreasing from 0.2% to 0.12% (IFOAM, 2022), as well as in Thailand, increasing sharply from 2016 to 2019 and declining in 2020. Meanwhile in Malaysia the area of organic land tends to be stable with a low land area, as shown in Figure 1.

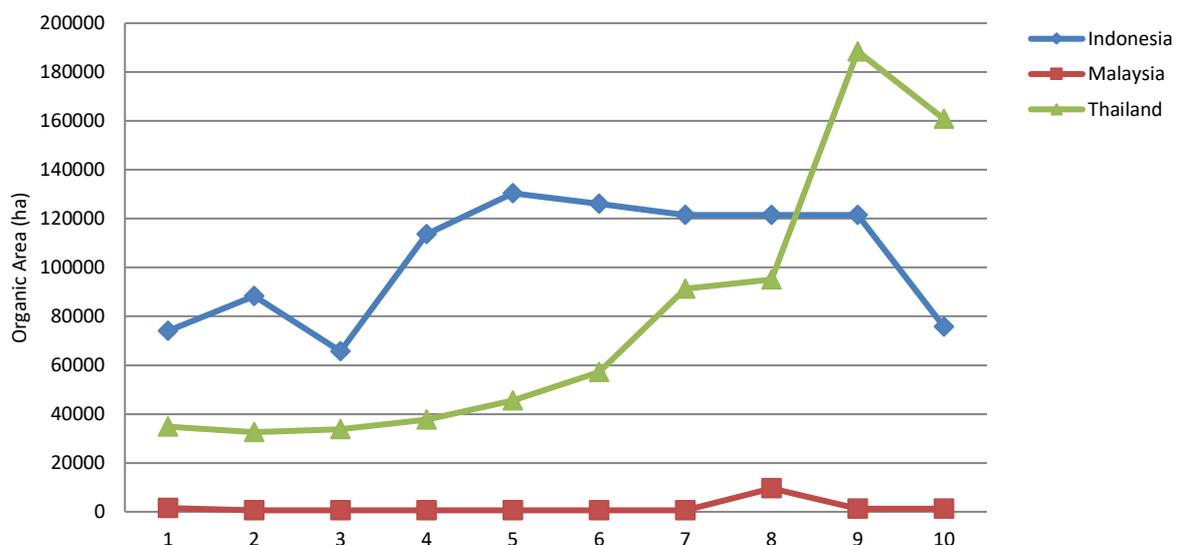


Figure 1 – Organic Farm Land Area 2011 - 2020



The comparison of the area of organic farming land compared to agriculture can be seen from the organic share figure for farm land and for Indonesia in 2011-2020 (IFOAM 2022), as shown in Figure 2:

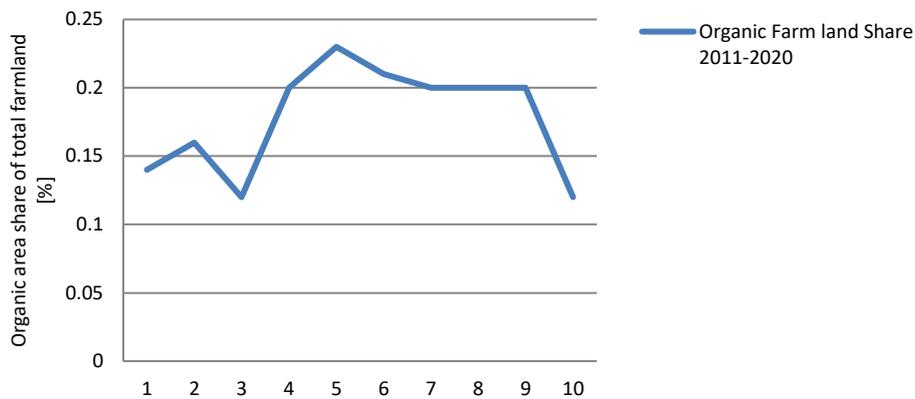


Figure 2 – Organic Share to Farm Land (%), 2011-2020

From the Figure 2 above, it can be seen that in 2011 - 2015 Organic farmland in Indonesia increased, but in 2016 - 2020 it continued to decline, this means that there was a transfer of land that was previously designated organic farming to non organic farming. This change can be influenced by various factors, both internal and external factors. Various factors can be the cause of the decline in the area of organic farming land, including the perception of farmers who still think that organic farming yields lower yields even though the price is slightly more expensive, and several other views due to lack of knowledge about organic farming (Herath and Wijekoon, 2013 in Ashari at al 2017), dependence on chemical fertilizers and pesticides because farmers have been using them for a long time (Herath and Wijekoon, 2013 in Ashari at al 2017; Hendrik, 2019).

Conventional farmers are also unwilling to switch from chemical fertilizers and pesticides because they have been using them for a long time (Hendrik, 2019). On the other hand, Malgatti (2011) stated that organic farmers do organic farming mainly because of marketing assistance and inputs, promotional schemes of government and awareness campaigns of NGOs, and success stories of other organic farmers and farmers also have a good attitude towards the environment. Knowledge of organic farming and contact extension workers greatly affect the motivation to adopt organic farming. However, several studies have also found positive attitudes and views of farmers towards organic farming. Research on farmers' perceptions of organic farming conducted by Patidar (2015); Pinthukas,(2015) revealed positive perceptions of organic farming, and there was a significant relationship between age, educational background, land area, benefits of organic farming, and social factors. This shows that the community will have a high rate of adoption of innovations related to organic farming and other agricultural policies. The gap between knowledge or perception and practice can be bridged with a better understanding of government systems and provisions that support the environment (eg provision of credit facilities, technical training) to farmers. The study also revealed some unexpected results such as the costs associated with organic farming did not affect farmers' attitudes. Perhaps the farmer's focus is on yields and profits (benefits aspect) but not input costs in agriculture. Other factors such as knowledge, environment and gender have no explanatory significance to farmers' attitudes (Patidar, 2015; Pinthukas, 2015). Research findings from Malgatti (2011) also prove that the main driving factor for practicing organic farming is identified as cultivation cost reduction, increased income and net profit, internal dependence on inputs, reduced cases of pesticide poisoning, and agricultural diversification.

Oyodele at al. (2018) found that most respondents have a good perception of organic farming in the study area and most farmers have not adopted organic farming systems. Many of the respondents thought that processing organic fertilizers was complicated and tedious,



requiring more time and effort to get organic fertilizers having to travel for 20-30 kms to buy them.

Organic farming is generally more profitable in terms of costs and financial returns than chemical farming. An analysis of farmers' perceptions of organic farming revealed that electronic media (television) was the main motivator for farmers to adopt organic practices. Farmers believe that organic farming increases soil fertility and profitability in the long run. Other studies also reveal that age, education, and land tenure status positively influence farmers in their assessment of organic farming adoption (Sudheer, 2013 and Ullah et al, 2015 in Ashari et al, 2019). Essougong Kenfack et al, 2020, investigating how farmers prioritize cocoa management practices in two contrasting cocoa-producing basins and the role of knowledge, aspirations, and abilities in explaining behavior, found that farmers' perceptions of soil fertility are consistent with biophysical knowledge but differ between individuals and locations. In addition, the availability and cost of inputs, farmers' lack of knowledge and experience, and farmers' perceptions of current soil fertility status are the main factors in using soil fertility management practices.

CONCLUSION

From the discussion above, it can be concluded that although farmers have a positive view of organic farming, they are less interested in switching from conventional agriculture which has been carried out for generations, because of the perception that organic farming yields will decrease, even though organic products have a slightly higher price; in addition, dependence on chemical fertilizers and pesticides because farmers have been using them for a long time; and also the view that Organic fertilizer processing is complicated and requires more time and effort to get organic fertilizer that is sold quite far from where the farmers live.

Therefore, it is important to provide counseling and guidance to farmers about the importance of organic farming for future agricultural sustainability and consumer health and the various other benefits that can be obtained from organic farming.

REFERENCES

1. International Federation of Organic Agriculture Movement (IFOAM) 2022. The World of Organic Agriculture Statistics and Emerging Trends 2022. <http://www.organic-world.net/yearbook/yearbook-2022.html>.
2. Thinley, P., & Tashi, S (2020). Farmers' perception on transitioning t. *Research Journal of Agriculture and Forest*, 8(1), 40-48.
3. Oyedele, G. T., Wole-Alo, F. I., Owolabi, K. E., & Okunlola, J. O. 2018. Small-scale farmers perception on organic farming status in Ondo State, Nigeria. *American Journal of Agriculture and Forestry*, 6(6), 186-190.
4. Hendrik Ernantje, 2019. Agricultural Environmental Management Model in the Term of Sustainable Agriculture Achievements In Taebenu, Kupang District. *International Journal of Scientific & Engineering Research* Volume 10, Issue 4, April-2019. ISSN 2229-5518. <http://www.ijser.org>
5. Malgatti Mahesh, 2011. Resource Utilization Efficiency and Sustainability of Organic Farming in Karnataka. Ph.D. Thesis. Publisher(S) Iari, Division of Agricultural Extension <http://krishikosh.egranth.ac.in/handle/1/89721>.
6. Pinthukas, N (2015). Farmers' perception and adaptation in organic vegetable production for sustainable livelihood in Chiang Mai Province. *Agriculture and Agricultural Science Procedia*, 5, 46-51.
7. Patidar Suresh and Himanshu Patidar, 2015. Study of Perception of Farmers towards Organic Farming. *International Journal of Application or Innovation in Engineering & Management (IJAIEM)*. [www.ijaiem](http://www.ijaiem.com) Volume 4, Issue 3, March 2015, ISSN 2319 – 4847.
8. Leeuwis, C., and Aarts, N (2021). Rethinking adoption and diffusion as a collective process: towards an interactional perspective. In Campos, H (ed.), *The Innovation*



- Revolution in Agriculture: A Roadmap to Value Creation, Springer International Publishing, Cham, pp. 95-116.
9. Leitner Carolin and Christian R. Vogl. 2020. "Farmers' Perceptions of the Organic Control and Certification Process in Tyrol, Austria" *Sustainability* 12, no. 21: 9160. <https://doi.org/10.3390/su12219160>.
 10. Methorst Ron R G, 2016. Farmers' perception of opportunities for farm development. PhD thesis, Wageningen University, Wageningen, NL (2016). ISBN: 978-94-6257-943-9. DOI: 10.18174/391066.
 11. Ashari, Sharifuddin, Mohamed ZA (2017). Factors Determining Organic Farming Adoption: International Research Results And Lessons Learned For Indonesia. *Forum Penelitian Agro Ekonomi*, Vol. 35 No. 1, Juli 2017: 45-58 DOI: <http://dx.doi.org/10.21082/fae.v35n1.2017.45-58>.
 12. Ramadan, M. F. A., Abdel-Hamid, M. M. A., Altorgoman, M. M. F., AlGaramah, H. A., Alawi, M. A., Shati, A. A., Shweeta, H. A., (2020). Evaluation of pesticide residues in vegetables from the Asir Region, Saudi Arabia. *Molecules*, 25(1), 205. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/molecules25010205>.
 13. Rana, S., Md. Hasan, H., Alam, M.S., Islam, M.S (2017). Farmer attitude towards organic vegetable in Rangunia Upazila, Chittagong, Bangladesh. *Journal of Biosciences Agricultural Research* 14, 1151–1156.
 14. Usman, I. S., Abdullahi, A., Qasimu, A. I., & Adamu, T (2016). Farmers' perception on organic manure usage among arable crop farmers in Jalingo Local Government Area of Taraba State, Nigeria. *Scientific Papers: Management, Economic Engineering in Agriculture & Rural Development*, 16(3), 353-359.
 15. Santhoshkumar, M., Reddy G.C. and Sangwan P.S., A Review on Organic Farming - Sustainable Agriculture Development, *Int. J. Pure App. Biosci.* 5(4): 1277-1282 (2017). doi: <http://dx.doi.org/10.18782/2320-7051.5649>.
 16. Singha, A. K., Deka Bidyut, C., Bordoloi, R., & Parisa, D (2020). Qualifying factors influencing adoption of improved dairy farming practices by the farmers in North Eastern Region of India. *Journal of Pharmacognosy and Phytochemistry*, 9(3), 1559-1563.
 17. Skaalsveen, K., Ingram, J., & Urquhart, J (2020). The role of farmers' social networks in the implementation of no-till farming practices. *Agricultural Systems*, 181, 102824.
 18. Wayman, S., Kucek, L. K., Mirsky, S. B., Ackroyd, V., Cordeau, S., & Ryan, M. R (2017). Organic and conventional farmers differ in their perspectives on cover crop use and breeding. *Renewable agriculture and food systems*, 32(4), 376- 385.
 19. Kenfack Essougong et al (2020). Farmers' Perceptions as a Driver of Agricultural Practices: Understanding Soil Fertility Management Practices in Cocoa Agroforestry Systems in Cameroon. *Human Ecology an Interdisciplinary Journal* ISSN 0300-7839 Hum Ecol DOI 10.1007/s10745-020-00190-0. Springer.
 20. Hongbin Liu and Xiaojuan Luo (2020). Understanding Farmers' Perceptions and Behaviors towards Farmland Quality Change in Northeast China: A Structural Equation Modeling Approach. *Sustainability* 2018, 10, 3345; doi: 10.3390/su10093345 www.mdpi.com/journal/sustainability.