



Organic Farming to Make Agriculture Sustainable : A Preview

¹C. M. Ezhilvani, ²Dr.A. Jayakumar

¹Ph.D Research Scholar, Department of Commerce, Periyar University, Salem, Tamil Nadu, India

²Professor of Commerce (Retd.), Periyar University, Salem, Tamil Nadu, India

Email - ¹ezhilvani12phd@gmail.com

Abstract: Agriculture is one of the major sectors that lead to global warming in the first place, which cannot be left unnoticed. This clearly shows that agriculture is in a crucial state to get into sustainability, which can be done with the help of Organic Farming. Organic farming is one of the best aids for agricultural sustainability globally. Sustainable development should also ensure economic development when it is stated in Commerce. Numerous researchers and experts have stated about this concept recently. This paper extinguishes some of the specific concepts put-out by various authors and articles regarding organic farming for sustainable development which includes concepts such as the percentage of performing organic farming worldwide in comparison with conventional farming, will the organic farming actually helps in attaining sustainability, role of organic farming in sustainable agriculture and does organic farming really ensure food security. By which we can be aware of the possibilities put-forth for agricultural sector's sustainable development through organic farming ensuring food security. Limitations in this subject area were also glanced in this paper.

Key Words: Food security, Organic farming, Sustainable agriculture, Sustainable development.

1. INTRODUCTION:

Mounting demand and posh lifestyle lead to environmental deterioration, where our agricultural apparatus is affected because of pollution. Environmental pollution is contributed by the modern practice of agriculture such as pesticides and synthetic fertilizers use, etc., to escalate crop yield. Reduction in soil fertility and nutritional balance of it has been eventually disturbed because of these practices. Existing problems can be faced with help of organic farming as it is done in a natural crop cultivation method by using local organic or natural resources that are plant and animal-based environmentally friendly practices^[1]. (Pacific Institute) roughly 70 percent of the supply of freshwater is used by agriculture. As a response to climate change reduction in pollution and water waste, water managers are in considerable tension regarding the production of fiber and more food products for the rising population. To identify and gauge strategies for upgrading water management, ensuring a vivid agricultural system along with intercontinental food security. (Food Print) Sustainable agriculture refers to farming that is good for the environment, animals, and people. This approach recognizes that the earth needs to be in good health because it must continue to provide for future generations. This type of farming is based on a whole ecosystem approach, not focused just on the individual product^[3]. (Vedantu) to ensure environmental sustainability, one of the efficient and promising agricultural approaches is organic farming, as it improves the health of the soil, provides stability in yield with none of the environmental concerns, and also provides nutritious organic food without the use of synthesized fertilizers. An economic development conducted without natural resources depletion is the definition of sustainable development. As organic farming helps us to restore the ecological balance it is clear that basically, organic agriculture is closely related to sustainable development^[4]. Organic farming can be profitable and organic food appeals to consumers as both a healthy and ethical choice. Beyond money and ethics, organic farming practices result in numerous environmental benefits^[5].

2. LITERATURE REVIEW:

Dr.R.Asokan, Dr.D.Murugan (2018): Any changes in farming practice pose a severe threat to agriculture and thus to the economy and food security. To meet the requirements, organic farming paved the way for making sustainable agriculture and protecting people's health. This will lead to a better quality of life for all people enabling the country to achieve the ideal of welfare in a liberal, mixed economy like India^[6].

V Basil Hans and Raghavendra Rao (2018): organic farming can provide quality food without adversely affecting the soil's health and the environment. There is a need to identify sustainable crops/products for organic



production that has international market demands. It will provide ample opportunity for employment and bring prosperity and peace to the nation. So, there is an urgent need for favorable policy initiatives to strengthen their sector. Such policies lay a solid foundation to promote sustainable development and the dream of sustainable development will be a reality^[7].

Olivia M. Smith, Abigail L. Cohen, et.al (2019): despite the lower yields and greater yields variability on organic farms, they were more profitable, and had similar costs compared to conventional farms. Despite the relatively high profits of organic farming systems, a critical hurdle for organic farming, and other types of ecologically intensive farming systems, is to identify methods to improve the stability of ecosystem service provisioning that enhances and supports consistently high yields^[8].

Rodale Institute (2019): Organic can compete with conventional yields and outperforms conventional in adverse weather. Small farmers using organic methods have huge potential to expand global food production. And only organic methods actively regenerate resources and protect the environment from pollution and toxic waste. For a healthy future, we can't afford anything less^[9].

Karolina Pawlak and Malgorzata Kolodziejczak (2020): addressed three issues: the linkage between food security, agricultural potential, and agriculture performance, spatial diversity of agriculture-oriented reasons for undernourishment, as well as the recognition and better understanding of the most effective interventions to solve the hunger problem under a country's unique conditions^[10].

Suresh Kumar, Jammu (2020): approach of organic farming is dependent upon the variety of building elements that are eco-friendly and help in developing sustainable agriculture. The principle of organic farming ensures sustainable development as in organic farming more emphasis is given to environmental health and helps in reducing soil, water, and air pollution. Thereby it acts as a natural tool for environmental protection and sustainable development^[11].

M.Singh (2021): organic agriculture has demonstrated its ability to not only produce commodities but also to produce biodiversity at all levels. It offers an important step towards a solution to many of the threats that conventional agriculture has on biodiversity. Organic agriculture should be considered simply as the most appropriate starting point from which additional conservation needs, where they exist, can be built. Its widespread expansion would be a cost-efficient policy option for biodiversity^[11].

M. Gowri Seeni Rajam (2021): diverse yield development is rehearsed in India and it is seen that cutting edge farming requires the substitution of more reasonable practices. Practical horticulture centers' around ideal supplement balance and nature working of the soil. This sustainable agribusiness is more helpful to the rancher and it gives work to individuals. The future degree is there for practical cultivating and it will be more helpful to individuals^[12].

3. OBJECTIVE:

This paper extinguishes some of the specific concepts put-out by various authors and articles regarding organic farming for sustainable development which includes concepts such as the percentage of performing organic farming worldwide in comparison with conventional farming, the role of organic farming in sustainable agriculture; statements towards the questions like will the organic farming actually helps in attaining sustainability and does organic farming really ensure food security; limitations in the adoption of sustainable agriculture (i.e) organic farming; are also included.

4. SUSTAINABLE AGRICULTURE:

Sustainability includes environmental benefits to our future generations who may be deprived of its inherent benefits but here the onus is not just for preventing it for them but for the immediate future that may leave us with no other option but to mitigate. According to a recent report by World Economic Forum, Agriculture has been seen as a prominent threat for our Earthly forests thereby triggering global warming even further. To stop changing the face of Earth, changes have to be made on lifestyle, especially agriculture^[13]. It is important to understand what 'sustainable agriculture' is before identifying specific sustainable agriculture practices. As a concept, sustainable agriculture is dynamic with wide variations in its definition and practice. With increasing extreme climate events like crop resilience are emerging from the ground, highlighting sustainable agriculture's potential concepts of sustainable agriculture. Organic farming is the most popular term, followed by sustainable agriculture, agroecology, natural farming, and then regenerative agriculture^[14]. Sustaining agriculture has the potential to help diversify farmers' sources of food and income, make farming climate-resilient, optimize the use of natural resources, and rebuild ecosystems. It also offers a vital alternative to input-intensive farming. It is also suitable in drier regions of the country as it requires lesser water^[15]. (Food Print) Sustainable agriculture also doesn't rely on adding in "external input" such as synthetic fertilizer and pesticides. This helps farmers be less reliant on buying things off-farm. This approach makes use of its own "outputs" by composting the crop waste and applying animal manure as fertilizer onto fields. It is a "closed-loop cycle" that builds



soil health, a clean water system, and biodiversity rather than depleting them. If done right, it can even use those healthy soils to trap carbon, helping to slow climate change^[3].

5. ORGANIC FARMING:

“Organic”, means a higher level of wildlife welfare, lower level of fertilizers, no use of artificial pesticides, and a lot more beneficial features. It refers to the way that farmers grow and process agricultural products, such as vegetables, fruits, grains, dairy products, and also meat. Organic food products are produced through methods that comply with the standards of organic farming. Organic farming can be classified into three categories such as Pure Organic Farming, Integrated Green Revolution Farming, and Integrated Farming System^[16]. Organic farming is in a nascent stage in India. About 2.78 million hectares of farmland were under organic cultivation as of March 2020, according to the Union Ministry of Agriculture and Farmers’ Welfare. This is 2% of the 140.1 million ha net sown area in the country^[17]. Environmental gain from organic farming is expected to drive the organic farming market. Organic farming is highly beneficial to the environment as it does not use any chemical fertilizers or pesticides that cause soil and groundwater contamination. Also, the usage of non-renewable resources that are needed for the development of such artificial fertilizers is less. Organic farming preserves the biodiversity of the soil^[18]. Some of the key benefits of organic farming are, reduced exposure to pesticides and chemicals, organic farming building healthy soil, combating erosion, fighting the effects of global warming, organic farming supports water conservation and water health, discouraging algal blooms, supporting animal health, and welfare, organic farming encourages biodiversity^[5].

6. ORGANIC FARMING AS SUSTAINABLE AGRICULTURE:

Integration of 3 main goals outputs the sustainable agriculture concept would be the health of the environmental, economic profitability together with social and economic equity. The concept of sustainability rests on the principle that we must meet the needs of the present without compromising the ability of future generations to meet their own needs. One of the very basic approaches for sustainability is organic farming improving and maintaining the natural landscape and agro-ecosystem, avoiding polluting and overexploitation of natural resources, minimizing consumption of non-renewable energy resources, exploiting the existing synergies in a natural ecosystem, using organic manures, or through stimulating activity, getting optimum economic returns along with safe, secure and healthy environment^[19]. Agriculture’s contribution to air pollution and climate change, pollution from biomass burning, takes a serious part in global warming, whereas the benefits of organic farming play a vital role in the enhancement of biodiversity as organic farming and nature conservation nurtures soil biodiversity^[11]. Organic agriculture in the labor-intensive nation helps in the generation of higher rural employment which helps in the reduction of economic input. Producing completely biodegradable organic produce can get progress towards both ecologically and socially responsible through unharmed production, processing, and distribution channel. When we put all these together by organic farming adoption furnishes a balanced and better living environment together with quality products^[20].

7. SUSTAINABLE AGRICULTURE IN INDIA:

As far as India is concerned, the Government of India has been undertaking measures to promote organic farming with the aim to improve soil fertility and help to double the farmers' revenues by the year 2022^[6]. India has taken a considerable lead in this directing by launching and implementing National Mission for Sustainable Agriculture under the National Action Plan on Climate Change (NAPCC) since 2014-15^[13]. India has had a National Mission for Sustainable Agriculture (NMSA) to promote sustainable agriculture. It consists of several programs focusing on agroforestry, rainfed areas, water and soil health management, climate impacts, and adaptation. Beyond NMSA, the Pradhan Mantri Krishi Sinchayee Yojana promotes the adaptation of precision farming techniques such as micro-irrigation, and the Integrated Watershed Management Programme supports rainwater harvesting^[14]. India is endowed with various types of naturally viable organic forms of nutrients across different regions of the country which will be helpful in the organic cultivation of crops. India has a strong traditional farming system with innovative farmers, vast drylands, and the least use of chemicals. With increasing concerns about the environment, economic and social impacts of chemical-dependent conventional agriculture have led many farmers and consumers to seek alternative practices that will make agriculture more sustainable business^[21]. (The Economic Time) based on the study conducted by CEEW – the Council on Energy, Environment, and Water it is reported that lesser than 4% of farmers in India have adopted sustainable agricultural methods. It is found that scaling up sustainable agriculture in a climate-constrained future would be critical in terms of improving farmers’ income and bolstering the nutritional security of our country, in the FOLU – the Food and Land Use Coalition supported the study. Andhra Pradesh and Sikkim have already taken a lead in the case of sustainable agriculture. Sustainable Agriculture, “Embracing sustainable agriculture could not only lead to better incomes for farmers but also have multiple environmental benefits”, said Rajiv Kumar, Vice-Chairman, NITI-Aayog^[22].



8. ORGANIC FARMING IN INDIA:

Organic farming acreage has increased to 27.7 lakh hectares during August 2019 from 23.02 lakh hectares which shows a rise of 20%; Madhya Pradesh tops the list among the states with 7.55 lakh hectares under organic farming. "To promote organic farming Goa has set up 500 clusters with the objective to create a 'brand Goa' in organic agriculture," says Goa Agriculture Minister Vijai Sardesai^[23]. Organic agriculture currently makes up only 2% of our country's total net sown area that would be 140 million ha, in spite of governments' support policy^[24]. The certified organic food production is still low. The PGS brings together a peer group of farmers and the costs are low. It is being popularized, Rita Teotia, chairperson of the Food Safety and Standards Authority of India (FSSAI) said on the sidelines of a function of the Food and Agriculture Organization (FAO) and the World Health Organization's (WHO) Coordinating Committee for Asia (CCASIA) in Panaji Monday (The Indian Express)^[23].

Particulars	Organic farming (million ha)	Natural Farming (million)
The area under the practice	2.8	0.7
Scale of adoption (farmers)	1.7	0.8

While relevant information about uncertified organic farmers in India is not available, certified organic farmers account for around 2 million. An estimation of 0.1 million ha is covered under the organic farming variant (i.e) biodynamic agriculture. In the last 2 to 3 years a faster rate of adoption of the natural method of farming has witnessed nearly 1 million, mostly from states such as Andhra Pradesh, Karnataka, Maharashtra, and Himachal Pradesh^[24].

9. ORGANIC AGRICULTURE FOR FOOD SECURITY:

"We believe that sustainable agriculture is fundamental to food security", India's Deputy Permanent Representative to UN Ambassador K Nagaraj Naidu said on Monday^[25]. Ensuring food security has become an issue of key importance to countries with different degrees of economic development, while the agricultural sector plays a strategic role in improving food availability^[10]. Organic agriculture is a farming practice that enhances, maintains, and sustains the quality of our ecosystem, as it does not have harmful and deteriorating effects. Organic farming has seen a drastic overall improvement in most crop types as the result of increasing awareness towards food security and ecological safety. Health-conscious consumers will maintain the growth of the organic farming sector^[12]. India has produced around 2.645 million MT of organic products and the total volume of export was 6.14 lakh MT with the realization of around INR 5150.99 crore (US\$757.49 million) during the year 2018-19. India exported 458,000 tons of organic products worth \$515 million in 2017-18, from \$370 million in 2016-17 registering demand for Indian organic products across the world, (Officials from APEDA). The global organic food market to reach US\$262.85 billion by 2022 and the Indian organic food market is projected to grow at a CAGR of over 23% by 2023, on account of favorable government policies supporting organic farming coupled with the rising land area under organic cultivation (Chirag Arora)^[26]. It's untrue that the difference in yields between organic and conventional is drastic, or that organic outperforms conventional in adverse weather conditions like drought by as much as 40%. As our climate grows more unsteady and generates more natural disasters, it's imperative that our agricultural systems be not only resilient but regenerative; only organic offers that promise^[9]. Currently, our country's agriculture and food security policies are going beyond the calorie sufficiency approach towards ensuring access to a nutritionally balanced diet as observed by specialists. The Farmers Produce Trade and Commerce (Promotion and Facilitation) Act – 2020, provides a hefty push towards platforms of E-trading and transaction^[27].

10. LIMITATIONS IN ADOPTION:

Executing the comprehensive methods and practices required for a farm to be classified as a natural farm takes time and energy. Pesticides and fungicides allowed for organic agriculture may nevertheless be used by certain organic farmers. While these compounds are sourced from natural sources and hence have a "natural" label rather than a synthetic one, they are still potentially detrimental to our health and ecosystems because they are sprayed in higher quantities than would naturally occur over a relatively limited region. Because natural pesticides are often less efficient than synthetic pesticides, farmers must apply them more frequently, which implies that some compounds may exceed safe levels of concentration in the environment. An organic farm or farming operation cannot produce a higher output than a conventional operation. In comparison to conventional farming methods, organic farming methods produced tiny yields even in underdeveloped nations, according to a 2008 poll and study conducted by the UN Environmental Program. Even though this argument is arguable, an industrialized farm's production and soil quality have been progressively declining in recent years. Organic food is more expensive than typical grocery items. This is only one of the many reasons why organic farming isn't widely used, and not nearly enough people are reaping the benefits. Organic produce is more expensive since the output from a given piece of land is lower than what farmers can produce using conventional



methods. In addition, because there is a lot of effort and time needed, the production cost is considerable. There are numerous gaps in the distribution and marketing of organic products. In order to meet the needs of the rising population, new sustainable techniques need to be implemented.

11. SUGGESTION:

Organic farming, for example, has the strength to maintain a permanent resource balance, prevent over-exploitation of renewable energy sources, and retain original soil nutrient quality and soil health, as well as biodiversity. It will guide us toward sustainable agriculture and a sustainable lifestyle for future generations. Organic farming can help to restore depleted soils and ensure agricultural production's long-term viability. As a result, it should be praised. Only 1% of organic vegetables are exported today, but more is conceivable due to increased market demand and consumer willingness to pay higher prices. Agricultural experiment researchers must develop a new orderly vision of natural farming to replace the previous natural farming system, which includes pest grabbing techniques, plant security methods, and so on. It benefits our environment and protects its long-term viability. Supply and Demand Disparity Fruits and vegetables, unlike non-perishable cereals, cannot be cultivated anywhere and delivered to any area. It should be produced locally, and there should be willing businesses, aggregators, and farmers in the area where the demand is coming from. However, much of the demand comes from cities with no farmland where organic fruits and vegetables can be grown. The solutions to this imbalance include smart transportation and dedicated supply routes.

12. CONCLUSION:

With the help of sustainable agriculture by ensuring intercontinental food security, a lively ecosystem and healthy management of natural resources can be developed. An organic method of agriculture will be a probable choice for rejuvenating our environment as it is potential in the management of an agro-based eco-system. Organic farming not only ensures agriculture sustainability but also individual health, which has to be taken into consideration while in a pandemic situation like this due to Covid-19. In agriculture-based countries like India, the production of food products should have a steady growth, which can be made possible with the help of organic farming. It can be undoubtedly affirmed that organic farming is the precise answer to making safe food and maintaining a sustainable environment. Food security can be ensured by practicing well-structured organic farming globally, through which a healthier lifestyle can also be attained.

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