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Attaining agricultural sustainability via organic agriculture

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Abstract
It is impossible to ignore the fact that one of the main industries that contribute to global warming in the first place is agriculture. This demonstrates unequivocally the need for agriculture to transition to sustainability, which may be accomplished with the aid of organic farming. One of the best means of promoting agricultural sustainability on a worldwide scale is organic farming. When it is said in commerce, sustainable development should also guarantee economic development. In recent years, this idea has been discussed by many academics and industry professionals. This essay dispels some of the specific ideas about organic farming for sustainable development that have been advanced by various authors and articles. These ideas include the proportion of organic farming that is practised globally compared to conventional farming, whether organic farming actually contributes to sustainability, and the place of organic farming in sustainable agriculture. It makes it possible for us to be informed about the opportunities presented for the agriculture sector's sustainable development through organic farming that ensures food security. Impact of green revolution and limitations in this field were also briefly mentioned in this paper.

Keywords: agriculture, organic agriculture, sustainability, sustainable agriculture

Introduction

Growing demand and affluent living contribute to environmental degradation, which negatively impacts our agricultural system due to pollution. Modern agriculture practises including the use of pesticides and synthetic fertilisers, etc., to increase crop yield, contribute to environmental contamination. These methods eventually disrupted the nutritional balance of the soil and reduced its fertility. The use of local organic or natural resources that are based on plant and animal life as well as ecologically friendly practises in organic farming can assist solve problems that are currently present (Suresh Kumar & Jammu, 2020) [26]. According to the Pacific Institute, agriculture uses over 70% of the freshwater available. Water managers are under a great deal of stress about the production of fibre and more food goods for the growing population as a result of the reduction in pollution and water waste brought on by climate change to determine and evaluate methods for improving water management, guaranteeing a robust agricultural system and global food security. The food print: Agriculture that is beneficial to the environment, animals, and people is referred to as sustainable agriculture. This method acknowledges that in order to continue to supply for future generations, the earth must be in excellent health. This kind of farming is based on an ecosystem-wide strategy rather than being purely product-focused (Food Print, 2022) [10]. Vedantu, to ensure environmental sustainability, one of the effective and promising agricultural approaches is organic farming, as it enhances soil health, offers yield stability without raising any environmental issues, as well as produces wholesome organic food without the use of synthetic fertilisers. Sustainable development is defined as economic growth that doesn't deplete natural resources (Vedantu, 2021) [27]. It is obvious that, in general, organic agriculture and sustainable development are strongly associated since organic farming aids in the restoration of the ecological balance (Vedantu, 2021) [27]. Organic farming can be financially successful, and people choose organic food since it is both healthful and morally right. Organic agricultural techniques have various environmental advantages in addition to financial and ethical advantages (Jennifer, 2019) [14].

Literature Review

Any modifications to farming methods represent a serious danger to the industry, the economy, and food security. Organic farming opened the door for creating sustainable agriculture and defending people's health in order to meet the needs. Everyone's quality of life will improve as a result, enabling the nation to realise the goal of welfare in a liberal, diverse economy like India (Asokan & Murugan, 2018) [4]. Found that organic farming can provide high-quality food without having a negative impact on the environment or the health of the soil. A sustainable crop or product must be found that can meet the expectations of the global organic market. It will give the country plenty of work opportunities and promote wealth and peace. In order to strengthen their sector, positive governmental efforts are therefore urgently needed. The dream of sustainable development will become a reality thanks to such policies, which create a strong foundation (Basil & Raghavendra, 2018) [1]. According to Olivia, Abigail, *et al*., organic farms were more lucrative and had comparable expenses to conventional farms despite having lower yields and greater output variability. Despite the comparatively high profits of organic farming systems, finding ways to increase the stability of ecosystem service provisioning that improves and supports consistently high yields (Olivia, Abigail, *et.al*., 2019) [20] is a crucial challenge for organic farming and other forms of ecologically intensive agricultural systems. Organic can match conventional yields and performs better in bad weather than conventional. Increased food production on a global scale

can be achieved by small farmers that use organic farming practises. The ecosystem is aggressively protected from pollution and harmful waste by organic methods alone. Anything less won't do for a bright future (Rodale Institute, 2019) [22]. Three issues were addressed by Karolina & Malgorzata, the relationship between food security, agricultural potential, and agricultural performance; the spatial diversity of agriculture-related causes of undernourishment; and the identification and improved understanding of the most successful interventions to address the hunger problem under the particular circumstances of a country (Karolina & Malgorzata, 2020) [15]. According to Suresh Kumar & Jammu, the development of sustainable agriculture depends on a variety of environmentally friendly building materials. Since organic farming places a greater emphasis on environmental health and aids in minimising soil, water, and air pollution, it promotes sustainable development. It serves as a natural instrument for sustainable development and environmental preservation as a result (Suresh Kumar & Jammu, 2020) [26]. Organic farming has proven its capacity to produce biodiversity at all scales in addition to commodities. It provides a significant first step toward addressing many of the risks that conventional agriculture poses to biodiversity. Simply said, organic agriculture should be viewed as the best place to start for developing extra conservation demands, if any. Widespread expansion would be a financially advantageous policy choice for biodiversity (Singh, 2021) [24]. Diverse yield development is practised in India, and it is evident that modern farming calls for the replacement of more sensible methods. Practical horticulture is centred on the appropriate nutrient balance and the natural soil processes. This environmentally friendly agricultural enterprise benefits ranchers more and creates jobs for people. The future degree is available for practical training and will benefit people more (Gowri, 2021) [11].

Objective

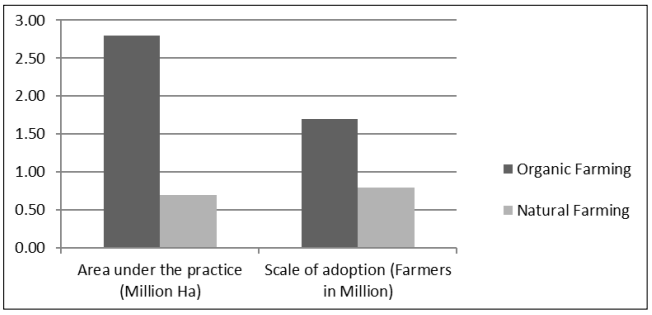
This essay dispels some of the specific ideas promoted by various authors and articles about organic farming for sustainable development, including ideas about the proportion of organic farming practised globally compared to conventional farming, the role of organic farming in sustainable agriculture, and claims about whether organic farming actually aids in achieving sustainability.

Sustainable Agriculture

Sustainability includes environmental advantages for our future generations, who might miss out on its intrinsic advantages. However, in this case, the burden is not just on us to prevent it for them, but also for the near future, which might leave us with little choice but to mitigate. In a recent research, the World Economic Forum stated that agriculture posed a serious threat to the forests on Earth, further accelerating global warming. Agriculture in particular needs to shift if we're to cease altering the planet's surface (Alaina, 2021). Before identifying certain sustainable agriculture approaches, it is crucial to understand what "sustainable agriculture" is. Sustainable agriculture is a fluid term with many variations in its application. With the occurrence of more catastrophic climate events, new concepts for sustainable agriculture, such as crop resilience, are sprouting from the ground. The most frequently used phrase is "organic farming," which is followed by "sustainable agriculture", "agroecology", "natural farming", and finally "regenerative agriculture" (Niti, 2021) [18]. Maintaining agriculture has the ability to improve natural resource management, increase climate resilience in farming, diversify farmers' sources of food and income, and rehabilitate ecosystems. It also provides a critical substitute for farming that depends heavily on inputs. Due to the fact that it uses less water, it is also suited for dry areas of the nation (CEEW, 2021) [2]. The Food Print Additionally, using "external input" like synthetic fertiliser and pesticides is not a component of sustainable agriculture. Farmers can lessen their reliance on off-farm purchases thanks to this. By composting crop waste and using animal dung as fertiliser on fields, this strategy uses its own "outputs." It is a "closed-loop cycle" that increases biodiversity, soil health, and a clean water supply rather than diminishing them. If done correctly, it can even trap carbon in such healthy soils, slowing climate change (Food Print, 2022) [10].

Organic Agriculture

In August 2019, there were 27.7 lakh hectares of organic farming, up from 23.02 lakh hectares, a 20 percent increase. Madhya Pradesh leads the list of states with 7.55 lakh hectares under organic farming. According to Goa Agriculture Minister Vijai Sardesai (Ezhilvani & Jayakumar, 2020), "To promote organic farming Goa has set up 500 clusters with the purpose to build a "brand Goa" in organic agriculture". Despite government support policies, just 2% of the 140 million ha of net seeded land in our country is being used for organic agriculture (Niti, *et.al*, 2021) [18]. Production of foods that are organically grown is still modest. The PGS brings together a group of farmers who are peers, and it is inexpensive. It is becoming more well-known, according to Rita Teotia, head of the Food Safety and Standards Authority of India (FSSAI), who was speaking on the sidelines of a meeting of the FAO and WHO's Coordinating Committee for Asia (CCASIA) in Panaji on Monday; The Indian Express (Ezhilvani & Jayakumar, 2020) [9].



Graph 1: Area under Practice and Scale of Adoption

There is no information on uncertified organic farmers in India, but there are about 2 million certified organic farmers there. Biodynamic farming is a type of organic farming that is said to cover 100,000 acres. Nearly 1 million people have adopted natural farming practices in the past two to three years, mainly in Andhra Pradesh, Karnataka, Maharashtra and Himachal Pradesh (Niti, *et.al*., 2021) [18].

Organic Agriculture for Sustainability

The sustainability of the environment, economic profitability, and social and economic equity are integrated into the sustainable agricultural idea. The idea of

sustainability is based on the idea that we must satisfy our wants while not jeopardising the ability of future generations to satisfy their own needs. Organic farming is one of the most fundamental methods for sustainability. It enhances and maintains the natural landscape and agro-ecosystem, prevents pollution and overuse of natural resources, minimises the use of non-renewable energy sources, takes advantage of the synergies already present in a natural ecosystem, uses organic manures, or stimulates activity to achieve maximum economic returns while maintaining a safe, secure, and healthy environment (Suryatapa, *et.al*., 2020) [26]. Biomass burning pollution from agriculture has a significant influence in climate change and air pollution, but the advantages of organic farming are crucial for the improvement of biodiversity since organic farming and nature conservation support soil biodiversity (Singh, 2021) [24]. In the labor-intensive country, organic farming aids in the creation of more rural employment, which aids in the decrease of economic input. Producing organic food that is totally biodegradable can advance the cause of ecological and social responsibility through harm-free channels for production, processing, and distribution. When all of these factors are considered, adopting organic farming provides a balanced and improved living environment in addition to high-quality goods (Muthuraman, *et al*., 2020) [17].

Barriers of Sustainable Agriculture Adoption

It takes time and effort to carry out the extensive procedures and practises necessary for a farm to be designated as a natural farm. However, some organic farmers may still use pesticides and fungicides that are permitted for use in organic farming. Because they are sprayed in greater quantities than would naturally occur over a relatively small area, these substances may nevertheless be harmful to our health and ecosystems, even though they are derived from natural sources and hence carry a "natural" designation rather than a synthetic one. Farmers must use natural pesticides more frequently than synthetic pesticides since they are frequently less effective. This means that some compounds may have higher concentrations in the environment than are safe. It is impossible for an organic farm or farming enterprise to outperform a conventional one in terms of output. According to a 2008 survey and analysis by the UN Environmental Program, organic farming practises only yielded modest yields when compared to conventional agricultural methods, especially in disadvantaged countries. The production and soil quality of an industrial farm have been steadily deteriorating in recent years, despite the fact that this claim is debatable. Food that is organic costs more than regular shopping products. This is only one of many reasons why organic farming is underutilised and that not nearly enough people are taking use of its advantages. Since organic farming produces less from a given amount of land than conventional farming does, organic produce is more expensive. Additionally, the production cost is high because it takes a lot of work and time. The marketing and distribution of organic products has many holes. New sustainable methods must be put in place in order to fulfil the demands of the expanding population.

Suggestions for Adoption of Sustainable Agriculture

For instance, organic farming has the capacity to preserve biodiversity, original soil nutrient quality, and soil health over the long term. It also prevents over-exploitation of renewable energy sources. It will direct us toward sustainable lifestyles and agricultural practises for coming generations. Organic farming can help replenish depleted soils and guarantee the long-term viability of agricultural production. Therefore, it deserves appreciation. Currently, just 1% of organic veggies are exported, but given the growing market demand and consumer willingness to pay higher costs, this number could increase. To replace the previous natural farming system, which includes pest grabbing strategies, plant security methods, and so forth, agricultural experiment researchers must create a new ordered vision of natural farming. Our environment gains from it, and its long-term viability is safeguarded. Differential Demand and Supply Contrary to non-perishable cereals, fruits and vegetables cannot be grown anywhere and transported anywhere. It should be made nearby, and the region where the demand is coming from should have willing firms, aggregators, and farmers. However, a large portion of the demand originates from urban areas that lack farmland for the cultivation of organic fruits and vegetables. Dedicated supply channels and intelligent mobility are two remedies for this imbalance.

Conclusion

Important steps, such as stopping the net loss of habitat, altering land use, and switching to sustainable agriculture, are urgently needed to protect and sustainably use biodiversity. Since organic farming has the potential to manage an agro-based eco-system, it will likely be a good option for reviving our ecosystem. In addition to ensuring the sustainability of agriculture, organic farming also protects consumer health, which is important in a pandemic situation like this one caused by Covid-19. Food production ought to increase steadily in agriculture-based nations like India, which can be accomplished with the aid of organic farming. Without a question, organic farming is the ideal solution for producing safe food and keeping a sustainable environment. A better lifestyle can also be obtained by engaging in well-organized organic farming, which can be done globally.

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