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## A REVIEW STUDY ON ORGANIC FARMING IN INDIA

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### ABSTRACT

*Agronomically based pest treatments and biological fertilizers generated mostly from animal and plant wastes, as well as nitrogen-fixing cover crops, are used in organic farming. Despite increasing chemical inputs, crop yields are decreasing in today's agricultural environment. Chemical farming's vicious cycle is now being revealed in the form of growing crop unsustainability, increased input requirements, poor soil quality, and recurring pest and disease infestation. Furthermore, under the guise of climate change, yield interference has become fairly predictable in the face of unpredictably changing climatic circumstances in relation to an increase in biotic potential. Excess/indiscriminate use of pesticides and fertilizers has resulted in the introduction of hazardous chemicals into the food chain, the extinction of natural enemies, and the degradation of the environment. As individuals become more aware of their own diet and that of their relatives and family members, there is a growing emphasis on health advantages. As a result, organic farming produced goods have a degree. People used to spend money on high-quality local veggies, heartbeats, and organic goods in the past. This resulted in a longer life span and a more stable way of living. This article gives an outline of organic farming's advantages and disadvantages, as well as the current situation in India.*

**KEYWORDS:** Biomass, Biodiversity, Climate Change, Organic Farming, Soil Health.

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### 1. INTRODUCTION

Agricultural development strategy in poor nations should concentrate on improving the productivity of the area under cultivation at reduced prices, with better product efficiency and little or no harm to people or the environment. Organic farming methods have gotten a lot of attention in the past decade since they're thought to be able to solve some of the issues that are plaguing the agriculture industry. Organic farming has the potential to offer advantages in terms of environmental preservation, nonrenewable resource conservation, and food quality improvement. Organic farming is a social need, not just from the standpoint of consumers, but also from the standpoint of farmers. Organic farming may become a cure for transforming rural agriculture into a well-sustainable agriculture, as it may provide a foundation for sustainable agriculture, repay conversion costs, and preserve soil sustainability[1]–[4].

Food quality and safety are two critical issues that have attracted widespread attention. Growing environmental knowledge, as well as a number of food dangers (such as dioxins, bovine spongiform encephalopathy, and bacterial contamination), have eroded public confidence in food quality in recent decades. Intensive conventional farming has the potential to contaminate the food supply. As a result, people are looking for safer and healthier foods that are produced in more environmentally friendly and genuine ways by local systems. These needs are thought to be met by organically produced food and food products[5]–[7].

Despite the fact that the organic movement began over a decade ago, it has unable to acquire traction owing to a number of uncertainties. Organic farming is often thought of as the elimination of synthetic inputs in favor of organic alternatives, such as the use of organic manures and natural plant protection techniques rather than synthetic fertilizers and pesticides.

However, this is not the case. Organic farming, on the other hand, is a far broader notion than just not using chemicals. In its true meaning, it refers to a holistic strategy to improving both the health of underlying soil and plant production, as well as the surrounding ecosystem, which is a pre-requisite criteria for sustainable agriculture. "Organic agriculture is a production system that maintains the health of soils, ecosystems, and people," according to IFOAM. Rather of using harmful inputs, it depends on natural processes, biodiversity, and cycles that are tailored to local circumstances. Organic farming's main goal is to create a self-sustaining agricultural system in harmony with nature that produces environmentally and economically sustainable clean food while also enriching the surrounding biodiversity and its many components[8]–[10].

According to the World of Organic Agriculture 2018 study, India has 30% of the world's total organic producers but just 2.59 percent (1.5 million hectares) of the overall organic cultivated area of 57.8 million hectares. Because the bulk of the agricultural population is resource poor, buying fertilizers and chemicals in sufficient amounts is out of reach, organic farming is encouraged. Furthermore, organic farming is advantageous for small and dispersed agricultural landowners.

#### *1.1.Organic Farming Capable of Feeding the World:*

Given the decrease of agricultural yield and rising production costs, the significance of organic agriculture in food security is a contentious issue. Organic farming is the greatest method to produce environmentally and economically sustainable crop production, according to theory, and many scientific studies back this up with promising outcomes when compared to conventional farming. However, a technical breakthrough that can demonstrate large-scale, economically viable organic production without wasting time is still a long way off.

#### *1.2.Organic food is free of pesticide residues:*

Pesticides and other pollutants are found in organic food products at either zero or extremely low levels (below detectable limits) according to studies performed by different certifying organizations. Drift from conventional farms is the primary source of residue detected in organic products. According to a USDA study, residues were found in approximately 21% of organic samples. Organic food items, on the other hand, are unquestionably safer in terms of hazardous residue, but there have been a few instances of malpractice and violation that need to be investigated.

#### *1.3.Organic Food More Nutrient-Dense:*

There is a dispute among scientists about the nutritional content of organic food vs conventionally produced food. Organic food had greater nutrients in 43% of instances, equal nutrients in 45% of cases, and fewer nutrients in 11% of cases when compared to conventionally produced foods. In India, organically produced tea and potato had greater polyphenol and vitamin C content than conventionally grown tea and potato. Although there may be some disagreement, trends show that they are better than traditional goods.

#### *1.4.Organic Agriculture:*

Lord Northbound invented the phrase "organic farming" in 1940. The origins of the organic movement may be traced all the way back to the early 1800s. Justus Von Liebig established a mineral plant nutrition hypothesis in 1840. Liebig thought that some mineral salts might directly replace manure (Figure 1).



**Figure1: The Above Figure Shows the Various stage of the Organic Farming.**

#### *1.5.India's Organic Agriculture:*

The need to enhance agricultural output and stabilize it in a sustainable and practicable way has arisen as a result of an ever-increasing population against an ever-decreasing quantity of life resources such as food and water. The advantages of Dr. MS Swaminathan's "Green Revolution" have now hit a plateau, necessitating the development of other methods due to decreasing returns. Furthermore, the overuse of fertilizers and artificial growth regulators has resulted in a problem known as "pollution." For survival, a natural balance between life and property is required. Given the reality that fossil fuels are rapidly depleting and are non-renewable, organic, environmentally friendly farming and agribusiness has become more important.

India produced 2.75 million MT of certified organic goods in 2019-20, which covers a wide range of food items like as oil seeds, sugar cane, cereals and millets, cotton, pulses, aromatic and medicinal plants, tea, coffee, fruits, spices, dry fruits, vegetables, processed meals, and so on. Organic cotton fiber, functional food items, and other goods are produced in addition to edibles. Madhya Pradesh is the biggest producer among the states, followed by Maharashtra, Karnataka, Uttar Pradesh, and Rajasthan. Oil seeds are the most common commodity, followed by sugar crops, cereals and millets, tea and coffee, fiber crops, fodder, pulses, medicinal/herbal and aromatic plants, and spices and condiments. In the fiscal year 2019-20, exports totaled 6.389 lakh MT.

Organic goods are shipped to the United States, the European Union, Canada, Switzerland, Australia, Japan, Israel, the United Arab Emirates, New Zealand, and Vietnam, among others. Processed foods, including soya meal, rank first in terms of export value realization, followed by Oilseeds (13.25 percent), Plantation crop products such as Tea and Coffee (9.61 percent), Cereals and millets (8.19 percent), Spices and condiments (5.20 percent), Dry fruits (4.98 percent), Sugar (3.91), Medicinal plants (3.84%), and others.

#### *1.6.Organic Farming Types:*

Agriculture that is 100% organicIt entails the use of organic manures and biopesticides, with no inorganic chemicals or pesticides used at all.

##### *1.6.1. Integrated Organic Farming Systems (IOFS):*

Organic farmers prefer not to employ much, if any, technology in their operations. This is in contrast to integrated organic farming methods, which use all available technology to make life simpler and produce more food. However, they still do not contain large quantities of chemicals, insecticides, or other such substances. Still adhering to organic principles.

*1.6.2. Organic farming that is integrated:*

Integrated organic farming entails combining methods such as integrated pest control and nutrient management to meet both ecological and economic goals.

*1.7. KrishiVikasYojana (paramparagatKrishiVikasYojana)*

With PGS (Participatory Guarantee System) accreditation, ParamparagatKrishiVikasYojana encourages cluster-based organic farming. The program funds cluster development, training, certification, and marketing. A farmer receives Rs. 50,000 per hectare over three years, of which 62 percent (Rs. 31,000) is given as an incentive to use organic inputs.

*1.8. RashtriyaKrishiVikasYojna (RashtriyaKrishiVikasYojna):*

With the permission of State Level Sanctioning, assistance for the development of organic farming on several components is also accessible under the RashtriyaKrishiVikasYojana (RKVY).

*1.9. One Product - One District (ODOP):*

The initiative seeks to increase the exposure and sale of Uttar Pradesh's indigenous and specialized products/crafts, thus creating jobs at the district level. Aggregators must be present in order for small and marginal farmers to benefit from economies of scale.

*1.10. Organic Farming's Obstacles:*

*1.10.1. Biomass is in short supply:*

Many specialists and knowledgeable farmers are unsure if organic materials can provide all of the nutrients in the necessary amounts. Even if this issue is solved, they believe that the existing organic matter will not be enough to fulfill the needs.

*1.10.2. Supply and Demand Disparity:*

Fruits and vegetables, unlike non-perishable cereals, cannot be produced everywhere and delivered to any place. It should be produced locally, and there should be willing businesses, aggregators, and farmers in the region where the demand is coming from. However, much of the demand comes from cities with no countryside where organic fruits and vegetables may be grown. The answers to this gap include smart transportation and specialized supply routes.

*1.10.3. Time*

Indeed, organic farming necessitates more contact between a farmer and his crop for purposes such as crop monitoring, timely intervention, and weed control. Because it requires more work than chemical/mechanical agriculture, a single farmer may produce more crops using industrial techniques than he or she could using just organic ones.

*1.10.4. MRP is high:*

It is virtually self-evident that the products of organic farming would be maintained at a premium price owing to the great care required to go along with it. The majority of the space is dedicated to the selling of these organic fruits and vegetables after they have been sold to the market. Because of this, the majority of consumers approve of organic goods. The goods on the market are half the cost of non-organic ones. As a result, we may conclude that organic products are costly, and not every customer is prepared to pay the price.

*1.10.5. The absence of specialized infrastructure:*

Most big organic farms nevertheless follow an industrialized agricultural model, which includes industrialized food delivery from field to plate. Unfortunately, this entails the adoption of the same ecologically damaging methods used by industrial farms, but disguised under the guise of organic farming.

*1.10.6. Organic farming has a better taste and provides more nutrition:*

Organically grown fruits and vegetables have a lot superior flavor than those grown mechanically. This is because they are allowed a considerably longer period of time to grow and are not pumped with artificial substances. These crops' sugar structures have more time to grow and evolve into a delicious and healthy product.

*1.10.7. Pesticide and chemical residues are reduced in the soil:*

Pesticides and chemicals are used less often in organic farming, resulting in fewer significant environmental problems. It protects the environment's soil, water, air, and flora and wildlife. Reduces significant environmental problems such as soil erosion, air pollution, and water pollution, among others.

*1.10.8. Less Energy Consumption:*

Organic farming does not depend on synthetic fertilizers, as contrast to traditional agricultural methods that rely heavily on toxic chemicals. Fertilizer avoidance helps to a larger cause of energy saving. This is due to the fact that synthesized fertilizers need a considerable amount of energy to produce. Organic agricultural methods, on average, use 30-50 percent less energy than conventional farming systems. Organic crops and organic dairying require 35 percent and 74 percent less energy than conventionally produced equivalents, according to a study by the British Department for Environment, Food and Rural Affairs.

*1.11. Erosion reduction and improved water management:*

Soil erosion is reduced through both soil improvement and the idea of keeping the land "covered" as much as possible, whether with mulches or cover crops. Water consumption in agriculture is also reduced by better soil structure and greater organic matter content, as well as the more compact development of an organic crop. Organic farming is akin to going back to the beginnings of agriculture before automation. As a result, farmers may quickly grasp and adapt to organic farming methods based on traditional knowledge. The agricultural methods are based on a farmer's ability to maximize the use of his immediate natural resources.

## **2. DISCUSSION**

With a booming domestic market, India is set for further development. The development of India's domestic markets is critical to the organic movement's success. India has great potential to produce crops organically and emerge as a key provider of organic goods in the global organic market, thanks to the large area under naturally organic/default organic agriculture. With this increasing demand, further technical innovation, such as IRF Technology, and their acceptance by farmers would assure economically feasible organic agriculture and aid in its adoption by ordinary farmers, even without any subsidy plan or guaranteed premium price. Organic farming has emerged as an alternative system of farming that can not only address quality and sustainability concerns, but also ensure a debt-free, portable livelihood option, in light of growing awareness about the safety and quality of foods, long-term sustainability of the system, and accumulating evidence of being equally productive.

## **3. CONCLUSION**

Organic agriculture is the only way to nourish the land and regenerate the soil by returning to our ancient agricultural methods, which are free of chemicals, pesticides, and fertilizers. Choosing not to utilize chemicals, synthetic materials, pesticides, or growth hormones to produce high nutritional quality food in sufficient numbers is a potential step toward sustainable development. Organic farming is a kind of agricultural system that allows for rapid modifications in farming practices. It is much more reliant on composts of natural beginning points, such as fertilizer feces, green excrement, and bone feast, and so on, than on choosing not to use pesticides or fertilizers. Organic farming produces food that is more healthy and safe. Organic food is becoming more popular as consumers seek for meals that are considered to be healthier and safer. As a result, organic food may help to guarantee food safety from farm to fork.

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