



## Importance of Organic Agriculture in the balanced development of human health and ecosystem.

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**Abstract:** Agriculture and farming have a long history. Agriculture is the main economic structure for many developed and developing countries. The modern agricultural practices affect the environment namely nutrient cycle, soil erosion, carbon sequestration, and many other ecological patterns. Organic farming is influential practice to minimize the environmental and ecological impact of sustainable development. Usage of more organic matters in agricultural practices can reduce the adverse effects on the environment by keep saving its natural cycles on recovery process and organic farming may enhance the food quality too. The objective of organic farming is to protect and enrich the ecosystem. Moreover, organic farming is also the answer to the search for sustainable development in the Indian agricultural sector without destroying the natural resources, which will definitely help us in restoring the ecological balance of the country.

**Key Words:** Sustainability and enhances the agricultural productivity, and quality of life.

### 1. INTRODUCTION:

Agriculture is not just the production of food grains from land, it is the basis of complete livelihood and the truth of life force. On which the main needs of human beings depend – food, clothing and shelter. As a result of which human life remains healthy and prosperous, but at present the agricultural sector is becoming extremely polluted. Indiscriminate use of chemical fertilizers and chemical pesticides is continuously causing harm to the agricultural sector, as a result of which all our food grains are getting polluted. Agriculture in India is facing many environmental issues like climate change, Due to global warming, conservation of soil, water and air factors etc. are being affected. These factors force the agricultural sectors of our country to find new ways of production that are more respectful of nature. The discovery of such new technologies and methods gave rise to the idea of organic farming as an alternative to existing agricultural practices. The labour-intensive characteristics of organic farming techniques have the potential to revive the economic condition of rural areas of the country. Therefore, the benefits of organic farming can help redistribute agricultural resources to rural areas and promote financial stability through a variety of employment opportunities. With climate change, diet-related diseases, and widespread decline in wildlife, our The need to transform food systems has never been greater. A shift towards agro-ecological farming systems such as organic can make a huge difference. The environment is being negatively impacted and human health is also being adversely affected and human life and our environment are becoming endangered. Whereas the Indian economy is mainly an agriculture based economy. Many industries in India depend on agriculture for raw materials, agriculture is the largest unorganized business in the private sector. Since the Indian economy is rural-oriented, agriculture is the main means of livelihood for the people here. About 65 percent of the population here depends on agriculture. Thus agriculture is the lifeline, or backbone, of the Indian economy.

Before independence, the condition of Indian agriculture was very bad and the condition of farmers was very pathetic because due to the colonial policy of the British government, all the sectors of Indian economy like agriculture, industry, resources, etc. were misused. The effect of which was seen after independence. Before independence, agriculture in India was mostly based on traditional methods. In which, with the help of plough and bullocks and cow dung manure (organic manure) made a special contribution. Means of modern technology were used minimally. As a result of which agriculture and agriculture related sectors remained healthy and there was no negative impact on any sector.

Condition of agriculture after independence After India became independent in 1947, many problems related to agriculture sector like land reform, finance related, production related, fertilizer-seed related and lack of technical resources were challenging the country. Apart from these, the economic and physical condition of the farmers had



deteriorated very badly. Accepting all these challenges, the newly formed Indian government formed the Planning Commission in 1950 and started development work through five-year plans keeping in mind the solution of all these problems and overall development. The first five-year plan for 1951 to 1956 was sent by the then Prime Minister Jawaharlal Nehru on 08 December 1951 through the Planning Commission, whose main goal was agricultural development and self-sufficiency. The first five-year plan was a successful plan in terms of agricultural development.

## **2. Green Revolution in India:**

In times of famine, the Green Revolution helped a lot in increasing the food grain reserves in India. Our country not only remained self-sufficient, but also became one of the top producers of food grains across the continent and beyond. Our country introduced hybrid seeds, pesticides and fertilizers created with the help of efficient scientific research in an attempt to significantly increase productivity. This was one of the driving factors of the Green Revolution, which later helped India become one of the leading producers of rice and wheat worldwide. Green revolution gave us sufficient production but now we are witnessing the ill-effects of green revolution. So now we have started feeling the need for change in agricultural system to secure life. So through this research paper, the need of organic revolution along with green revolution in agriculture is being analyzed.

Green revolution was started in India during 1966-67 under which special emphasis was laid on distribution of high quality seeds, large scale use of fertilizers, expansion of irrigation capacity and soil conservation etc. to increase agricultural inputs. The most important topics in the history of Indian agriculture were between the third five-year plan and the fourth plan. This was the period in which the new agricultural policy came into use. Initially this strategy was used in the districts as a pilot project. It was called the Intensive Agriculture District Program. Generally we associate this agriculture with the seeds of infinite species. In which wheat and paddy seeds of advanced species are the catalysts of green revolution, and chemical fertilizers were like fuel. In which power was provided for the Green Revolution. The credit for the Green Revolution in India goes to Dr. M.S. Swaminathan. Due to the Green Revolution, a new mode came in Indian agriculture, now agriculture is being done with modern methods instead of traditional methods.

**Effects of Green Revolution:** Effects on land: Although many successful efforts were made for land improvement during the Green Revolution, but due to the Green Revolution, many adverse effects are seen in the present context, because due to excessive use of chemicals, the fertility of the land is being lost. The upper layer of the land is becoming more hard. As a result, agricultural income is increasing.

**Effect on environment :** During the Green Revolution, excessive use of chemicals and pesticides has caused many negative effects on soil, water and air. The level of underground water has decreased drastically and pollution has increased.

**Effect on health:** Due to excessive use of chemicals and pesticides, the quality of food grains deteriorated, as a result of which the nutritional value of food grains decreased and many diseases flourished in the environment, that is, human health has started deteriorating more than before. Reduction in natural fertility of the soil, destruction of soil structure, erosion and soil loss of killing of beneficial microbes and insects, groundwater pollution and depletion, atmospheric pollution, soil acidification, chemical burn, and mineral depletion. As a result, the health effects of conventional farming raised day by day. Asthma, birth defects, neurological effects, cancer, Hormone disruption, and Parkinson's disease are the most health effects of conventional farming. The high use of inorganic fertilizers for farming is attributed to high nitrate levels in groundwater. The availability of suitable groundwater is a significant factor in the maintenance of life. Infant methemoglobinemia and various types of human cancer are caused due to nitrate-contaminated drinking water, which is also well-known as a risk factor for cancer.

**Effect on production and income:** At the beginning of the Green Revolution, a positive effect was seen on production, there was a greater increase in production. But at present, an increase in the cost of production is seen, that is, the cost of agriculture is increasing more than the production. Due to the use of pesticides and chemical fertilizers, production has now started depending on the amount of fertilizers. The amount of fertilizer used by the farmer is proportional to the amount of fertilizers. The amount of fertilizer used by the farmer is proportional to the amount of produce. Since the prices of chemical fertilizers and pesticides are high, the cost of agriculture is increasing in comparison to production and the income of agriculture is decreasing.

After independence, on one hand, green revolution is of great importance for agricultural reforms, on the other hand, the ill-effects of green revolution are also increasing. Therefore, to control these ill-effects, the government is promoting organic farming. Therefore, the government is again making farmers aware to adopt natural farming system. Since we have already talked about the negative effects of the use of chemicals and pesticides. To control all those effects, change in agricultural system is necessary. By gradually reducing the use of chemicals and pesticides in agriculture and increasing the use of organic fertilizers, many major problems can be prevented. For example, the condition of soil, water, air, production, agriculture etc. can be improved with the help of organic farming. Therefore,

we can say that organic farming is very much needed to control the increasing disease of the land due to the use of chemical fertilizers and pesticides. So that the environment can be healthy.

### **3. Organic Farming:**

It is an agricultural technique that maintains, improves and maintains the quality standard of our ecosystem. Organic farming is a method of agriculture in which crops are produced without using any artificial chemicals, recycled inorganic fertilizers, other harmful substances such as pesticides, insect repellents, etc. It is an agricultural process in which fertilizers and pest control means are used or obtained from organic substances. Such a process does not have a harmful and destructive effect on our environment. The new name of traditional agriculture is organic farming, under which agriculture is to be done with the help of natural resources by freeing it from chemicals, in which cow dung manure, earthworm manure, vermicompost, and organic pesticides are used. "Organic farming is that evergreen agricultural method which actually keeps the purity of the environment as it is. There is absolutely no use of chemicals in this and quality production is done at low cost. In this method, instead of chemical fertilizers, chemical pesticides and weedicides, cow dung manure, compost, green manure, bacteria culture, organic manure, organic pesticides etc. are used. Organic farming is the biggest need of the hour. In countries like Europe, Japan, America, due to more cases of cancer in children, organic food has now been made compulsory for children up to five years of age. "Organic farming is a production system that maintains the health of soil, ecosystem and people. It relies on ecological process, biodiversity and cycles suitable to local conditions instead of using inputs with adverse effects. Organic farming combines tradition, innovation and science to benefit the shared environment and promote fair relations and good quality of life for all".

**Importance of organic farming:** Organic farming method is more important from economic and natural point of view. From an economic perspective, agricultural costs are reduced and production increases, and food grains are more nutritious and have a higher mineral content, resulting in a reduction in diseases. It has a good effect on human health. Pollution in the environment is reduced and human husbandry and agriculture-human harmony increases. "Organic agriculture is a holistic production management system that promotes and enhances the health of the agro-ecosystem, including biodiversity, biological cycles and biological activity of the soil. It emphasizes the use of management practices rather than the use of non-agricultural inputs, keeping in mind that regional conditions require locally adapted systems. This is accomplished by using agronomic, biological and mechanical methods, rather than using synthetic materials to accomplish any specific function within the system, when possible".

**Sustainable development and organic farming :** Agriculture is widely recognized as a critical component of long-term notified sustainable development. Small-scale farmers in poor countries must be included in the transformation of agrifood systems to meet the Sustainable Development Goals by 2030, as a direct hit . Agriculture is at the heart of Goal 2 in the 2030 sustainability agenda, which strives to eliminate hunger. But to varying degrees, the agricultural sector is also involved in all other Sustainable Development goals. The first Green Revolution arose in reaction to rising numbers of undernourished and malnourished people, allowing agricultural technologies like pesticides and fertilizers to spread to emerging countries. The early sustainable farming methods were implemented during this time, even though they were seemingly not applied . Even though chemical inputs helped boost yields around the world, modern organic farming rose in reaction to worries about the impact of chemically intensive farming on the environment and human health. Organic agriculture gained traction in the 1970s as a result of growing knowledge of the detrimental environmental consequences of some industrial pesticides and fertilizers. According to United Nations Sustainable Development policies, numerous member states and other organizations have backed the Zero Hunger Challenge, which has been documented as it calls for (Food et al., 2012). Zero stunted children under the age of two, 100% access to adequate food all year round, All food systems are sustainable, 100% increase in smallholder productivity and income, and Zero loss or waste of food. It is a fact that enhancing sustainable development through agriculture has been a trend and is reflected only through "organic" agriculture. Yet sustainable organic agriculture endures challenges and limitations as much as it has become a worldwide trend.

**Status of organic farming in India:** In many states of India, the farming system is changing. Farmers are expressing their desire to do organic farming. Governments are also making meaningful efforts to adopt organic farming through schemes. In 2003-04, India showed seriousness towards organic farming and organic farming was done on 42000 hectares of area. By March 2010, it has increased to 10 lakh 80 thousand hectares of land. According to the data of the year 2015-16, the products grown on 57.1 lakh hectares of land in India have been certified as organic, out of which 42.2 lakh hectares is forest land. The certified land as organic farming area is 14.9 lakh hectares. In India, the state of Sikkim has become a state with 100% organic farming. There, agriculture is being done through organic farming method on 75 thousand hectares of land. 12 years ago, it was decided to make Sikkim the first organic farming state of India. After this, the use of chemical fertilizers on cultivable land and sale of pesticides was banned. Today, many states of India are doing organic farming. However, Madhya Pradesh has the highest certified organic farming. In terms of area, Himachal and Rajasthan are second and third. States like Orissa, Andhra Pradesh, Uttar Pradesh etc. have also taken



steps forward very rapidly. Inspired by Sikkim, Kerala, Mizoram and Arunachal Pradesh are also seen ahead in the race to become fully organic farming states.

**Organic farming Satatus**

Total area covered under organic farming (2020)	2.3 million hectares
Organic share of total agricultural land	1.3 percent
Total number of organic producers (2020)	13,66266
Production of organic scientific science (2019-20)	2.75 crore tonnes
Laboratory income from organic laboratory	4686 crores
Major objectives	United States, European Union, Canada, Georgia, Australia, Japan, Israel, United Arab Emirates, New Zealand and Vietnam
Major states under organic farming	Madhya Pradesh, Rajasthan, Maharashtra, Gujarat, Karnataka, Odisha, Telangana and Uttar Pradesh.
Major products under organic farming.	Oilseeds, food grains, cereals and millets, cotton, pulses, medicinal and pharmaceutical drugs, tea, flowers, fruits, dairy products, whole grains and multicultural foods.

**Comparative productivity of organic farming and chemical farming.**

Crops	Productivity from organic farming	Productivity from chemical farming	Productivity and Percentage of higher productivity of organic farming
Sugarcane in tonnes	942	817	15-26
Rice in quintals	88	78	12-82
Groundnut in quintals	18	14	28-57
Soybean in quintals	74	51	45-09
Wheat in quintals	45	35	28-57
Fruits and vegetables in quintals	15	14	7-14

The comparative productivity of organic farming and chemical farming is shown in the table given below. In this, the productivity of organic farming is higher than chemical farming in the productivity of all crops.

**Important aspects of organic farming:**

- Organic farming started 14 years ago as a small change in a small area and now it has become a good example for the whole country to learn from.
- But the important question is can the whole country go organic?
- India has very fertile and productive agricultural land. More than 60 percent of the land area in India is suitable for agriculture.
- About 58 percent of the total rural population of India is mainly dependent on agriculture for their livelihood.
- With such high efficiency, promotion of healthy and sustainable agricultural practices is expected to change the agricultural profile of the whole country and can also change the health index of the country.
- Globally experts suggest that there is a great possibility of development of organic farming in the agricultural sector in the future. Organic farming is also of great importance for the western world. For India, organic farming is like going back to the past and adopting ancient practices again.
- Sikkim became India's first fully organic state in the year 2016. It has received the status of organic state by adopting organic practices and organic farming methods on its approximately 75,000 hectares of agricultural land. There is no use of chemical pesticides, fertilizers or genetically modified crops in Sikkim. There were many factors present for the start and success of this mission in Sikkim, such as obtaining basic requirements for it. The most important task for the start and development of organic agriculture is to train the farmers.
- There is relatively less awareness about organic farming in India, while most countries are adopting organic farming for environmental protection. India is also making efforts in this direction.





- According to the International Federation of Organic Agriculture Movement (IFAMO), India ranks ninth in the list of countries adopting organic farming. □ Most farmers are unaware of the harmful effects of chemical-based farming, while some farmers who understand these harmful effects do not know how much and how to make the necessary changes.
- Widespread use of pesticides, soil erosion and other problems are contributing to climate change. Soil has also become very acidic due to excessive use of chemicals.
- Training farmers to adopt organic farming can be beneficial in many ways. Adopting organic farming methods will reduce the use of pesticides in agriculture, which will also reduce the negative impact on the people working in the fields.
- It is very important to educate farmers in terms of organic farming. Adopting organic methods in agriculture has a positive impact on both the income and profitability of farmers. The productivity of farmers who have adopted it has increased significantly, along with this the fertility and productivity of agricultural land is also increasing.
- Farmers need to be provided with basic education at the technical level for organic farming and be made aware of the latest technological and scientific developments in this field.
- The efficient and effective use of organic tools and techniques by farmers in their daily agricultural operations is a part of their training. Training on organic methods in agricultural operations can empower farmers in many ways. This will help them make good financial decisions and find new options to increase agricultural productivity.
- By adopting the latest tools and techniques, farmers can earn more profit by improving agricultural production and marketing by harmonizing land, water and other ecological factors.
- The success of organic farming in India depends largely on training and certification. Farmers have to adopt their traditional agricultural practices by reducing the use of chemical fertilizers at a rapid pace. Farmers need to be trained on aspects such as building fertile soil, pest management, inter-cropping and manure and compost production. □ It is necessary to regularly advise and discuss with farmers on the importance and benefits of organic farming practices.
- Agronomists should be deployed in the field to monitor the quality of agricultural produce and advise farmers from time to time.
- Certification programmes like the National Centre for Organic Farming (NCFY) and the Partnership Guarantee Scheme (PGGS) of the Government of India need to be made mandatory.
- At present awareness about organic farming is generally limited to the affluent urban Indians. They are clearly aware of the health benefits of organic food and moreover they have the purchasing power to buy it. Organic farming should be promoted by making farmers aware of its benefits and motivating them to take advantage of the future prospects.
- Along with environmental benefits, clean, healthy, non-chemical produce is beneficial for both farmers and consumers. Organic farming is very important for the development of Indian agriculture sector.

**Benefits of organic farming :**

1. Benefits from the farmers' point of view: The fertility of the land increases. The irrigation interval increases. The cost of cultivation decreases due to less dependence on chemical fertilizers. Increase in crop productivity.
2. From the soil point of view: The quality of the land improves with the use of organic fertilizers. The water holding capacity of the land increases. Evaporation of water from the land will decrease.
3. From the environmental point of view: The water level of the land increases. The pollution caused by soil fertilizers and water in the land decreases. The use of waste in making fertilizers reduces diseases. The cost of crop production decreases and the income increases. The quality of organic products meets the competition in the international market.

**Organic farming and the Sustainable Development Goals (SDGs).**

SDGs	Themes	Functions
1	End poverty	Higher incomes from premiums of organic farming products and labor-intensive nature
2	End hunger, achieve food security, improved nutrition, promote sustainable agriculture	More nutritious and safe food, improved productivity and sustainability of productive systems, and helps protect genetic resources
3	Ensure healthy lives and promote well-being for all at all ages	Improved Health and promotes healthy lifestyles



4	Ensure inclusive and equitable quality education for all	Effect of spending more money on children's education
5	Ensure availability and sustainable management of water and sanitation for all	Less fertilizer leaching, which reduces pollution of water bodies by chemical fertilizers and pesticides.
6	Ensure access to affordable, reliable, sustainable, and modern energy for all	Integrated Farms and incorporate organic principles
7	Promotes sustained, inclusive, sustainable economic growth, full and productive employment, and decent work for all	Organic agriculture provides a safer and healthier work environment and sustainable livelihood
8	Reduce inequality within and among countries	Integration of small organic farmers into Global Markets. It will ensure sustainable consumption and production patterns
9 and 10	Make cities and human settlements inclusive, safe, resilient, and sustainable; Ensure sustainable consumption and production patterns	The growth of ethical consumerism has increased the support of consumers for crops produced in environmentally safe and socially responsible production. Community-Supported agriculture reduces waste and promotes recycling
11	Take urgent action to combat climate change and its impacts	Organic farming practices mitigate climate change.

The method of organic farming gives equal or more production as compared to the method of chemical farming, that is, organic farming is completely helpful in increasing the fertility of the soil and the productivity of the farmers. Organic farming is even more beneficial in rainfed areas. By farming through organic method, the cost of production is reduced and along with this, farmers get more income and organic products stand better in the competition of international market. As a result, farmers can get more profit than normal production. In modern times, the path of organic farming is very beneficial for the ever increasing population, environmental pollution, conservation of fertility of land and human health. For the all-round development of human life, it is very important that natural resources are not polluted, there is a clean environment and nutritious food is available, for this we have to adopt the agricultural methods of organic farming which will be able to provide food to the entire public without polluting our natural resources and human environment.

#### 4. Conclusion:

Organic farming means such a system of agriculture in which chemical fertilizers and pesticides are not used but organic fertilizers or natural fertilizers are used instead. This is a traditional method of agriculture, in which along with improving the fertility of the land, environmental pollution is also reduced. At present, due to the use of chemicals and pesticides, agricultural costs are higher than the production. Whereas through organic fertilizers, agricultural costs are favorable to agriculture and there is no negative impact on any sector. Farmers should do as much organic farming as possible so that agricultural costs remain favorable to the income and land, soil, water, air, environment, human health etc. can be made positive in the future context. Training farmers is important to promote organic farming.

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