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Guest Article

# Organic Agriculture: A Step Towards Sustainable Agriculture

Raj Kumar [1], Gaurav Mishra[1], Smriti Varghese [1], Vivek Kumar[2]

[1] *Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.*
[2] *Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut.*

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## Introduction

Post-independence, our country faced the major challenge of food scarcity. Our agriculture sector was unable to meet the food demands of a huge population. To overcome this obstacle, a famous agricultural scientist, M. S. Swaminathan, introduced and promoted the use of high-yielding varieties, the use of chemical fertilisers, and plant protectants, which resulted in a boost in yield and led to the Green Revolution. It also promoted the greater irrigated area under cultivation, intensive cropping, monocropping, etc. All these activities efficiently increased the production, and given below in Table 1 is the data of the increase in the production per decade. We achieved self-sufficiency and higher yield on the cost of soil and environmental health. The inappropriate use of fertilisers and chemicals leads to severe damage to the environment, soil, and water quality. The HYVs and chemicals lead to outbreaks of several insects, pests, and diseases. It depleted the fertility of soil, reducing genetic diversity of plant species, poisoning of food due to toxic pesticide residue, increased agriculture expenses, etc. Organic farming helps in sustainable agriculture and to overcome all the ill effects of modern agriculture. According to the FAO/WHO Codex Alimentarious Commission (1999), "Organic agriculture is a holistic production management system that promotes and enhances agrosystem health, including biodiversity, biological cycles, and soil biological activity". It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. It is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system.

Table1: Production and productivity of food grain in India.

| 'EAR | PRODUCTION (Million Tonnes ) | YIIELD (kg/ha) |
|---|---|---|
| 970-71 | 108.42 | 872 |
| 980-81 | 129.59 | 1023 |
| 990-91 | 176.39 | 1380 |
| 000-01 | 196.81 | 1626 |
| 010-11 | 244.50 | 1930 |
| 018-19 | 284.95 | 2299 |

ource: Directorate of Economics and Statistics, DAC&FW.

## Components of Organic Farming

- **Organic Manure**

It includes organic materials such as farmyard manure, biogas slurry, vermicompost, straw, and other crop residues, and cover crops that can substitute for inorganic fertiliser to maintain the soil and rhizosphere health.

- **Biofertilizer**

Biofertilizers are the living microorganisms that have the ability to provide nutrients to plants for their growth like Rhizobium, Azotobacter, etc., and some microorganisms have also the ability to work as plant protectants, like Trichoderma, etc.

- **Green Manure**

Growing of plants with the aim to improve and incorporate the nutrients in soil comes under green manuring. Commonly used plants for green manuring are sunhemp, dhaincha, etc.

## Principles of Organic Farming

- **Health**

Organic agriculture should maintain and enhance the health of soil, plants, animals, humans, and plantlets as one and invisible.

- **Ecology**

Organic agriculture should be based on living ecological systems and cycles, work in harmony with them, emulate them and help sustain them.

- **Fairness**

Organic agriculture should be built on a relationship that ensures fairness with regard to the common environment and life opportunities.

- **Care**

Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations & ecosystems.

## Objectives of Organic Farming

• To maintain long term fertility of soil.
• To avoid all forms of pollution.
• Good nutritional and quality food production.
• To reduce use of fossil energy.
• Good living conditions for the livestock.
• To provide agricultural producers a way to earn living through their work and natural produce.

## Characteristics of Organic Agriculture

• Relies primarily on local , renewable resources.
• Makes efficient use of solar, natural energy and the production of potential biological systems.
• Maintains the fertility of soil.
• Maximizes recycling of plant nutrients and organic matter.
• Maintenance of diversity in production system.
• Does not use any kind of chemical and fertilizers.

## Advantages of Organic Farming

• Organic farming helps to avoid the environment degradation.
• Reduce the farmer's dependence on external inputs.
• Enable farmers to produce quality products.
• Organically produced products provide better prices to producer due to high demands .
• Reduce the cost of external inputs
• Create more employment as farm labour.

## Organic Farming in India

All organic producers are categorized in three categories:

- Maximum of the farmers comes in the 1st category in which farmers follow traditional methods (it might be due to lack of facilities) and not use any external input like chemicals and fertilizers .

- Those farmers who recently adopted organic agriculture due ill effects of modern agriculture fall under 2nd category.

- The 3rd category comprises of those farmers or groups which adopt organic agriculture as a business for commercial purpose.

TABLE 2. GROWTH OF AREA UNDER ORGANIC MANAGEMENT

| S.No. | Years | Area under organic management in hectare |
|---|---|---|
| 1. | 2003-04 | 42,000 |
| 2. | 2004-05 | 76,000 |
| 3. | 2005-06 | 1,73,000 |
| 4. | 2006-07 | 5,38,000 |
| 5. | 2007-08 | 8,65,000 |
| 6. | 2008-09 | 12,07,000 |
| 7. | 2009-10 | 10,85,648 |
| 8. | 2019-20 | 22,99,222.37 (Cultivated area= Organic + In conversion) |

Source: The World of Organic Agriculture in India.

## Organic Certification

It is a certification process for the producers of organic food and other organic agriculture products.
There are two different types of organic certification methodologies:

- *Third party certification*

Third party relies on external auditors to inspect and assure that the quality of production adheres to the organic certification standards. This certificate is accepted by both locally within country as well as internationally .

- *Participatory guarantee systems(PGS)*

PGS are locally focused quality assurance systems. This certificate is accepted locally and within India. The online PGS web portal has been launched in 2015 for certification is http://pgsindia-ncof.gov.in/. This group certification system is supported by Paramaparagat Krishi Vikas Yojana (PKVY).

## Marketing

Jaivikkheti portal is a unique initiative of Ministry of Agriculture (MoA), Department of Agriculture(DAC) along with MSTC to promote organic farming globally. Jaivikkheti portal is an E-commerce as well as knowledge platform. This online portal http://jaivikheti.in provides services like:

- Platform for buyer and seller with less transaction cost.
- Fair and transparent direct marketing.
- Exclusively for certified organic products.
- Widespread reach of quality organic produce.
- Better realization for farmers produce.

## Barriers in Organic Farming

• Unavailability of organic seed.
• Low production.
• Transformation from modern to organic farming.
• Unavailability of surplus organic manure and nutrients.
• Lack of resources.
• Disease and pest management.
• Sometimes it may be of low economic feasibility

## Conclusion

Organic agriculture is a holistic approach to overcome the ill effects of the green revolution. Farmers can get more profit through organic produce because demand for organic products in the market is increasing day by day. Organic farming provides quality products that are free from any type of chemical residue and has the ability to keep our environment healthy. It provides positive contributions towards long-term sustainable agriculture.

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