

CLASS-VI

- Lesson 1 Organic Agriculture
- Lesson 2 Navagraha Vana
- Lesson 3 Making Bed for Seedling



1

ORGANIC AGRICULTURE

Biological research into soil and soil organisms has shown the benefits of organic farming. Organic Farming is a farming method which aims at cultivating the land and raising crops in such a way that the soil is kept in good health with the use of organic wastes. Varieties of bacteria and fungi in crop, animal and farm wastes, and aquatic wastes help break down chemicals, plant matter and animal waste into productive soil nutrients. Increased use of manure helps improve the biological activity in the soil. It makes soil more healthier, arable soil system leading to higher yields and produce, crops with a high nutritional value.



OBJECTIVES

After studying this lesson, you will be able to:

- explain the term organic farming;
- differentiate between organic farming and other types of farming ;
- list the advantages and disadvantages of organic farming;



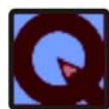
Notes

- explain the scope of organic farming in India;
- avail benefits through the various schemes of the government; and
- describe some simple practices of organic agriculture.

1.1 MEANING OF ORGANIC FARMING

Organic farming system in India is not new and is being followed from ancient time. It is a method of farming system which primarily aims at cultivating the land and raising crops in such a way, so as to keep the soil alive and in good health by the use of organic wastes. This leads to an increased sustainable production in an eco-friendly pollution free environment.

Organic production is not simply the avoidance of conventional chemical inputs, or the replacing of synthetic ones with natural inputs. Organic farmers apply techniques first used thousands of years ago, such as crop rotations and the use of composted animal manures and green manure. These are economically sustainable even today. Organic producers implement a wide range of strategies to develop and maintain biological diversity and replenish soil fertility.



INTEXT QUESTIONS 1.1

Fill in the blanks

1. ----- is a farming method that helps keep the soil in good health



2. Increased use of manure improves ----- activity in the soil
3. Organic production is the ----- of chemical inputs, and use of natural inputs
4. Organic farming helps to keep the soil alive and in good health by use of ----- wastes.
5. Organic farming helps to maintain diversity and replenish soil -----.

1.2 ORGANIC FARMING VERSUS CONVENTIONAL FARMING

The essential difference between organic and conventional farming is that conventional farming relies on chemical intervention to fight pests and diseases and provide plant nutrition. That means the use of synthetic pesticides, herbicides, and fertilizers. Organic farming relies on natural principles. The principal methods of organic farming include:

- crop rotation,
- green manures and compost,
- biological pest control, and
- mechanical cultivation.

Below is a list of some of the key difference between organic and conventional farming.



Notes

Organic Farming	Conventional Farming
Keeps the soil healthy	Deteriorates soil health
Adds more nutrition and flavor to crops	Less nutrition and flavor to crops
Supports pollinators	Harmful to pollinators
Manures are created on-site	Manures are manufactured in industries
Eco Friendly	Not Eco Friendly
Healthy working conditions for farmers	Farmers are exposed to chemicals that cause side-effects
Resistance to pests and diseases is done biologically	Resistance to Pests and Diseases is done by applying pesticides and insecticides
Labor intensive	Less labor required
Fertilizers can be applied by hand	Equipment / Tool required for applying fertilizers
Organic farming requires significant knowledge	Not required
Marketing organic produces is difficult	Marketing is not so difficult
Certification required	Not required

1.3 ADVANTAGES AND DISADVANTAGES OF ORGANIC FARMING



Notes

Advantages of Organic Farming

1. It creates higher natural levels of resistance to pests and disease. Healthy plants, grown in healthy soil, are naturally resistant to disease and pests. These plants have stronger natural defense mechanisms, which thickens the cell walls of the plants being grown.
2. Organic farming allows for specialization opportunities. Through organic farming practices, there are more opportunities to specialize as the farmer produces crops that grow best in the soil composition that is available to them.
3. This farming process supports a healthier soil and supports pollinators.
4. There are no worries about genetically modified foods with organic farms.
5. The working environment for organic farmers is healthier.
6. Organic farmers can often create their own fertilizers at their farming location.
7. It can be implemented in almost any geographic location or growing season.

Disadvantages of Organic Farming

1. It requires more work to produce goods that are ready for sale.



Notes

2. Organic farmers must have specific knowledge about localized growing systems.
3. Unique marketing challenges are faced for selling organic goods.
4. Organic farms and foods must go through a rigorous certification process.
5. It usually costs more, so one needs to be competitive with organic farming.
6. Synthetic chemicals can still be used in organic farming.
7. Organic crops generally spoil faster.

1.4 CERTIFICATION IN INDIA FOR ORGANIC FARMING

Organic farming certification in India is governed by The National Programme for Organic Production (NPOP) under the Ministry of Commerce & Industry. The National Programme for Organic Production (NPOP) provides standards for organic production, systems, criteria and procedure for accreditation of Certification Bodies, the National (India Organic) Logo and the regulations governing its use.

The standards and procedures have been formulated to match with other International Standards regulating import and export of organic products.

Farms that have obtained Organic Farming Certification and adhering to the norms specified by the National Programme or

Organic Production will be allowed to use the following India Organic logo on the produce:



Fig. 1.1 Organic Farming Logo

The organic farming system is a traditional method of farming which focuses on growing crops in a way that soil is alive and the food that we consume is healthy. Organic farming uses organic fertilizers and farming methods that result in the sustainable production of crops without affecting the quality of the production. The concept and demand for organic farm produce is growing rapidly as consumers have started to become more aware and paying attention to the quality of the food they consume. The scope of organic farming in India has been tremendously increasing. This is mainly due to the new researches made in the field of agriculture. This has provided the farmers with new measures for more production.



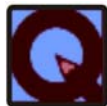
Notes



Notes

The Government of India is promoting organic farming through the following schemes like

1. National Project on Organic Farming (NPOF)
2. National Horticulture Mission (NHM),
3. Horticulture Mission for North East & Himalayan States (HMNEH)
4. National Project on Management of Soil Health and Fertility (NPMSH&F)
5. Rashtriya Krishi Vikas Yojana (RKVY)
6. Network Project on Organic Farming of Indian Council of Agricultural Research (ICAR).



INTEXT QUESTIONS 1.2

State whether true or false

1. Organic farming adds more nutrition and flavor to crops.
2. Organic farming process supports a healthier soil and pollinators.
3. Organic farms and foods must go through a rigorous certification process.
4. The scope of organic farming in India has been tremendously decreasing.
5. Organic crops generally do not spoil easily.

1.5 SCOPE OF ORGANIC FARMING IN INDIA

Organic farmers adopt many technical and biological practices to:

- build soil health,
- manage weeds and pests, and
- increase biodiversity.

Some examples of organic farming practices include crop rotations to suppress disease and support beneficial insect communities.

Vermiculture has become a major component in biological farming, which is found to be effective in enhancing the soil fertility and producing large numbers of horticultural crops in a sustainable manner. Let's know various components of organic farming.

1. CROP ROTATION



Fig. 1.2 Crop rotation



Notes



It is a systematic arrangement for the growing of different crops in a more or less regular sequence on the same land covering a period of two years or more. Crop rotation is very important. So also soil fertility management, weed, insect and disease control.

2. CROP RESIDUE



Fig. 1.3 Crop residue

In India there is a great potential for utilization of crop residues/ straw of some of the major cereals and pulses. About 50% of the crop residues are utilized as animal feed, the rest could be very well utilized for recycling of nutrients.

3. ORGANIC MANURE

The organic manure is derived from biological sources like plant, animal and human wastes. Organic manure contributes in many ways in promoting crop growth and soil productivity.

- a) **Bulky organic manure:** It generally contains fewer amounts of plant nutrients as compared to concentrated organic manure. It includes:



- FYM,
 - Compost and
 - Green manure.
- **FYM:** It refers to the well-decomposed mixture of dung, urine, farm litter and left over or used up materials from roughages or fodder fed to the cattle.
- **Compost:** Large quantities of waste material are available as vegetable refuse, farm litter, such as weeds, stubble, bhusa, sugarcane trash, Sewage sludge and animal waste in houses and in other areas which can be converted into useful compost manure.
- **Green Manuring:** It is a practice of ploughing or turning into the soil under composed green plant tissues for the purpose of improving physical structure as well as fertility of the soil.

b) Concentrated Organic Manure: Concentrated organic manures are those materials that are organic in nature and contain higher percentage of essential plant nutrients such as nitrogen, phosphorous and potash, as compared to bulky organic manures.

4. WASTE

1. Industrial waste: Among the industrial by products, used wash from distilleries and molasses from sugar industry have good manurial value.



2. Municipal and Sewage waste: It also forms an important component of organic waste. Sewage sludge particularly from industrialized cities is contaminated with heavy metals and these pose hazards to plants, animals and human beings. Separation of the toxic waste at the source will minimize the concentration of such elements in the sludge to be used.

5. BIO-FERTILIZERS

It has been observed that there will be a decline in crop yield due to continuous use of inorganic fertilizers. Thus Bio-fertilizer offers an economically attractive and means of reducing external inputs and improving the quality and quantity

6. BIO-PESTICIDE

Bio-pesticides are natural plant products. Their biological activity against insects, fungi and other organisms is well known.

7.VERMICOMPOST



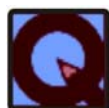
Fig. 1.4 Vermicompost

It is organic manure produced by the activity of earthworms. Application of vermicompost promotes easy availability of essential plant nutrients to crop.

**ACTIVITY 1.1**

Visit a farm and discuss with the farmer on the following topics:

- How soil is formed, time taken for soil formation, different soil structures, properties and organic matter present in soil
- Sources of water and its conservation, need of rain water harvesting, methods of harvesting, link between forest and water conservation, optimal usage of water
- Importance of animals in agriculture, natural animal husbandry practices, diagnose primary diseases of animals, ethno veterinary practices, importance of gomala
- Seed, seed treatment, sowing, sowing time, seed germination, nursery raising. Write a report of the discussions and your visit.

**INTEXT QUESTIONS 1.3**

Match column A with column B

- | A | B |
|------------------|--------------------------------------|
| 1. RKVY | (i) mixture of dung, urine, material |
| 2. Crop rotation | (ii) biological sources |
| 3. FYM | (iii) ploughing or turning of soil |

**Notes**



Notes

4. Green Manuring (iv) systematic arrangement for the growing
5. Organic manure (v) Rashtriya Krishi Vikas Yojana



WHAT HAVE YOU LEARNT

- Meaning of organic farming
- Organic farming versus Conventional farming
- Advantages of Organic farming
- Disadvantages of Organic farming
- Certification for organic Farming in India
- Scope of Organic farming in India
- Govt. Agencies supporting Organic Farming
- Organic Farming Practices
- Crop rotation
- Crop residue
- Organic Manure
- Bulky
- Concentraed
- Waste
- Bio-fertilizers
- Bio-pesticides
- Vermi-composting



TERMINAL QUESTIONS

1. Explain briefly what is Organic Farming.
2. Tabulate and show the differences between Organic Farming and Conventional Farming
3. What are the four main disadvantages of organic farming?
4. Which authority is entrusted with the responsibility of certifying organic produce in India?
5. What is scope for organic farming in India?
6. Write short notes on :
 - i. Crop rotation
 - ii. Bio-fertilizers
 - iii. Bio-pesticides
 - iv. Vermi-composting



ANSWERS TO INTEXT QUESTIONS

1.1.

1. Organic, Farming
2. biological
3. avoidance
4. organic
5. fertility



Notes



Notes

1.2

1. True
2. True
3. True
4. False
5. False

1.3

1. - (v)
2. - (iv)
3. - (i)
4. - (iii)
5. - (ii)