

# Organic Farming: Concept, Components and Challenges

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## Abstract

India being an agriculture economy, needs to strive for innovations in the farming methods in order to feed the population and to provide livelihood to the farmers. As per UPSA (Usual Principal Status Approach) 46.1% were estimated to be employed in agriculture sector. This sector has been practising the traditional methods of farming since centuries and hence remained at the mercy of weather conditions. However, since last two decades agriculture sector has undergone a makeshift with the technological advancements coming up with new methods of farming like organic farming, poly farming, Hydro phonics (soil free farming) etc. This paper is a concept paper on organic farming which discussed the concept, components and the challenges, however, some secondary data have also been used to support the proposition.

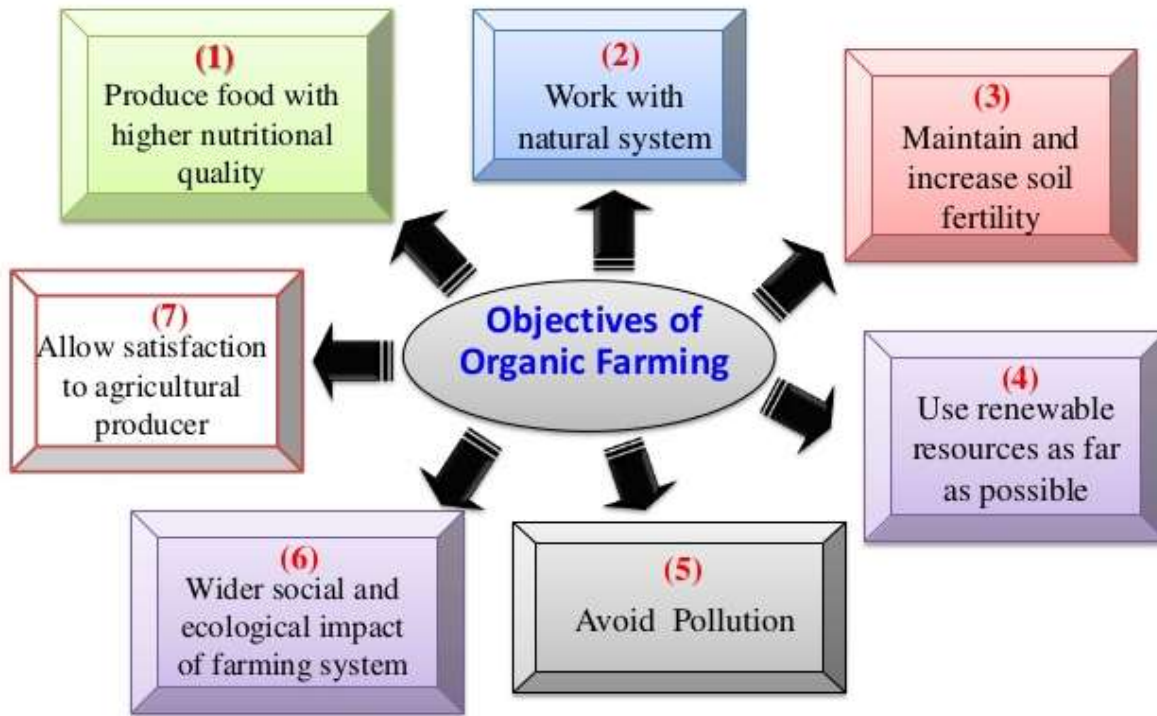
Keywords: Conventional Farming, Hydro phonics, Natural Predators, Trap Crop.

Indian economy is predominantly recognised as an Agrarian economy, and agriculture sector is the backbone of Indian economy. As per UPSA (Usual Principal Status Approach) 46.1% were estimated to be employed in agriculture sector. Agriculture sector plays a significant role in ensuring food security, raw materials, livelihoods and boosts the growth of industrial and service sector. This sector has been practising the traditional methods of farming since centuries and hence remained at the mercy of weather conditions. However, since last two decades agriculture sector has undergone a makeshift with the technological advancements coming up with new methods of farming like organic farming, poly farming, Hydroponics (soil free farming) etc. These new methods have made the farmers less dependent on monsoon, good soil

land, chemical based fertilizers, and pesticides. As a matter of fact the excessive use of chemicals (present in fertilizers and pesticides) has put the health of individuals at a higher risk as these chemicals got absorbed in our blood through inorganic food, making us suffer from the life threatening diseases like cancer, diabetes, stroke, kidney failure etc. So the solution lies in consuming food grown without the use of chemicals and without the impurities of soil, water and air. Organic farming provides food which is high in nutrients to human beings and also to animals. Since the past two decades government support has resulted into tremendous development in organic farming in the world and India. India stood at 8<sup>th</sup> position in 2017 in organic agriculture Global Index with 1.78 million hectares of area under organic cultivation. India has the highest number of organic producers in the world accounting to 30.58% with a total production of 1675,560.70 metric tonnes in the year 2017-18. Sikkim became the first organic state of India. As far as profitability is concerned compared to the conventional farming it has been found that organic farming is 22% to 35% more profitable as farmers get a premium on price if it carries a tag of certifies organic crop as per a survey done in US

**Concept:** it is a method of cultivation wherein land is cultivated in such a way which keeps the soil alive and in good health by using organic wastes, biological materials and microbes (bio-fertilizers). They release materials which are essential for sustainable health of soil, ecosystem and people. It combines traditions, innovations and science to benefit the environment, promote fair relationship and a quality life for all involved in this system i.e. to the providers and the users, to the land and the land owners. Organic farming is defined as a production system which avoids the use of chemicals based fertilizers, pesticides, growth regulators etc. and substituting these with organic sources. This helps in maintaining soil health, supplying plant nutrient and minimizing insects, weeds and other pests. (IFOAM-2018). Organic farming is also considered as a holistic production management system supportive to the environment, health and agriculture sustainability.

# Objective of organic farming



## ORGANIC FARMING

**COMPONENTS OF ORGANIC FARMING**

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            graph TD
              OF(ORGANIC FARMING) --- IF(Integrated Farming)
              OF --- OBF(Organic Biofertilizers)
              OF --- CR(Crop Rotation)
              OF --- IWM(Integrated Weed Management)
              OF --- IDM(Integrated Disease Management)
              OF --- IPM(Integrated Pest Management)
          
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**A production system which avoids the use of synthetic fertilizers**

## Size of Organic food market

**Global Organic Food Market:** Till 2017, 69.8 million hectares of farmland was engaged in organic farming with 181 countries. Australia is the country with the highest organic farming land with 35.6 million hectares followed by Argentina with 3.4 million hectares

and China with 3 million hectares. Number of organic producers has grown upto 2.9 million worldwide. Indian producers are largest in number i.e. 8,35,000 followed by Uganda and Mexico with 210352 and 210000 respectively. US is the largest market for organic produce followed by Germany and France together contributing 67% of the organic market globally (FIBL survey, 2019).

**Domestic Organic Food Market:** The organic produce market in India has been growing at a CAGR of 25% and is expected to touch Rs. 10000-12000 crore by 2020 from a current market size of Rs 4000 crore (ASSOCHEM and EY 2018). It is still a niche market segment however, increasing per capita income, growing e commerce, consciousness for environment and health are the major factors contributing to the growth of organic market.

India holds a unique position among 172 countries practising organic agriculture. It has 6,50,000 organic producers, 699 processors, 669 exporters and 7,20,000 hectares under cultivation. India is home to 30% of total organic production in the world and accounts for just 2.59% (1.5Million hectares) of the total organic cultivation area of 57.8 million hectares.

Key Indicators as per FIBL Survey

Year	Organic Area (Farmland Hectare)	Organic Area share of total farmland %	Organic producers	Organic Retail Sales(Million euro)
2015	11,80,000.00	0.66	5,82,000	144.20
2016	14,90,000.00	0.83	8,35,000	171.65
2017	17,80,000.00	0.99	10,93,288	185.89
2018	19,38,220.79	1.08	11,49,371.00	185.89

Source: Compiled from FIBL survey 2019

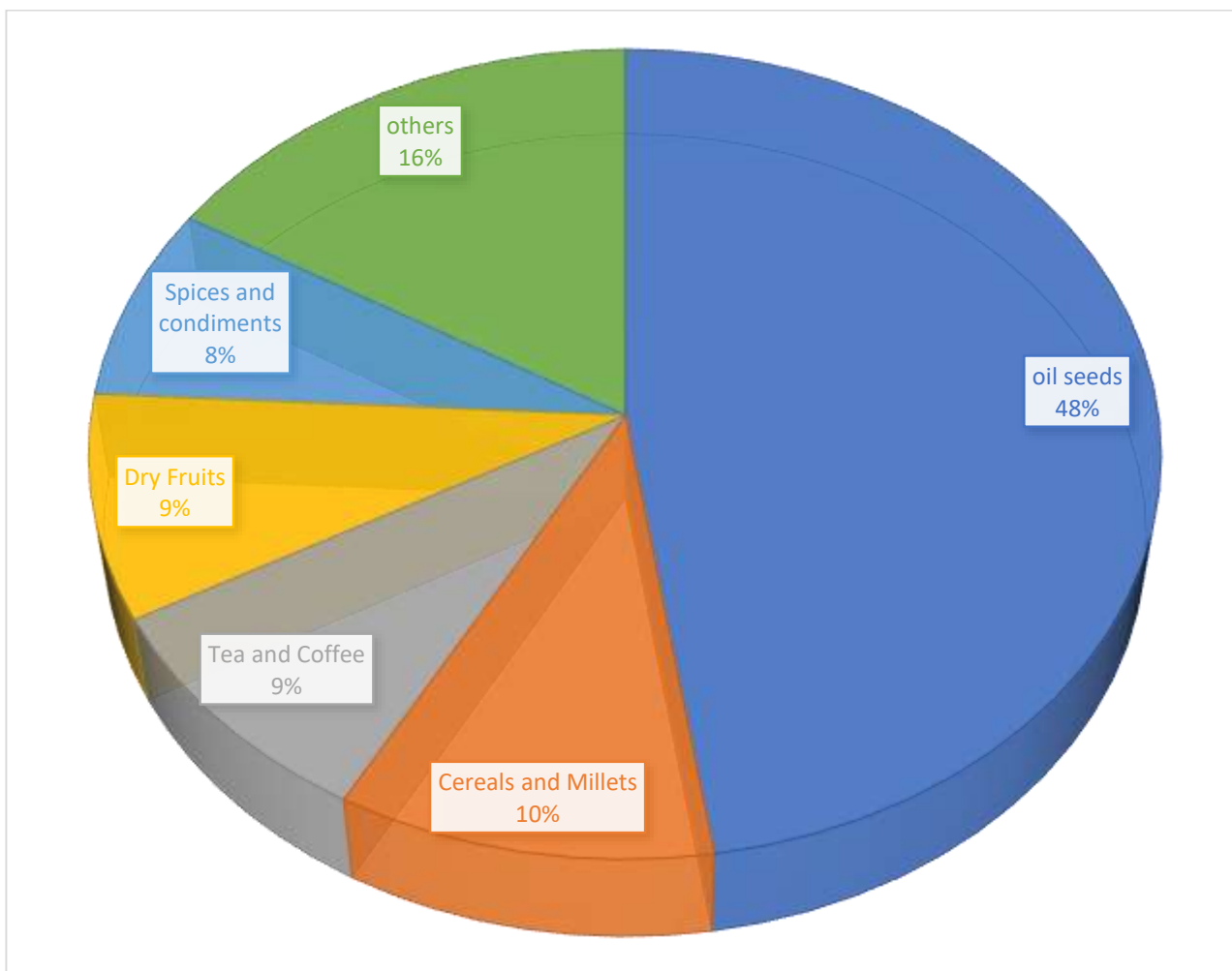
Key areas of organic farming

Year	Organic exporters	Organic processors	organic producers	Organic per capita consumption(euro per person)
2015	669	699	5,85,200	0.12

2016	669	699	8,35,000	0.14
2017	669	1081	10,93,288	0.15
2018	669	1452	11,49,371	0.15

Source: Compiled from FIBL survey 2019

### Export Value Realization



Source: Compiled from FIBL survey 2019

**Principles of Organic Agriculture** IFAOM developed and formulated the principles of organic farming in Sept 2005 which are given below:

- Principle of Health: it should sustain and improve the health of soil, water, air, environment, animals and human beings.
- Principle of Ecology: it should be based on ecological systems i.e. it has to work with them, emulate them and help sustain them on nature's own laws.
- Principle of fairness: organic practice should build on relationships to ensure fairness with regard to the common environment and life opportunities.
- Principle of Care: it should be managed in a precautionary and responsible manner to protect the health and well being of present and future generations and of the overall environment.

### Characteristics of organic farming

**Long term Fertility:** organic farming protects the long term fertility of soil by encouraging soil biological activity and careful mechanical and technological interventions.

**Provides crop nutrients:** indirectly it provides nutrients to the crops by using insoluble nutrient sources by the action of soil micro - organisms.

**Nitrogen fixation:** it is the main feature of organic farming in which microorganisms fix nitrogen directly through biological process which in turn increases agricultural

production by supplying nitrogen and



<https://www.indianpeopletimes.com/uncategorized/why-organic-farming-is-in-trend-now-days/>

phosphorus to the crops.

**Use of Natural Predators:** in organic farming no chemical based pesticides are used rather it rely more on natural predators like weed, crop rotation, biodiversity, organic/

Green manuring, resistant varieties and negligible thermal, biological and chemical intervention.

## Components of Organic farming



Source: [http://www.agritech.tnau.ac.in/org\\_farm/orgfarm\\_introduction.html](http://www.agritech.tnau.ac.in/org_farm/orgfarm_introduction.html)

- 1) **Crop Rotation:** It is a system in which various crops are grown in a regular sequence on the same land over a period of 2 years and more. As a result it helps in sustainable management of nutrients of soil without using artificial nutrients.
- 2) **Crop Residue:** Residue/straw/stubble of some major crops are utilized as animal feed and can also be utilized for recycling of nutrients.
- 3) **Bio fertilisers:** Are the products of beneficial micro organisms which increase agricultural production by supplying nitrogen and phosphorus . bio fertilizers can fix

atmospheric nitrogen for plant use and mobilises unavoidable phosphorus pool to be used by plants. Bio- fertilisers not only help in improving soil health at low cost but also reduce the subsidy burden on the government which emanates through consumption of fertilisers.

- 4) **Manure:** Organic/Green manure is derived from plants, animals and human residues. These manure act in boosting crop growth, protection and soil productivity without harming the fertility of soil and quality of crop.
- 5) **Vermicompost:** Is found to be effective in improving fertility of soil and quantity of agricultural crops. It is a manure produced by the activity of earthworms which live in soil, eat bio mass and excrete it in indigest form. The content of nutrients in vermi compost is much higher than that of FYM ( Farm Yard Manure)
- 6) **Waste:** Organic farming utilizes the industrial and sewage waste after proper decomposition. Sewage sludge, spent wash from distillery, press mud can be best utilize after decomposition. This way heavy metals present in these wastes will not pose hazards to plants, animals and human beings.
- 7) **Bio – Pesticides:** Organic farming avoids the use of heavy pesticides and herbicides instead it uses Bio Pesticides which are plant products. These bio pesticides include alkaloids, terpenoids, phenolics and minor secondary chemicals. They work against insects, fungi and other harmful organisms.

### **Challenges in the promotion of Organic farming**

**Poor Crop Yield:** The concept of organic cultivation is lower than the chemical based farming during conversion period of 3 years and no premium price can be charged for the crop. It is after 3 years the crop started rising.(Narayana 2005)

**Lack of Adequate Quality Standards:** Due to lack of availability of standardized inputs like biomass, seeds and bio- pesticides etc. the organic producers fail to produce the desired quality output which hinders the marketability of organic crops in domestic as well as international markets.



**Policy Support:** Agriculture is a state affair which calls for state government interventions to promote organic farming in their respective states. Although a number of schemes are in offing for the development of organic farming but the high cost of organic certification and a period of 3 years pose greatest of challenge to the small farmers.

**Lack of crop planning and Diversity:** Crop planning and diversity plays a vital role in organic farming in order to get maximum benefits. Farmers need to be educated to cultivate diverse set of produce, so that the soil health can be maintained and maximum benefits can be reaped in the long run.

**Lack of Technology:** Technological initiatives are much required for better results in organic farming. There is a need to develop and promote use of waste decomposer, biomass, vermicompost, predators for disease control, wastewater treatment among the users.

**Lack of Market Research:** As far as research concerned organic farming is not catching attention of the market research and training programmes for the farmers engaged in organic farming. Most of the farmers are unaware of technicalities of organic farming, marketing of the produce and its benefits. They themselves are not convinced as to why they should shift towards organic cultivation when commercial crop farming has been an excellent source of revenue. Therefore, it poses a great challenge in the promotion of organic farming.

## Conclusion

Conventional farming is required for feeding the increasing population but excessive use of chemical based fertilizers, pesticides and weedicides have done more harm to the environment at the same time. It has posed a problem of ecological imbalance thereby making the life difficult for all the living beings on this earth. So the need of the hour is eco- friendly farming to keep the balance and fulfilling the food requirements of the masses. Although, the task is challenging on part of all the stakeholders viz. farmers, Government and consumers. All the stakeholders have their own concerns such as availability of quality and authentic product, availability of standard inputs and support from the Government. Transition period of 3-5 years also pose a hurdle to switchover to organic cultivation from conventional farming. Government should come forward to promote, support and expand the scope of organic farming keeping in mind the health

and environmental concerns. To fulfil the dream of sustainable rural economy organic cultivation indeed is a vital component which should be put to the best use.

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