

"Education for Propagation of Knowledge, Achievement and Culture".

-Shikshan Maharshi Dr. Bapuji Salunkhe



Shri. Swami Vivekanand Shikshan Sanstha's, Kolhapur.



DATTAJIRAO KADAM ARTS, SCIENCE &
COMMERCE COLLEGE, ICHALKARNJI

A

Project Report

On

"THE ROLE OF ORGANIC FARMING IN PROMOTING SUSTAINABLE RURAL DEVELOPMENT"

SUBMITTED UNDER

SHIVAJI UNIVERSITY, KOLHAPUR

Community Engagement Programme (CEP)

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2025-2026

DECLARATION

I Hereby declare that the project entitled "THE ROLE OF ORGANIC FARMING IN PROMOTING SUSTAINABLE RURAL DEVELOPMENT" completed and written by our group has not previously Formed the basis for the award of any Degree or Diploma or other similar title this or any other university or examining body.

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CERTIFICATE

This is to certify that the project entitled "THE ROLE OF ORGANIC FARMING IN PROMOTING SUSTAINABLE RURAL DEVELOPMENT" which is being submitted here with under the Community Engagement Programme (CEP) in English under the faculty of Arts. Of DKASC College, Ichalkaranji is the result of the original research work completed by the group members under my supervision and guidance.

To the best my knowledge and belief, the work embodied in this project has not formed earlier the basis for the award of any degree or similar title of this or any other university or examining body.

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Guide



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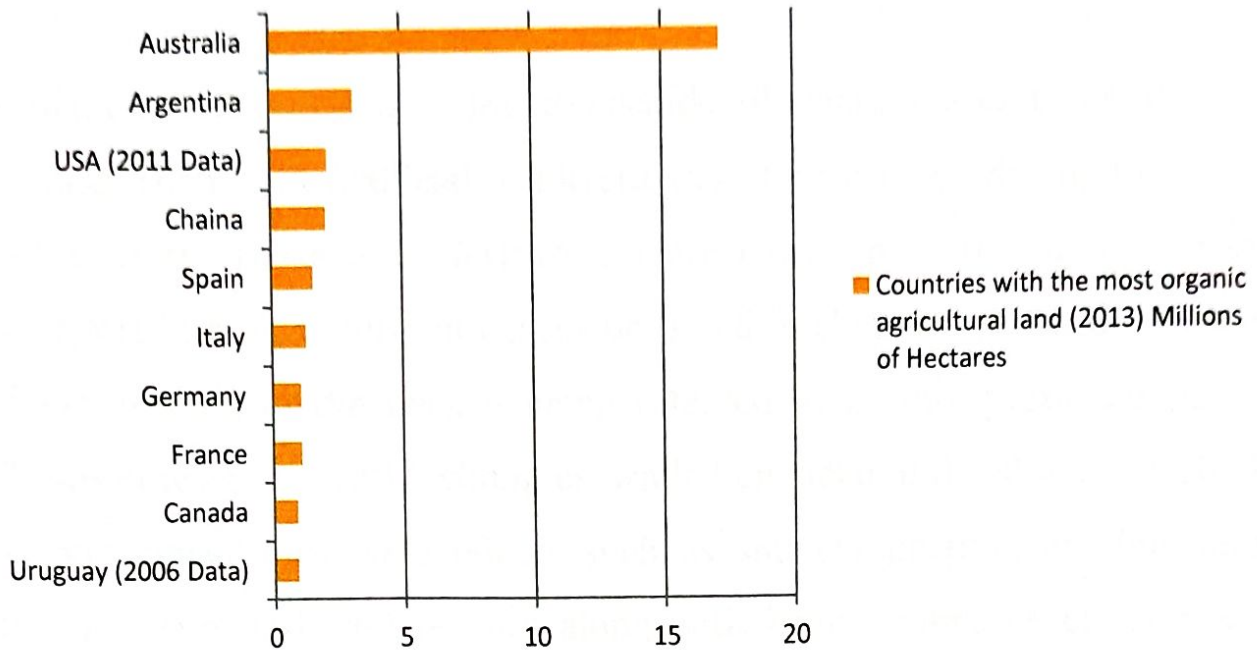
INTRODUCTION

Organic farming is an agricultural system which originated early in the 20th century in reaction to rapidly changing farming practices. Certified organic agriculture accounts for 70 million hectares globally, with over half that total in Australia. Organic farming continues to be developed by various organizations today. It is defined by the use of fertilizers of organic origin such as compost manure, green manure, and bone meal and places emphasis on techniques such as crop rotation and companion planting. Biological pest control, mixed cropping and the fostering of insect predators are encouraged. Organic standards are designed to allow the use of naturally occurring substances while prohibiting or strictly limiting synthetic substances. For instance, naturally occurring pesticide such as pyrethrin and rotenone are permitted, while synthetic fertilizers and pesticides are generally prohibited. Synthetic substances that are allowed include, for example, copper sulfate, elements sulfur and Ivermectin. Genetically modified organisms, nonmaterial, human sewage sludge, plant growth regulators, hormones, and antibiotic use in livestock husbandry are prohibit. Organic farming advocates claim advantages in sustainability openness, self-sufficient, autonomy/independence, health, food security, and food safety.

Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the International Federation of Organic Agricultural Moments (IFOAM), an international umbrella organization for organic farming organizations established in 1972 Organic agricultural can be defined as "an integrated farming system that strives for sustainability, the enhancement of soil fertility and biological diversity while, with rare exceptions, prohibiting sysnthetic pesticides, antibiotics, synthetic fertilizers, genetically modified organisms, and growth hormones".

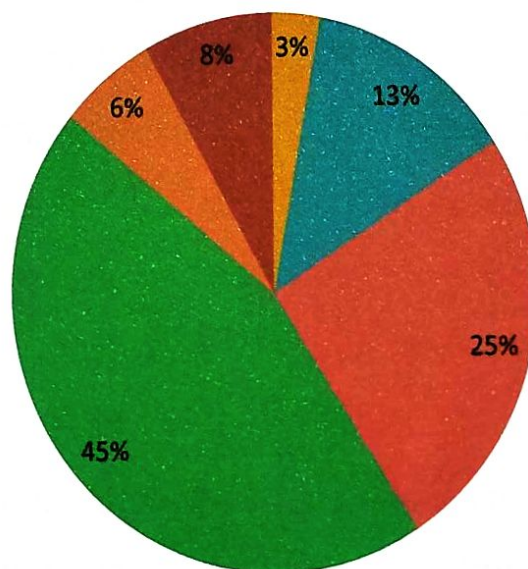
Since 1990 the market for organic food and other products has grown rapidly, reaching \$63 billion worldwide in 2012. This demand has driven a similar increase in organically managed farmland that grew from 2001 to 2011 at a compounding rate of 8.9% per annum. As of 2019, approximately 72,300,000 hectares (1,79,000,000 acres) worldwide were farmed organically, representing approximately 1.5 percent of total world farmland.

Countries with the most organic agricultural land (2013) Millions of Hectares



Distribution of organic agricultural land by region 2015

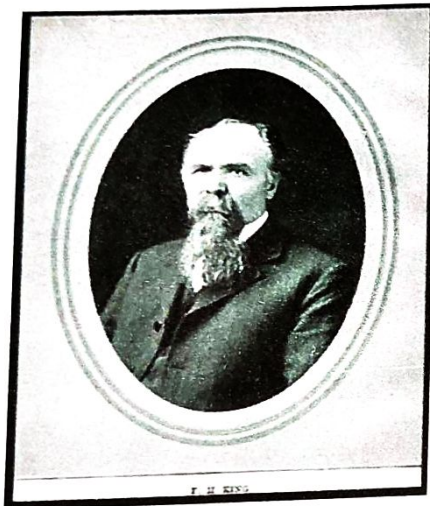
Legend: Africa, Latin America, Europe, Oceania, North America, Asia



BACKGROUND

Agriculture was practiced for thousands of years without the use of artificial chemicals. Artificial fertilizers were first created during the mid-19th century. These early fertilizers were cheap, powerful, and easy to transport in bulk. Similar advances occurred in chemical pesticides in the 1940s, leading to the decade being referred to as the 'pesticides era'. These new agricultural techniques, while beneficial in the short term, had serious longer term side effects such as soil compaction, erosion, and declines in overall soil fertility along with health concerns about toxic chemicals entering the food supply. In the late 1800s and early 1900s, soil biology scientists began to seek ways to remedy these side effects while still maintaining higher production. The concepts of organic agriculture were developed in the early 1900s by Sir Albert Howard, F.H. King, Rudolf Steiner, and others who believed that the use of animal manures (often made into compost), cover crops, crop rotation, and biologically based pest controls resulted in a better farming system. Howard, having worked in India as an agricultural researcher, gained much inspiration from the traditional and sustainable farming practices he encountered there and advocate for their adoption in the West. Such practices were further promoted by various advocates – such as J.I. Rodale and his son Robert, in the 1940s and onward, who published Organic Gardening and Farming magazine and a number of texts on organic farming. The demand for organic food was stimulated in the 1960s by the publication of Silent Spring, by Rachel Carson, which documented the extent of environmental awareness, coupled with concerns over the health impacts of pesticide residues and consumption of genetically modified (GMO) crops, fostered

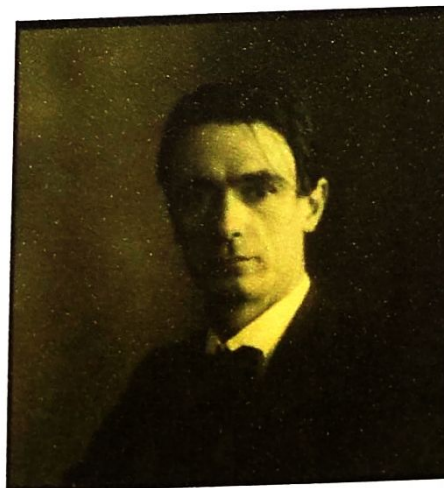
the growth of the organic sector. In the United States, retail sales increased from \$20.39 billion in 2008 to \$47.9 billion in 2019, while sales in Europe reached more than \$37 billion in 2017. The price of organic food is generally higher than that of conventionally grown food. Depending on the product, the season, and the vagaries of supply and demand, the price of organic food can be anywhere from less than 10 percent below to more than 100 percent above that of conventionally grown produce.



F.H.KING



SIR ALBERT HOWARD



RUDOLF STEINER

CONTEXT

Significance of organic agriculture for Indian farmers In the Indian Context

1. To Increase the efficiency and sustainability of production: Organic farming can help to reduce production costs (especially where labor is cheap compared to input costs) and to increase or stabilize yields on marginal soils. This is especially relevant for small holders in marginal areas where Green Revolution has led to a depletion of soil fertility and to high debts because of increase in input costs.
2. To increase product value: in areas where farmers have access to established organic markets within the country or abroad, products can achieve a higher price compared to the conventional market. Especially in the trend of decreasing prices for agricultural products, this can be an important way to stabilize or even increase incomes.
3. The practice of Organic Farming became best known alternative to the conventional which suffered with sick effect of chemical agriculture. However Organic Farming is based on identical principal to our traditional agriculture. But it aims at the human welfare without any harmful effect to our environment which is the foundation of human life primarily.



PROBLEM STATEMENT

1. It's a Whole Lot More Work

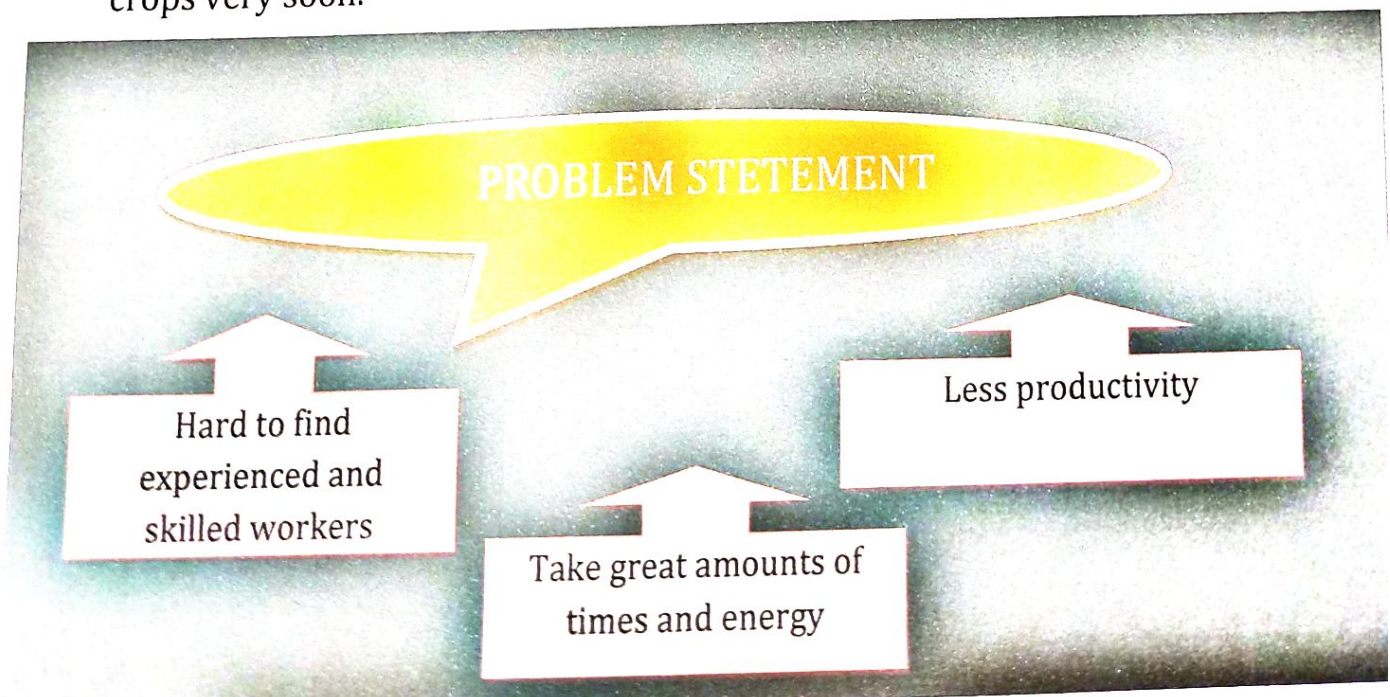
It takes a whole lot of work to successfully grow crops organically. There is a high amount of farmer interaction time with their crops. Whether it is to ensure that the plants remain pest free in an organic way, or to act as weed prevention, the time required is significantly higher than plants and crops produced industrially.

2. The Consumer Pays The Price

Organic foods in the supermarket are infamously higher than others. This is one of the biggest reasons that people do not fully support the use of organic farming, and not nearly enough people are enjoying the great benefits that it could bring. For example, a pound of non organic red peppers cost right around \$2.76, while a pound of organic red peppers run a whopping \$5.89! That's double the price!

3. Cross Breeding Happens

GMO crops, also known as genetically modified crops, are plants whose DNA structure have been altered. These seeds, once planted, create GMO crops. These crops then produce seeds and the pattern continues. It is very difficult to truly tell if an organic seed has not been affected by GMO's in anyway. This cross breeding could completely wipe out the idea of organic and non GMO crops very soon.



REVIEW OF ORGANIC FARMING

There are following primary reasons which encourage to adopt Organic Farming in India.

- a) India is one of the suffering of the conventional farming system.
- b) Organic Farming is environment friendly farming practices.
- c) The current farming products caused several health issues by the consumption of contaminated food products.
- d) The modern agriculture method caused damage to environmental and human life directly due to excess use of additives like chemical and pesticides during farming.
- e) The demand for organic food product are increase in India because people are choosing better health and environment rather than choosing the ill effect of the current farming food products.

The conventional farming had supported India in both producing surplus food for our own consumption as well as producing enough for export. However, rapid soaring population led to further increasing demand for food. The modern farming system is becoming more unsustainable as produce outcome is declining in crop productivity, chemical contamination and damage to the environment etc. The need of having an elective technique for horticulture which can work in an agreeable Eco-framework while supporting and expanding the yield profitability is acknowledge at this moment and organic Farming is accepted as the best known alternative to the conventional modern agriculture.

SIGNIFICANCE OF THE PROJECT

- Organic farming in India is gaining popularity due to its health benefits and environmental sustainability. India is the world's second largest food producer, and organic farming is a way to produce high quality, chemical-free, and nutrient-rich food without harming the environment.
- The Indian govt. has been promoting organic Agri farming in the country through various schemes and initiatives.
- In 2003, the National Program for Organic Production (NPOP) was launched to develop and promote organic agriculture in the country.
- The program provides guidelines for organic farming and certification of organic products. The organic farming market in India is expanding rapidly, and the demand for organic food products is increasing.
- According to a report by research as well as market, the organic food market in India is expected to grow at a maximum growth rate of 25% between 2020 and 2025.
- Organic farming in India faces various challenges, such as a lack of awareness among farmers, insufficient infrastructure and low yield.
- However, with the government's support and increasing and increasing consumer awareness, organic farming in India is expected to grow in the coming years.

OBJECTIVES

- To improve drawback of Green Revolution.
- To improve rapidly degrading soil fertility status for long term.
- To reduce increased input cost of cultivation.
- To reduce increased environment pollution.
- To solve health problem due to using intensively chemical in crop production.
- To ensure that water stays clean and safe.
- Reducing high energy use and emissions of green house gases.
- To control pest and diseases without harming the environment.
- Effective use of resources which farmers have already.



RATIONAL OF THE PROJET

The rational for exploring the Organic Farming lies in its transformative potential to address soil health and environmental protection . Here's why this topic is significant:

- 1. Soil Health and Fertility :** To enhance and maintain soil fertility through natural processes, such as composting, crop rotation, and the use of organic amendments, without relying on synthetic fertilizers.
- 2. Reduction of Chemical Use :** To minimize or eliminate the use of synthetic pesticides, herbicides, and fertilizers, reducing chemical residues in food and the environment.
- 3. Sustainability of Farming System :** To create farming systems that are economically, socially, and environmentally sustainable over the long term, supporting both current and future generations.
- 4. Environmental Protection :** To protect the environmental by promoting sustainable practices that reduce pollution, conserve water, and prevent soil degradation.
- 5. Enhanced Nutritional Value :** To produce food with potentially higher nutritional value, such as increased levels of antioxidants, vitamins, and minerals, due to healthier soil and farming practices.
- 6. Promotion of Renewable Resources :** To encourage the use of renewable resources, such as solar energy, wind power, and biological pest control, instead of non-renewable inputs like synthetic chemicals.

SCOPE & LIMITATION OF PROJECT

The scope and limitation of "THE ROLE OF ORGANIC FARMING IN PROMOTING SUSTAINABLE RURAL DEVELOPMENT" can be outlined as follows:

SCOPE

- 1. High-Quality and Sufficient Food:** Produce food that is both high in quality and available in adequate amounts.
- 2. Genetic Diversity :** Protect and promote the genetic diversity of plants and animals and safeguard wildlife habitats.
- 3. Consideration of Social and Ecological Impact :** Assess the broader social and environmental effects of organic farming and processing.
- 4. Enhancing Biological Cycles :** Support and strengthen biological cycles within the farming system, including microorganisms, soil life, plants, and animals.
- 5. Quality of Life :** Provide fair working conditions and a good quality of life for everyone involved in organic farming and processing.
- 6. Pollution Reduction :** Minimize all forms of pollution.

LIMITATION

- 1. LIMITED INFRASTRUCTURE :** The infrastructure for processing, storing, and distributing organic produce is often less developed than for conventional products. This can lead to challenges in getting organic food from farm to table.
- 2. LOWER YIELDS:** Compared to conventional methods, organic farming often yields lower crop outputs. This can be due to factors like pest and disease pressure, nutrient limitation, and reliance on less potent weed control methods.
- 3. HIGHER LABOR COSTS :** Organic farming is typically more labour-intensive than conventional agriculture. This is because tasks like hand weeding, crop rotation, crop residue and maintaining soil health require significant human input.
- 4. MARKET ACCESS :** While demand for organic food is growing, it still represents a niche market in many regions. This can make it difficult for organic farmers to find reliable buyers and secure fair prices for their produce.

HYPOTHESES

Organic farming is the use of agricultural production system reliant on green manure, compost, biological pest control, and crop rotation to produce crops, livestock and popularity. Organic centered agricultural production system fosters the cycling of the resources to conserve biodiversity and promote ecological balance. The use of green manure, cover crops, animal manure, and soil rotation, to interrupt the habitation of pests and diseases,, improve soil fertility, and maximize the soil's biological activity are the primary aspects of organic farming.

In the other words, organic farming does not allow the use of synthetic chemical fertilizer, antibiotic, herbicides, or pesticides. Thus, the objective of organic farming is agricultural production of fibers, grains, vegetables, flowers, fruits, foods, and animal products such as milk, eggs, and meat is the best natural way.

RESEARCH WORK METHOD

We have used secondary methods for collecting the data. We have taken help of many books and periodicals. The information from the internet source is also very important. We have also collected the information from internet.

DISCUSSION OF THE TOPIC

The discussion around "THE ROLE OF ORGANIC FARMING IN PROMOTING SUSTAINABLE RURAL DEVELOPMENT" revolves around its transformative potential and the challenges that need to be addressed for successful implementation. Here are some key points :

OPPORTUNITIES FOR GROWTH

- **TECHNOLOGICAL INNOVATION:**

Advancements in areas like bio pesticides, precision agriculture, and soil health management are making organic farming more efficient and productive. These innovations can help close the yield gap between organic and conventional methods.

- **POLICEY SUPPORT :**

Governments around the world are increasingly recognizing the value of organic agriculture and implementing policies that encourage its adoption. This includes financial incentives for farmers, research funding, and support for organic infrastructure development.

- **CONSUMER EDUCATION :**

As consumers become more aware of the benefits of organic food, demand is likely to continue to grow and how to face climate changes. This creates opportunities for farmers to expand their market and connect directly with consumers through farmers markets, CSAs, and other direct-to-consumer channels.

CHALLENGES

- **LACK OF AWARENCESS :**

Use of bio-fertilizers and bio pesticide requires awareness and willingness on the part of the farming community. Knowledge about the availability and usefulness of supplementary nutrients to enrich the soil is also vital role to increase productivity. Attention on the application of composts/ organic manure is also lacking. The organic

matter is spread during the moths when the right moisture level is absent on the soil. The whole manure turns into wastes in the process. The required operation is of course labour intensive and costly, but it is necessary to obtain the desired results.

- **HIGH INPUT COST :**

The small and marginal farmers in India have been practicing a sort of organic farming in the form of the traditional farming system. They use local or own farm renewable resources and carry on the agricultural practices in an ecologically friendly environment. However, now the costs of the organic inputs are higher than those of industrially produced chemical fertilizers and pesticide including other inputs like extra labor needed for weeding, pest control and crop rotation.



BENEFITS OF ORGANIC FARMING

i. CONSERVATION OF NATURAL RESOURCES :

Non-traditional crops avoided, Balanced supply of macro and micronutrients, improved soil health, Better retention of soil moisture and nutrients.

ii. HEALTHY ENVIRONMENT :

Reduced pollution, Reduces the CO₂ emission by eliminating synthetic fertilizers and storage in the soil, Burning of crop residues restricted.

iii. REDUCED HEALTH HAZARDS :

Prevents pesticide residues in environment and human food chain. The prohibition of use of highly soluble fertilizers-nitrate contamination.

iv. EMPLOYMENT GENERATION :

v. SUSTAINABLE AGRICULTURAL PRODUCTION :

Based on the concept of feeding the soil and not the crop plants.

VI. REDUCED COST OF PRODUCT :

Inputs are on-farm

VII. HIGHER PROFITABILITY :

Premium / reduced costs.

LIMITATIONS OF ORGANIC FARMING

- ✓ **THREAT TO NATONAL FOOD SECURITY** : 274 million tones of food grains by 2020
- ✓ **LOW ORGANIC CARBON SOILS** : Desired organic carbon > 1.2%
- ✓ **LACK OF AWARENESS** : among the consumers and the farmers.
- ✓ **LACK OF MARKET FOR ORGANIC PRODUCTS**
- ✓ **COMPLEX AND COSTLY CERTIFICATION**
- ✓ **LIMITED AVAILABILITY OF ORGANIC MANURES**
- ✓ **COMPETITIVE USE OF CROP RESIDUES**
- ✓ **HIGH INPUT COSTS**
- ✓ **LACK OF QUALITY BIOFERTILIZERS AND BIOESTICIDES**
- ✓ **LACK OF SUBSIDY ON ORGANIC INPUTS**
- ✓ **LACK OF ORGANIC PREMIUM**
- ✓ **LABOUR AND COST INTENSIVE**
- ✓ **LOWER CROP YIELDS**

COMPARISON BETWEEN ORGANIC FARMING AND INORGANIC FARMING

Inorganic farming is a technique that certain farmer use to grow crops bigger and faster. These farmers are allowed to use chemicals and fertilizers. Organic farming is a specific type of farming where no chemicals were added to the soil unless they are natural. The farmer must grow their crops naturally.

ORGANIC FARMING

INORGANIC FARMING

Based on ecological orientation

Based on chemical orientation

Improve soil fertility

Deteriorate soil fertility

No problems like air, water, soil pollution

Pollution problems are present

GMOs are not allowed

GMOs are used

Irrigation requirements are used

Intensive Irrigation

Uses bio-fertilizer

Uses chemical fertilizer

Harmony with nature

Domination of nature

Restraint of nature

Exploitation of nature

Improve Ecosystem

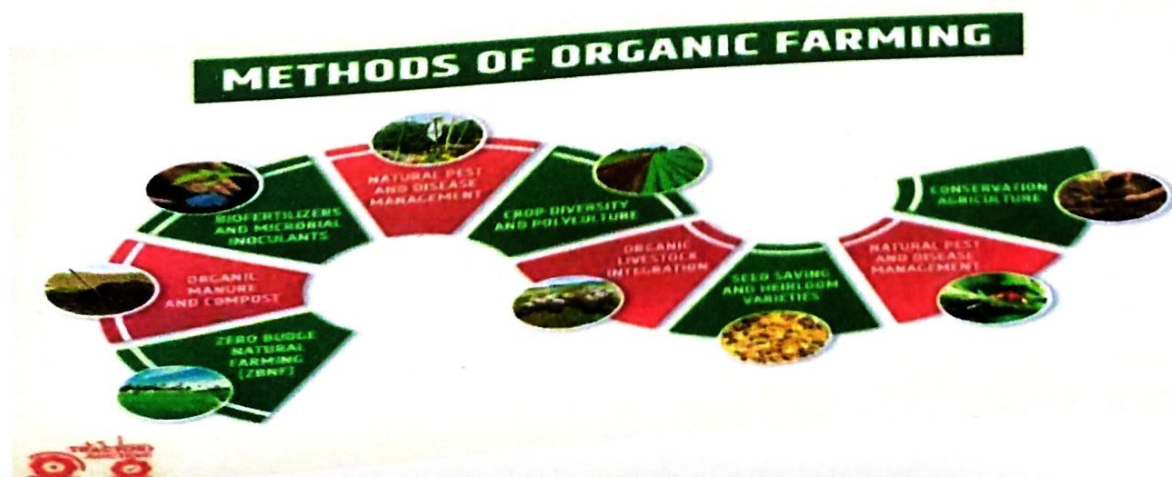
Impact Ecosystem

Manually weeds are removed here

Weeds are controlled through herbicides.

METHODS OF ORGANIC FARMING

- ❖ Organic Farming methods combine scientific knowledge of ecology and some modern technology with traditional farming practices based on naturally occurring biological process. Organic farming methods are studied in the field of agro ecology. While conventional agriculture uses synthetic pesticides and water soluble synthetically purified fertilizers, organic farming are restricted by regulations to using natural pesticides and fertilizers. An example of a natural pesticide is pyrethrin, which is found naturally in the chrysanthemum flower. The principal methods of organic farming include crop rotation, green manures and compost, biological pest control, and mechanical cultivation. These measures use the natural environment to enhance agricultural productivity: legumes are planted to fix nitrogen into the soil, natural insect predators are encouraged, crops are rotated to confuse pests and renew soil.
- ❖ While organic is fundamentally different from conventional because of the use of carbon based fertilizers composed with highly soluble synthetic based fertilizers and biological pest control instead of synthetic pesticides, organic farming and large scale conventional farming are not entirely mutually exclusive. Many of the methods developed for organic agriculture have been borrowed by more conventional agriculture. For example, integrated pest management is a multifaceted strategy that uses various organic methods of pest control whenever possible.



RESEACH AND SUGGESTIONS

The movement started with developed world is gradually picking up in developing countries. But demand is still concentrated in developed and most affluent countries. Local demand for organic food is growing. India is poised for faster growth with growing domestic market. Success of organic movement in India depends upon the growth of its own domestic markets. India has traditionally been a country of organic agriculture, but the growth of modern scientific, input intensive agriculture has pushed it to wall. But with the increasing awareness about the safety and quality of foods, long term sustainability of the system and accumulating evidences of being equally productive, the organic farming has e merged as an alternative system of farming which not only address the quality and sustainability concerns, but also ensure a debt free, profitable livelihood.

CONCLUSION

Organic farming works in harmony with nature rather than against it. This involves using techniques to achieve good crop yields without harming the natural environment or the people who live and work in it. An organic farmer produce vegetables, fruit, cereal crops, or livestock without the use of chemical fertilizers, pesticides, or herbicides. In another way organic farming in kind of agricultural that provide the consumers, with fresh, tasty and reliable food while regarding natural life cycle systems. In addition to health benefits of organic products for consumers, there are vital environment benefits for the earth. An organic farming keeps biodiversity and reduce environmental pollutions such air, water and soil. Organic agriculture has grown out of the conscious efforts by inspired people to create the best possible relationship between the earth and men.

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method-india](https://asmitaorganicfarm.com/biogs/aof/organic-farming-method-india)** -

