



ORGANIC FARMING

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Organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste.

“It is a holistic production management system that promotes and enhances health of agro-ecosystem, including biodiversity, biological cycles and soil biological activity”.

Organic farming in India

- Organic cultivation not new in India
- The term organic farming was first used by lord northbourne in the book of "look of the land"
- Organic agriculture in India started long back 1900 by Sir Albert Howard a British agronomist, in local village of the north India.
- The state of Sikkim and Uttaranchal declared organic state.
- Race less use of this chemical material not alert the ecosystem but it claim with death to many lives every year due to their hazardous nature.

Main Crops organically grown in India

- Cereals : Paddy, Wheat, Maize
Pulses : Redgram, Blackgram, Greengram, Bengalgram
Spices : Candamon, Black pepper, Ginger, Turmeric, Clove, Vanilla
Vegetables : Okra, Brinjal, Tomato, Potato, Onion, Garlic
Fruits : Mango, Banana, Pineapple, Grape, Orange, Cashewnut
Commodity : Tea, Coffee.
Cash Crop : Cotton



Difference between conventional farming and organic farming

Conventional Farming	Organic Farming
<ul style="list-style-type: none">• It is based on economical orientation.• Supplementing nutrients through chemical fertilizers• Weed control by herbicide• Pest control by pesticide• Livestock rarely combined• Low input: output ratio with pollution• Using up soil fertility often resulting in erosion and soil loss	<ul style="list-style-type: none">• It is based on ecological orientation.• Cycle of nutrients within the farms; predominantly farm produced materials• Weed control by crop rotation and cultural practices• Pest control based on non-polluting substances• Livestock for production and health• Optimum input: output ratio with No pollution• Maximum conservation of soils, water quality and wild life

Why organic farming is necessary?

- Sustainable and eco-friendly technology.
- It improves quality, shelf and nutritive value of the farm produce.
- It encourages sustainable livelihood of the producers as well as safeguards consumers health.
- It improves the physical, chemical and biological health of the soil.
- Promotes healthy use of the natural resources and minimizes all forms of the pollution.
- It enhances and sustains biological diversity within the system.

Key characteristics of organic farming

- Relies primarily on local, renewable resources.
- Makes efficient use of solar energy and the production potential of biological systems.
- Maintains the fertility of the soil.
- Maximizes recycling of plant nutrients and organic matter.
- Does not use organisms or substances foreign to nature.
- Maintains diversity in the production system as well as the agricultural landscape.
- Gives farm animal's life conditions that correspond to their ecological role and allow them a natural behavior.
- Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats.

Principles of organic farming



Health



Care

**Principles of
Organic Farming**



Ecology



Fairness

Four principles

1. Principle of health

- ✓ Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.
- ✓ Healthy soils produce healthy crops that foster the health of animals and people.
- ✓ Health is the wholeness and integrity of living systems.

2. Principle of ecology

- ✓ Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.
- ✓ This principle roots organic agriculture within living ecological systems.

3. Principle of fairness

- ✓ Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.
- ✓ Fairness is characterized by equity, respect, justice and stewardship of the shared world, both among people and in their relations to other living beings

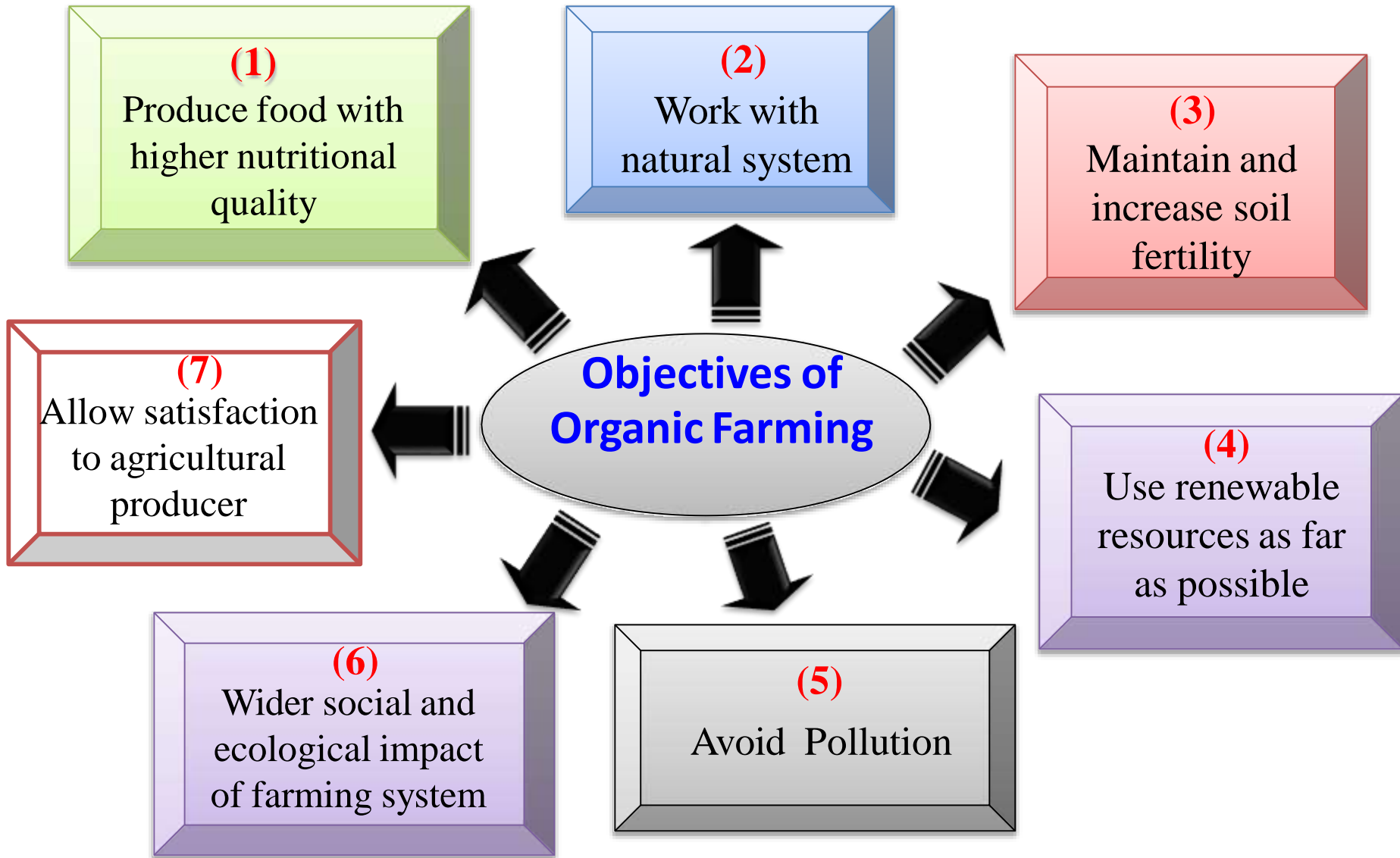
4. Principle of care

- ✓ Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.
- ✓ This principle states that precaution and responsibility are the key concerns in management, development and technology choices in organic agriculture.

Types of organic farming

- **Pure organic farming** : It includes use of organic manures and biopesticides with complete avoidance of inorganic chemicals and pesticides.
- **Integrated Farming** : It involves Integrated Nutrient Management (INM) and Integrated Pest Management (IPM).
- **Integrated Farming Systems** : In this type, local resources are effectively recycled by involving other components such as poultry, fish pond, mushroom, goat rearing etc. apart from crop components. It is a low input organic farming.

Objective of organic farming



Benefits of organic farming

1. Increase long-term fertility of the soil.
2. It helps in maintaining environment health by reducing the level of pollution.
3. It reduces human and animal health hazards by reducing the level of residues in the product.
4. It helps in keeping agricultural production at a higher level and makes it sustainable.
5. It reduces the cost of agricultural production and also improves the soil health.
6. It ensures optimum utilization of natural resources for short-term benefit and helps in conserving them for future generation.
7. It not only saves energy for both animal and machine, but also reduces risk of crop failure.

Basic Steps of Organic Farming

Organic farming approach involves following five principles:

1. Conversion of land from conventional management to organic management
2. Management of the entire surrounding system to ensure biodiversity and sustainability of the system
3. Crop production with the use of alternative sources of nutrients such as crop rotation, residue management, organic manures and biological inputs.
4. Management of weeds and pests by better management practices, physical and cultural means and by biological control system
5. Maintenance of live stock with organic concept and make them an integral part of the entire system

Limitations of organic farming in India

- Small land holding
- Poor infrastructure facilities
- Lack of technology knowledge
- Convert organic farm
- Neighbouring farmer well co-operate
- Organic material such as animal dung and other crop waste used for fuel purpose
- Bio control agent are available only few selected insect pest.
- Complicated organic certification process and high fees cost
- Higher human population of India.

Components of organic farming



VERMICOMPOST



**GREEN LEAF
MANURES**



CROP ROTATION



MANURES

**ORGANIC
FARMING**



**BIOLOGICAL
MANAGEMENT**



BIOFERTILIZERS



**ANIMAL
HUSBANDRY**

Weed management

1. Preventive methods

- Weed free crop seed
- Weed free manure
- Clean harvesting and ploughing equipment.

2. Cultural method

- Smother crop
- Cover crop
- Crop rotation
- Optimum plant density and line sowing
- Drip irrigation

3. Mechanical method

- Tillage
- Stale seed bed
- Hand weeding
- Hoeing
- Mowing
- Mulching
- Burning

4. Soil solarization

Biological control

Insect	Weed control
Crociosema lantana busck moth	Lantana camara
Cochineal scale	Pricklypear
Fleabeetle larva	Alligatorweed
Neochetina burchii	Waterhyacinth
Mexican gall fly	Congress grass

Mycoherbicides

Product	Content	Weed control
De-Vine	Phytophthora plamivora	Milk weed vine
Collego	Colletotrichum gloeosporiodes	Joint vetch
Bipolaris	Bipolaris sorghicola	Johnsongrass
Biolophos	Streptomyces hygroscopicus	General vegetation

Pest management

1. Physical method

- Mechanical control
- Light trap
- Pheromone trap
- Nylon net

2. Cultural method

- Field and plant sanitation
- Crop rotation
- Trap cropping
 Ex : cabbage: mustard= diamondback moth
- Water management
- Adjusting time of sowing

Fertilizer management

1. Bulky organic manures

- Compost
- Biogas slurry
- Night soil
- Sheep and goat manure
- Poultry manure
- Green manure
- vermicompost

Fertilizer management

2. Concentrated organic manure

- Oil cakes
- Fish meal
- Meat meal
- Blood meal
- Horn and hoof meal
- Bird guano
- Row bone meal

Bio-fertilizer

Sr. No.	Group	example
N ₂ Fixing Bio fertilizer		
1.	Free-living	Azotobacter , Beijerinckia, Clostridium, Anabaena
2.	Symbiotic	Rhizobium, Azolla, Frankia
3.	Associative symbiotic	Azospirillum
P Solubilising Bio fertilizer		
1.	Bacteria	Bacillus sp, pseudomonas sp
2.	Fungi	Penicillium sp, Aspergillus awamori
P Mobilizing Bio fertilizer		
1.	Arbuscular mycorrhiza	Glomus sp, Gigaspora sp,
2.	Ectomycorrhiza	Laccaria sp, Amanita sp.
3.	Ericoid mycorrhizae	Pezizella ericae
4.	Orchid mycorrhizae	Rhizoctonia solani.

Seed treatment technique popular amongst farmer in organic farming

a) With cow urine

- cow urine + water (1:10)
- soak the seed in solution for 15 minutes
- dry the seed in shade and sowing.
- If better germination and prevent seed borne disease

b) with cow milk

- Cow milk + water (1:5)
- Soak the seed in solution for 30 minutes
- Dry the seed in shade and sowing.
- It prevent yellowing of leaves and leaf spot diseases

C) With wood ash

- Wood ash + water (10 gram + one litter)
- Dip vegetable seed in solution for 15-30 minutes
- Dry in shade and sow immediately
- It prevent seedling root

D) Hot water treatment

- Boil water till it reaches 55 c.
- Soak the seed for 15 – 30 minutes.
- Dry seed first in shade and after in sun and stored in insect proof container.
- It control pathogens which develop seeds when they are stored for a long time period.

Ingredients of Panchakavya



Cow dung



Cow urine



Cow ghee



Milk



Water



Cow curd



Jaggery



Tender coconut



Well ripened
Poovan Banana

JIVAMRUT





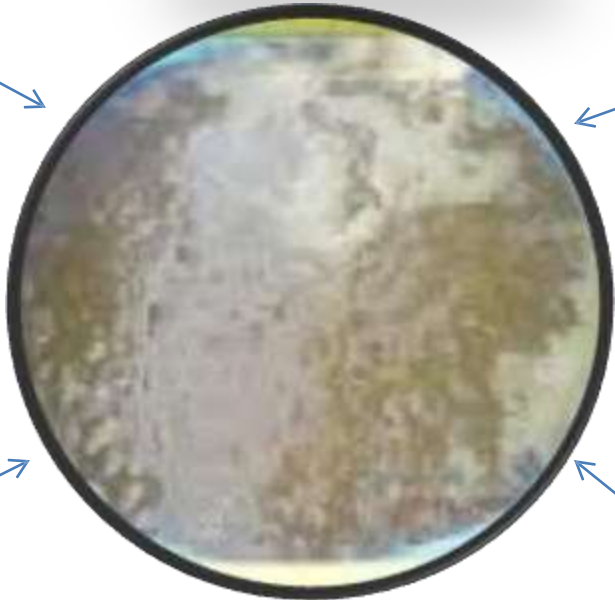
COW DUNG



SOIL



LIME



BIJAMRUT



COW URINE



WATER

AGNIHOTRA

PROCEDURE



List of accredited certifying and inspection agencies in India

- Association for promotion of Organic Farming (APOF)
Bangalore
- Indian Society for Certification of organic production (ISCOP)- **Tamil Nadu**
- Indian Organic Certification Agency (INDOCERT)- **Cochin, Kerala**
- Skal Inspection and Certificaton Agency- **Bangalore**
- IMO Control Pvt. Ltd.- **Bangalore**
- Ecocert International -**Aurangabad**
- Bioinspectra -**Cochin, Kerala**
- SGS India Pvt Ltd- **Gurgaon**
- International Resources for Fair Trade (IRFD)- **Mumbai**
- National Organic Certification Association (NOCA)- **Pune**

Government support to promote organic Farming

- **THE MINISTRY OF AGRICULTURE IS PROMOTING ORGANIC FARMING IN THE COUNTRY UNDER THE FOLLOWING SCHEMES:**
- National Project on Organic Farming (project implemented since October 2004)
- Rashtriya Krishi Vikas Yojna
- National Centre on Organic Farming: **Ghaziabad**
- Regional centers:
 - (1) **Bangalore**
 - (2) **Bhubaneswar**
 - (3) **Hissar**
 - (4) **Imphal**
 - (5) **Jabalpur**
 - (6) **Nagpur**

FEEDING
THE SOIL
RATHER
THAN
FEEDING
THE PLANT

