

Introduction to Organic Agriculture

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Course: Organic Agriculture/Farming

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I. General Overview of Organic Agriculture

1.1 Definition

Organic agriculture is an integrated production management system that promotes and enhances the health of agro-ecosystems, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of natural inputs (minerals and plant-based products) and excludes synthetic fertilizers and pesticides.

It respects the principles and logic of a living organism, where all elements (soil, plants, livestock, insects, the farmer, and local conditions) are interconnected. The goal is to promote **sustainability** that is, managing agricultural resources in a way that meets human needs while preserving environmental quality and conserving natural resources for future generations.

Organic agriculture integrates:

- **Biological practices**
- **Cultural practices**
- **Mechanical practices**

These approaches support biodiversity and favor biological controls such as crop rotation and natural pest management instead of chemical control. Non-agricultural and external inputs must be minimized, renewable resources must be used, and synthetic fertilizers are strictly prohibited. Properly managed, organic farming maintains ecosystem balance.

1.2 Why Organic Agriculture?

Organic agriculture addresses several issues:

- Soil degradation and erosion
- Pollution from agrochemicals
- Loss of biodiversity (flora and fauna)
- Negative impacts on human and animal health

Sustainability in organic farming must be considered **holistically**, encompassing ecological, social, and economic dimensions.

A. Ecologically Sustainable Agriculture

- Improves soil structure and fertility through crop rotation, organic amendments, soil cover, and legume integration.
- Prevents soil erosion and compaction with mixed and intercropped systems.
- Promotes biodiversity through natural control methods (biological control, pest-repelling plants, etc.).
- Encourages diverse crop rotations for food, forage, and underutilized species with nutritional or medicinal value.
- Recycles nutrients using crop residues (as compost or animal bedding).

B. Socially Sustainable Agriculture

- Strives for a balance between agricultural production and human well-being.
- Promotes equity across and within generations.
- Reduces farmland loss, water contamination, biodiversity decline, greenhouse gas emissions, food waste, and pesticide poisoning.
- Increases adaptive capacity against climate risks, improves food security, and provides additional income.

C. Economically Sustainable Agriculture

- Ensures profitability and long-term viability of farms while respecting social and environmental needs.
- Balances short-term profitability with long-term resilience, reducing financial and ecological risks.

1.3 Classification of Agricultural Practices

- **Conventional Agriculture** : Frequent chemical treatments.
- **Integrated/Reasoned Agriculture**: Limited chemical treatments.
- **Organic Agriculture**: No chemical treatments.

1.4 Objectives of Organic Agriculture

- Preserve natural soil and plant balances.
- Promote recycling of organic matter.
- Maintain organic matter balance.
- Select plant and animal species adapted to local conditions.
- Protect landscapes and natural habitats.
- Avoid GMOs and chemicals.
- Apply crop rotation.
- Use organic fertilizers only.
- Reduce non-renewable resources and external inputs.
- Rely on local resources.
- Lower water and energy consumption.
- Enhance soil water retention and organic matter content.
- Increase biodiversity (flora, fauna, microorganisms).
- Reduce soil loss.

1.5 Principles of Organic Agriculture (IFOAM)

1.5.1 Principle of Health

Organic farming supports the health of ecosystems and organisms—from soil microbes to humans. It avoids fertilizers, pesticides, veterinary drugs, and additives with harmful effects.

1.5.2 Principle of Ecology

It is rooted in ecological systems and cycles, working with and imitating them. Practices must adapt to local conditions and reduce inputs by recycling materials and energy.

1.5.3 Principle of Fairness

Resources must be managed in socially and ecologically just ways, considering future generations. Animals must be raised under conditions that respect their physiology, behavior, and welfare. Production and trade systems should be fair and account for true social and environmental costs.

1.5.4 Principle of Precaution

Decisions must be guided by precaution and responsibility.

- Avoid synthetic chemicals when long-term effects are uncertain.
- Preserve biodiversity by minimizing ecosystem disruption.
- Use locally adapted and resistant varieties.
- Protect human health by avoiding additives with unclear long-term effects.