

# **ORGANIC AGRICULTURE**

*1st lect. Theory 2023 – Horticulture Dept.*

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## **Definition**

### **Organic Fertilizers**

Are substances that are derived from the remains or by products of natural organisms which contain the essential for plant growth, or it's a form of agriculture that depends on techniques such as (crop rotation, green manure, compost and biological pest control).

### **Chemical Fertilizer**

Is defined as any inorganic material of wholly or partially synthetic origin that is added to soil to sustain plant growth.

### **What is organic agriculture?**

There are many explanations and definitions for organic agriculture but all converge to state that it is a system that relies on ecosystem management rather than external agricultural inputs. It is a system that begins to consider potential environmental and social impacts by eliminating the use of synthetic inputs, such as synthetic fertilizers and pesticides, veterinary drugs, genetically modified seeds and breeds, preservatives, additives and irradiation. These are replaced with site-specific management practices that maintain and increase long-term soil fertility and prevent pest and diseases.

### **Advantages of organic fertilizers:**

In nature, decomposition of organic matter creates a natural fertilizer. Applying organic compost or well-aged herbivore manure adds nutrient-rich organic material to the soil, improving quality and texture. Adding organic material to the soil increases its ability to hold water; reduces erosion from water and wind; decreases compaction and crusting of the soil; and raises soil pH. Natural fertilizers are less likely to burn tender, young plants as they are less concentrated than chemical formulas. You may also want the peace of mind of knowing the food you cultivate is free of noxious chemicals. Natural fertilizers are chemical-free and can save you money.

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## **Disadvantages of organic fertilizers:**

Natural fertilizers are slow to break down into the nutrients the growing garden requires. Many natural fertilizers, such as manure, seaweed or fish oil, are quite smelly and are too offensive to use on indoor plants. Gathering natural materials, such as seaweed, grass clippings and leaves, organic materials break down at different rates, so the composition and content of organic fertilizer is never consistent. It is a misconception to believe that just because a fertilizer is organic, it is automatically safer. Organic fertilizer, if you apply it incorrectly, can contribute to surface and groundwater contamination, create a nutritional imbalance in the soil and cause salt burns.

## **Advantages of chemical fertilizers:**

Chemical fertilizers are made with synthetic ingredients designed to stimulate plant growth. Commercial chemical fertilizers have the advantage of predictability and reliability. Formulations are blended with accuracy and you can buy different blends for different types of plants. Commercial chemical fertilizers contain a balanced distribution of the three main essential nutrients needed for optimum plant growth: nitrogen, phosphorous and potassium. Many formulas also contain iron, sulfur and copper. The amount of the three main ingredients is listed in that order, by percentage, on commercial fertilizer labels as the N-P-K ratio. Percentages of trace minerals are not always listed. Commercial formulated fertilizers allow you to know exactly which nutrients you're giving your plants, rather than guessing at the composition of organic formulas.

## **Disadvantages of chemical fertilizers:**

Commercial chemical fertilizers are more expensive than natural fertilizers. They may contain ingredients that may be toxic to the skin or respiratory system. You also need to mix and measure them accurately. If you use too much, you can kill your plants. Chemical fertilizers can build up in the soil, causing long-term imbalances in soil pH and fertility.

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## What's the difference between chemical, organic fertilizers?

### Organic farming methods differ from conventional farming in several ways:

- Conventional farming uses chemical fertilizers to promote plant growth, while organic farming use manure and compost to fertilize the soil.
- Conventional farming sprays pesticides to get rid of pests, while organic farmers turn to insects and birds, mating disruption (disable), or traps.
- Conventional farming uses chemical herbicides to manage weeds, while organic farming rotates crops, hand weeds, or mulches.
- When ranching animals, conventional farmers give animals antibiotics, growth hormones, and medications to drive growth and prevent disease. Organic farmers feed their animals organic feed and allow them to roam (journey, travel). They also will make sure the animals have a balanced diet and clean housing.

### What is organic farming aims?

- Increase long-term soil fertility.
- Control pests and diseases without harming the environment.
- Ensure that water stays clean and safe.
- use resources which the farmer already has, so the farmer needs less money to buy farm inputs.
- Produce nutritious food, feed for animals and high quality crops to sell at a good price.

### *The Law of Organic Agriculture:*

- Water management.
- Pest and disease management including use of inputs.
- Contamination including location.
- Specific production.

### What is organic farming?

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.

### The methods and materials that organic farmers use are summarized as follows:

- 1- To keep and build good soil structure and fertility:
  - Recycled and composted crop wastes and animal manures.
  - The right soil cultivation at the right time.

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- Crop rotation.
  - Green manures and legumes.
  - mulching on the soil surface.
- 2- To control pests, diseases and weeds:
- Careful planning and crop choice.
  - The use of resistant crops.
  - Good cultivation practice.
  - Crop rotation.
  - encouraging useful predators that eat pests.
  - using natural pesticides.
- 3- Organic farming also involves:
- Careful use of water resources.
  - Good animal breeding.

## **Organic farms and its processors:**

- Preserve natural resources and biodiversity.
- Support animal health and welfare.
- Only use approved materials.
- Do not use genetically modified ingredients.
- Receive annual onsite inspections.
- Separate organic food from non-organic food.

## **International Federation of Organic Agriculture Movements:**

Organic agricultural methods are internationally regulated and legally application by many nations, based in large part on the standards set by the International Federation of Organic Agriculture Movements (IFOAM), an international organization for organic farming organizations established in 1972 defines the overarching goal of organic farming.

## **Organic agriculture is a production system that maintains:**

- 1 - The health of soils.
- 2 - Ecosystems and people.
- 3 - It relies on ecological processes, biodiversity and cycles.

Adapted to local conditions, rather than the use of inputs with adverse effects, Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.