

FERTILIZERS

- The three primary soil nutrients which are often present in less amounts in soil are **nitrogen, phosphorus and potassium** (NPK).
- In harvesting of crops, macro and micronutrients are removed from it. As a result of this, the soil becomes depleted in these particular nutrients. The level of nutrient and crop yield is less for the crop grown in such type of soil. These necessary nutrients can be returned to the soil through the application of fertilizers. As the name suggests they help make the soil fertile again.

○ Two types of fertilizers are added to the soil, namely, organic and chemical.

1. **Organic fertilizers:** They are made from naturally occurring substances.

2. **Chemical fertilizer:** These are the chemical substances that are synthetically prepared so as to provide the vital nutrients to the plant, which are necessary for its growth process.

- There are number of components of nitrogen fertilizers such as:
 - Urea (NH_2CONH_2)
 - Sodium nitrate (NaNO_3)
 - Calcium nitrate [$\text{Ca}(\text{NO}_3)_2$]
 - Potassium nitrate (KNO_3)
 - Ammonium phosphates [$(\text{NH}_4)_3\text{PO}_4$]

- Fertilizers are classified as 6-12-8, this represents the nitrogen percentage in fertilizer.

○ In the organic fertilizers, animal manure, green manure and compost are most commonly used.

- Animal manure is made from cowdung and urine of farms animals such as cattle, horses and poultry. It helps in the improvisation and binding the soil together, adds organic nitrogen, and stimulates beneficial soil bacteria and fungi.

- Green manure is made from freshly cut growing green vegetation plowed into the soil. It provides manure and humus for the next crop that has to be grown.

- Organic matter can be decomposed by the microorganisms present in soil. The decomposition is done in the presence of oxygen.

Fertilizers as Pollutants

1. Degradation of Soil Quality
2. Changes the Biology of Water Bodies
3. Effects on Human Health
4. Climate Changes Across the Globe