

**SARAWATI VIDYA NIKETAN**

**Vyasa Purnima Term 2020**

**Agricultural Science – Avinash Ji**

**Topic:** Manures

**Class:** Form 2 D, L & S

**SPECIFIC OBJECTIVES**

Students should be able to state the following:

- ✓ What is inorganic manure?
- ✓ Advantages and disadvantages of using fertilizers.
- ✓ The types of fertilizer.

**CONTENT**

**Week 3** (13<sup>th</sup>- 17<sup>th</sup>/04/2020)

**Inorganic Manures (Fertilizers)**

Inorganic manures are also called fertilizers. They are made from either mineral rocks or from waste material of industrial factories.

Fertilizers are concentrated chemical substances which are prepared in the form of:

- Powders
- Granules
- Pellets, or
- Crystals

These substances are in their concentrated forms. Therefore, small quantities are needed per acre.

These substances are added to the soil when the major nutrients (e.g. Nitrogen (N), Phosphorous (P), Potassium (K), Calcium (Ca), Sulphur (S) and Magnesium (Mg)) are insufficient for proper growth and development of the crop.

When fertilizers are used, sufficient moisture must be present in the soil in order to dissolve the fertilizer so that roots can absorb the plant nutrients.

Fertilizer can be classified as simple, mixed or complete fertilizers.

## Advantages and Disadvantages of Using Fertilizers

### **Advantages of using fertilizers are:**

- Small amounts are needed to boost crop yields.
- Plant nutrients are released to the soil faster.
- They are less bulky.
- Cheaper to transport

### **Disadvantages of using fertilizers are:**

- They are expensive.
- They do not improve the soil structure.
- Continuous use of nitrogenous fertilizers increases soil acidity.
- Do not enrich the soil with organic matter

## Types of Fertilizers

### **The types of fertilizer are:**

1. **Simple Fertilizers** are fertilizers that supply mainly one nutrient to the soil.
2. **Mixed Fertilizers (compound fertilizers)** are fertilizers which supply nitrogen (N), phosphorous (P) and potassium (K) in definite ratios.

## SPECIFIC OBJECTIVES

Students should be able to state the following:

- ✓ The types of fertilizers.
- ✓ The functions of the different fertilizers.
- ✓ Examples of each type of fertilizers.

## CONTENT

### Types of Fertilizers

1. **Simple fertilizers** are fertilizers that supply mainly one nutrient to the soil. These fertilizers can be described as **Nitrogenous**, **Phosphatic** or **Potassic**.

#### (a) Nitrogenous Fertilizers

Nitrogenous fertilizers are fertilizers which supply mainly nitrogen to the soil.

**Function:** Nitrogen promotes shoots.

**Examples of Nitrogenous fertilizers are:**

- Urea (46.6 % nitrogen)
- Ammonium nitrate (23 -35% nitrogen)
- Sulphate of ammonia (20.6% nitrogen)
- Calcium nitrate (15-20% nitrogen)

#### (b) Phosphatic Fertilizers

These fertilizers supply mainly phosphorous to the soil.

**Function:** Phosphorous simulate root growth and development.

**Examples of phosphatic fertilizers are:**

- Single superphosphate (18-21% phosphoric acid ( $P_2O_5$ ))
- Double superphosphate (30- 31% phosphoric acid ( $P_2O_5$ ))
- Triple superphosphate (43- 52% phosphoric acid ( $P_2O_5$ ))

**Other types of phosphatic fertilizers are:**

- Basic slag (by- product of iron- smelting industry)
- Ammonium phosphate
- Rock phosphate

**(c) Potassic Fertilizer**

These fertilizers supply mainly potassium to the soil.

**Function:** Potassium helps plants to develop buds and fruits and to resist some diseases.

**Examples of potassic fertilizers are:**

- Muriate potass (60% potassium oxid )
- Sulphate of potass (50% potassium oxid)

**2. Mixed Fertilizers (compound fertilizers)**

Fertilizers which supply nitrogen (N), phosphorous (P) and potassium (K) in definite ratios e.g.

- 15: 15: 15 – contains 15% (N), 15% (P) and 15% (K)
- 12: 12: 17: 2 – contains 12% (N), 12% (P), 12% (K) and 2% (Mg)
- 10: 10: 70 – contains 10% (N), 10% (P) and 70% (K)

## EXERCISE

- 1) What is inorganic manure?
- 2) List (4) advantages and (4) disadvantages of using fertilizers.
- 3) Differentiate between simple and mixed fertilizers.
- 4) State the function for the following nutrients:
  - Nitrogen
  - Phosphorous
  - Potassium
  - (a) List (3) types of nitrogenous fertilizers.
  - (b) List (3) types of phosphatic fertilizers.
  - (c) List (2) types of potassic fertilizers.
- 5) In your own word, explain how you interpret the following fertilizers, 15:15:15, 12:12:17:2 and 10:10:70.

### **Teaching material:**

Agricultural Science for Secondary Schools in Guyana. (Book 2)

(Pg.85)