

LESSON NOTE FOR WEEK SIX (6) ENDING 17TH OCT,2025.

SUBJECT: AGRICULTURAL SCIENCE.

TOPIC: SOIL TYPES AND PROPERTIES

CLASS JSS2

DATE: 13TH OCT, 2025

There are four main types of soil. These are

- i) Sandy soil
- ii) Silty soil
- iii) Clayey soil
- iv) Loamy soil

CHARACTERISTICS/ PROPERTIES OF SANDY SOIL

1. It has large particles, are coarse- grained, loose and gritty to touch
2. It has large pore spaces between the particles.
3. It is easy to cultivate and not good for plant growth.
4. It is hot during the day and cool during the night.
5. It does not hold water easily; it is poor in plant nutrient.
6. Its diameter is 2.00 -0.20.

The addition of organic matter and other plant materials in their decomposition forms can improve the quality.

Silty soil: It is intermediate between sandy and clayey soil in most of its properties.

CHARACTERISTICS/ PROPERTIES OF SILTY SOIL

- (a) The particles are smooth and powdery.
- (b) It has high water- holding capacity with most of the water available to plants
- (c) It forms a naturally rich soil, especially in the valleys.
- (d) The colour is grey and its diameter is 0.02-0.002.
- (e) They have moderate temperature and are slightly sticky.

CLAYEY SOIL

CHARACTERISTICS/ PROPERTIES OF CLAYEY SOIL

- (a) This consists of very small, fine particles.
- (b) They are sticky when wet and could be moulded into any shape.
- (c) It is very heavy to work on but rich in nutrients.
- (d) It holds water and exclude air, its diameter is less than 0.002.

LOAMY SOIL

CHARACTERISTICS/ PROPERTIES OF LOAMY SOIL

1. It has a moderate particles and size
2. It has a moderate pore space and water holding capacity
3. It has adequate amount of water and nutrient.
4. It has roughly equal proportion of sand, silty and clayey, etc.

Soil texture: This refers to the relative proportions of the various sized particles that make up the soil sample. It is also defined as the degree of fineness or coarseness of a given soil sample. It could be determined simply by (a) feel) (b) wetting and moulding (c) sieving (d) sedimentation.

Soil structure: Soil structure is the way soil particles stick together to form aggregates. It is also defined as the way in which soil particles are arranged in a soil sample.

TYPES OF SOIL STRUCTURE

1. Single- grained.
2. Massive soil structure
3. Granular structure
4. Coherent structure
5. Crumb structure
6. Prismatic or blocky structure.

Soil profile: This is defined as a vertical cross section through the soil, showing horizons. The horizons represent the different layers of the soil and different colour, texture and structure.

A horizon: This is the top soil covered by a layer of rotten organic matter or humus. There is a free movement of air and water. The soil here is friable and has good crumb structure. This horizon is where most arable crops derived their nutrients.

B-Horizon: This is also known as subsoil. Soil is more compact here; hence there is less movement of air and water. It is low in organic matter content; some essential nutrients are washed into this layer from the top soil. This is suitable for cultivation of tree crops with deep roots e.g. cocoa, kola, citrus, etc.

C- Horizon: This is also referred to as parent material. This has coarser soil and rocks. The parent materials determine the nature of the soil that is formed.

D- Horizon: This is a zone of unconsolidated rock material. It shows the bedrock which has not been transformed. This horizon is found at the bottom of the profile and they are usually of large soil particles.

IMPORTANCE OF SOIL PROFILE.

1. It shows the level of soil fertility
2. To know the type of crop to grow
3. Helps in the penetration of roots
4. It determines the level of drainage and aeration.
5. Easy percolation.

EVALUATION.

1. List the types of soil
2. Mention the types of soil structures.
3. Define the following soil structure, profile, and soil texture.
4. State the importance of soil profile.

Assignment

Draw the soil profile and show the different horizons.