

AGRICULTURAL SCIENCE

SS1

COMPOSITION OF THE SOIL

SOIL WATER

Soil water refers to the water in the soil which is usually obtained from rain or irrigation. Water represents about 25% of the total volume of the soil. It is usually found in the soil within the pore spaces. When water is too much in the soil, the soil is said to be Water logged. To make then water logged soil productive, drainage must be applied. However, a situation where there is a lack of water in the soil for a very long time, to the extent that plants cannot absorb water even when supplied again results in a condition called Permanent Wilting Point. At this stage, the plants may die.

TYPES OF SOIL WATER

There are 4 types of soil water. These are;

1. GRAVITATIONAL WATER

This water is not held drained out through the force of gravity. Gravitational water is used by plants in very small quantity and it is often pulled down beyond the reach of the roots, (leaching), which means it supports leaching of the plant nutrients.

2. HYGROSCOPIC WATER

This is water absorbed to bind particles together. Clay particle, humus, and colloids absorb this water that bind them together. It is tightly held by the soil particles such that it is never available to the plants.

3. CAPILLARY WATER

Capillary water is held in the soil after gravitational water has drained off. This water raises above the water table in the soil and is held in the fine and medium pores of soil particles by surface tension. Capillary water is easily available to the plants and they make use on a large scale.

4. FIELD CAPACITY

This is the water left in the soil after excess water has been drained off, following heavy rainfall. This water is available to the plants.

IMPORTANCE / EFFECTS OF SOIL WATER ON AGRICULTURE

- I. Water is an essential raw material for photosynthesis.
- II. Water aids easy tillage of the soil and also helps improve soil structure.
- III. It promotes the activities of soil organisms.
- IV. It is needed for the germination of seeds.
- V. It aids the turgidity of cells.
- VI. It is an important agent in the weathering of rocks in the soil.
- VII. It promotes cooling effect on crops.

ASSIGNMENT

1. Explain living organisms as a component of the soil.
2. Discuss the importance/effect of living organisms on agriculture.