

Water Logging

Water logging is a phenomenon in which the groundwater level increases over the ground, and the soil becomes submerged. Water logging means staying in a particular position for a long time. Due to the water logging, the soil becomes submerged and may affect some useful properties of the existing soil strata.

The phenomenon of water logging occurs when the water in the plant's root zone may remain present for a long time. It depletes oxygen availability to the root and decreases the growth of the plants. Water logging is one of the major reasons for the decreasing growth of plants. In some cases, it may lead to plant death due to the deficiency of oxygen.

Causes of Water Logging

Water logging is the phenomenon of increasing the water level from the groundwater table. So it may happen due to various reasons. It may be due to flood conditions or due to drainage problems. And it may cause several problems in the surrounding environment. Here are a few causes of the water logging are given below.

- Water logging can occur due to the presence of impermeable strata below the subsurface layer of the soil.
- It may occur due to the poor drainage characteristics of the catchment basin.
- It may occur due to the prevailing flood conditions in the catchment basin.
- It may occur due to water seepage from a nearby canal or river system.
- It may occur when heavy rainfall occurs in the catchment.

Effects of Water Logging

Water logging is the phenomenon in which soil gets fully submerged for a long enough time. It can occur for various reasons and may cause harmful effects on the existing soil. Here few effects of water logging are explained in detail.

- **Poor Soil Aeration:** In the water logging situation, the water table rises and hence removes the entrapped air in the voids of the soil. Hence, due to water logging soil aeration can not be done properly, and it affects the growth of the soil.
- **Effect on pH of soil:** Due to the water-logging situation pH of the soil reduces and becomes more acidic, hence alkalinity reduces the soil. This affects the growth of the plants.
- **Effect on the temperature of the soil:** Due to water logging, the temperature of the soil decreases. And due to the low temperature of the waterlogged soil, the activities of the microorganisms reduce. This will reduce the rate of nitrogen fixation in the soil.
- **Effect on soil nutrients:** Due to the water logging effect on the soil, some useful nutrients diminished due to the prevailing water logging situation. It further leads to the decreasing growth of the plants.

- **Effect on cultivation:** Due to water logging conditions, it is difficult to cultivate the soil. Waterlogged soil may or not be suitable for the proper growth of crops. In waterlogging conditions, only rice can survive in the environment.
- **Accumulation of Harmful salts:** Due to water logging in the area, some harmful salts present in water may accumulate while drying and can harm the soil.
- **Growth of water-loving plants and animals:** Some wild plants that are water-loving can survive in water-logging areas. And may promote the killing of the existing crop nature. These plants decrease the useful nutrients of the soil.
- **Effect on human health:** Due to water logging in areas, many water-loving insects may survive, and it may cause several harmful effects on the surrounding human beings. These insects may cause Malaria, typhoid, dengue, etc., serious diseases.

Water Logging Problems

Water logging is the phenomenon of increasing the water table of the existing groundwater table. It may cause several problems to the existing soil. Here a few water logging problems are listed below.

- Water logging reduces the aeration of the soil.
- The reduction potential of the existing soil reduces due to the water logging conditions.
- Water logging reduces the maturity time of the crops.
- Due to water logging, carbon dioxide accumulates in the plant's root zone and reduces the plant's growth.

Types of Water Logging

Water logging can be classified into various types based on several factors. These factors include the causes, performance, water sources, location of waterlogging, etc. Here a few types of water logging are given below.

- **Riverine Flood Water logging:** It occurs due to flooding of the river water in the nearby locations. And generally occurs in the rainy season.
- **Oceanic Flood Water logging:** As the name suggests, It occurs due to the flooding of the seawater in the nearby locations.
- **Seasonal Water logging:** It occurs in rainy seasons due to the improper drainage of the rainwater. It occurs due to the poor drainage characteristics of the catchment.
- **Perennial Water logging:** This will occur when the groundwater meets with the nearby stream and runoff spreads in the nearby location.
- **Subsoil Water logging:** It occurs when the groundwater table rises up due to any reason. It generally occurs in the rainy season.

Preventive Measures of Water Logging

Some of the important preventive methods of water logging are given below.

- Artificial open and underground drainage grids are a possibility. Similarly, it may be beneficial to enhance the natural drainage systems' current flow conditions.
- Utilizing water more wisely will eliminate the percolation loss. It can also be accomplished by minimizing irrigation intensity.
- To avoid an increase in the water table and consequent waterlogging, rainwater should be swiftly evacuated from the soil's surface.
- Alkaline irrigation water has an impact on the soil and increases its susceptibility to future waterlogging. Alkaline water shouldn't be utilized for irrigation because of this.
- The mulching process entails spreading organic or inorganic materials on top of the soil.

