



**FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES**

## **Water logging**

For optimum growth and yield of field crops, proper balance between soil air and soil moisture is quite essential. Except rice many of the cultivated plants cannot withstand excess water in the soil. The ideal condition is that moisture and air occupy the pore spaces in equal proportions.

**When the soil contains excess water than that can be accommodated in the pore spaces it is said the field is water logged.**

## **Causes of water logging**

1. Excessive use of water when the water is available in abundance or cheaply due to the belief that more water contributes better yield.
2. Improper selection of irrigation methods
3. Percolation and seepage from lands canals and reservoir located at nearby elevated places
4. Improper lay out and lack of outlets
5. Presence of impervious layer with profile impeding percolation
6. Upward rise of water from shallow ground water table or aquifer.

## **Effects of water logging**

### **Direct effects**

- Replacement of soil air which is the main source of oxygen for the roots as well as soil microbes.
- Due to high amount of CO<sub>2</sub> in soil air high CO<sub>2</sub> concentration under water logged condition will kill plant roots. -Sometimes superficial root system or air space in root system will develop.
- Due to poor aeration intake of water and nutrient will be reduced.

### **Indirect effects**

- Nutrients are made un-available due to leaching
- Toxic elements will be formed under anaerobic condition

- Composition of organic matter under anaerobic condition results in production of organic acids like butyric acid which is toxic to plants.
- Reduces the availability of N, Mn, Fe, Cu, Zn
- Reduces soil temperature
- Reduces the activity of beneficial microbes
- Destruct soil structure
- Difficult for cultural operations
- Incidence of pest, disease and weeds .