HUMIDITY

The amount of water vapour that is present in atmosphere is known as atmospheric moisture or humidity.

Absolute humidity

The actual mass of water vapour present in a given volume of moist air. It is expressed as grams of water vapour per cubic meter or cubic feet.

Specific humidity

Weight of water vapour per unit weight of moist air. It is expressed as grams of water vapour per kilogram of air (g/kg).

Relative Humidity

The ratio between the amount of water vapour present in a given volume of air and the amount of water vapour required for saturation under fixed temperature and pressure. There are no units and this is expressed as percentage. In other terms it is the ratio of the air's water vapour content to its maximum water vapour capacity at a given temperature expressed in percentage. The relative humidity gives only the degree of saturation of air. The relative humidity of saturated air is 100 per cent.

Dew Point temperature

The temperature to which a given parcel of air must be cooled in order to become saturation at constant pressure and water vapour content. In this case, the invisible water vapour begins to condense into visible form like water droplets.

Vapour Pressure deficit

The difference between the saturated vapour pressure (SVP) and actual vapour pressure (AVP) at a given temperature. This is an another measure of moisture in the atmosphere which is useful in crop growth studies. When air contains all the moisture that it can hold to its maximum limit, it is called as saturated air, otherwise it is unsaturated air, at that temperature. The vapour pressure created at this temperature under saturated conditions is **vapour pressure** or **saturated vapour pressure (SVP)**.

Importance of Humidity on crop plants

The humidity is not an independent factor. It is closely related to rainfall, wind and temperature. It plays a significant role in crop production.

1. The humidity determines the crops grown in a given region.
2. It affects the internal water potential of plants.
3. It influences certain physiological phenomena in crop plants including transpiration.
4. The humidity is a major determinant of potential evapotranspiration. So, it determines the water requirement of crops.
5. High humidity reduces irrigation water requirement of crops as the evapotranspiration losses from crops depends on atmospheric humidity.
6. High humidity can prolong the survival of crops under moisture stress. However, very high or very low relative humidity is not conducive to higher yields of crops.

7. There are harmful effects of high humidity. It enhances the growth of some saprophytic and parasitic fungi, bacteria and pests, the growth of which causes extensive damage to crop plants.
8. High humidity at grain filling reduces the crop yields.
9. For almost all the crops, it is always safe to have a moderate relative humidity of above 40%.

Variation in Humidity:

1. Absolute humidity is highest at the equator and minimum at the poles.
2. Absolute humidity is minimum at sunrise and maximum in afternoon from 2 to 3 p.m. The diurnal variations are small in desert regions.
3. The relative humidity is maximum at about the sunrise and minimum between 2 to 3 p.m.
4. The behaviour of relative humidity differs a lot from absolute humidity. At the equator it is at a maximum of 80 per cent and around 85 per cent at the poles. But, near horse latitudes it is around 70 per cent.