
Plant Available Water

In-field soil moisture content can vary from saturation to air-dry soil. However, plants cannot extract additional water in a saturated soil, and they are unable to extract any water in an air-dry condition. Instead, two other moisture content levels, **field capacity** and **permanent wilting point**, are often used to indicate the upper and lower limits of **plant available water**. Field capacity is defined as the condition that exists after a saturated soil is allowed to drain to the point where the pull of gravity is no longer sufficient to remove any additional water. Water draining from a soil profile cannot, in general, be taken up by plant roots. On the opposite end of the spectrum, permanent wilting point is the highest moisture level when plants consider the soil dry and are unable to extract more water from the soil.

Irrigation should be scheduled somewhere between these two extremes. One rule of thumb is to apply water when half the plant available water has been depleted. However, individual circumstances may dictate a more conservative or liberal approach. The opposite side of this card illustrates the plant available water range for the 12 USDA-defined soil textures. Keep in mind that these numbers are merely guidelines and will vary for individual soils.