



Soil Water Holding Capacity

FACT SHEET

Plants consume, on the average, 0.1 to 0.3 inches of rainfall or irrigation per day. They use more in hot, dry weather than in cool weather. Well fertilized crops require less water than poorly fertilized crops. Soils vary their water holding capacity depending on texture, organic matter and structure.

Soil “holds” water against the pull of gravity, retaining it for crop use. There are upper limits to this ability. The upper limit is called “*Field Capacity*”, the lower limit is called “*Permanent Wilting Point*”.

How much water a soil can hold is very important for plant growth. Soils that can hold a lot of water can support more crop growth and are less prone to loss of nutrients and chemicals through leaching. All the water held by soil is not available for plant uptake. The difference between “*water holding capacity or field capacity*” and “*wilting point*” is the “*plant available water*”. In the laboratory we perform two test to determine plant available water.

Field Capacity water content - wilting point water content = plant available water

Approximate Water Storage Capacity of Soils

Agronomic handbook J.Benton Jones Jr.

Soil Texture	Total Storage (in./ft)	Available Water (in./ft)
Coarse sand	1.0-1.5	0.6-0.8
Sandy loam (coarse to medium)	2.0-2.5	1.0-1.5
Silts and loams (medium)	3.5-4.0	1.6-2.0
Clay loams (medium to fine)	4.0-4.5	2.0-2.5
Clays (fine)	4.5-5.0	1.6-2.0

Infiltration Rates

Soil texture	Good Physical Condition (in./hr.)	Poor Physical Condition (in./hr.)
Coarse sand	2.0-3.0	1.2-1.6
Fine Sand	1.8-2.0	0.8-1.2
Sandy Loams	1.2-1.8	0.5-1.0
Silts and loams	1.0-1.2	0.3-0.4
Clay loams	0.5-1.0	0-0.3
Clays	0.2-0.5	0-0.2

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