

CERTIFIED LANDSCAPE IRRIGATION AUDITOR



THE IRRIGATION ASSOCIATION



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Field Capacity

When a soil has been thoroughly wetted, then allowed to drain by gravity for a specified period of time (usually one to two days depending on soil structure), the soil is said to be at **field capacity**. The amount of water contained in the soil is determined by laboratory procedures and is usually expressed as inches of water per inch of soil depth, or inches of water per foot of soil depth.

Available Water (AW)

The **available water (AW)** in a soil is the amount of water stored between field capacity and the permanent wilting point. The AW of a soil is related to texture and structure. Typical AW and Management Allowed Depletion (MAD). Values are shown in Table 3-6. MAD is discussed later in this section.

Infiltration Rate and Intake Rate

Infiltration rate is a measure of how quickly water enters a soil. Infiltration rates play an important role in management of soils because they influence how rapidly water can be applied without having runoff. Compacted soils, thick thatch, and slopes all work to create low infiltration rates. Infiltration rate declines with time during an irrigation, and it also varies with the texture of the soil as illustrated in Figure 3-11. For irrigation scheduling purposes, it is useful to physically observe and record the elapsed irrigation time at which runoff begins to occur. The **basic intake rate** is the rate at which water percolates into the soil after infiltration has decreased to a low and nearly constant value.

Table 3-6: Soil water holding capacities and MAD by texture

SOIL TEXTURE CLASS	AW (in./in.)	BASIC INTAKE RATE (in./h)	MANAGEMENT ALLOWED DEPLETION* (%)
Clay	0.17	0.10	30
Silty Clay	0.17	0.15	40
Clay Loam	0.18	0.20	40
Loam	0.17	0.35	50
Sandy Loam	0.12	0.40	50
Loamy Sand	0.08	0.50	50
Sand	0.06	0.60	60

*Any value of MAD greater than 50% should be tried with a small area before being applied site-wide.