

SOIL MOISTURE REGIMES (SMR)

CONCEPT—cumulative and consecutive periods of dryness and moistness in the soil moisture control section.

Dry—water potential less than -1500 kPa (- 15 bars).

Moist—water potential greater the -1500 kPa.

SOIL MOISTURE CONTROL SECTION (SMCS)

Upper boundary—depth to which dry (but not air-dry) soil is wet by 2.5 cm of water in 24 h.

Lower boundary—depth to which dry soil is wet by 7.5 cm of water in 48 h.

Rule of thumb estimates of SMCS:

Sandy textures: 30 - 90 cm

Coarse-loamy textures (<18% clay, but not sandy): 20 - 60 cm

Other textures: 10 - 30 cm

Soil Moisture Regimes

Aridic (or torric) -- arid climate, usually dry, irrigation required for crop production. SMCS dry > ½ the time that $T_{50} > 5\text{ }^{\circ}\text{C}$ and not moist for 90 consecutive days when $T_{50} > 8\text{ }^{\circ}\text{C}$.

Ustic—semiarid climate, rainfall during a growing season. Not applied to cryic STR. SMCS moist ½ to ¾ of time or moist 90 consecutive days. SMCS dry < 45 consecutive days in summer.

Xeric—semiarid climate, Mediterranean climate, cool, moist winters, dry summers, dryland crop possible from stored soil water. Not applied to hyperthermic or iso-STR. SMCS moist ½ to ¾ of time, moist > 45 consecutive days in winter, and dry > 45 consecutive days in summer.

Udic—humid climate, usually moist, generally irrigation not required for crop production. SMCS dry < 90 cumulative days and < 45 consecutive days in summer.

Perudic—precipitation exceeds evapotranspiration in all months, but soil is not saturated for long periods.

Aquic—soil saturated long enough to cause anaerobic conditions, not used as a criterion for differentiating taxa.

Aquic conditions—requires saturation, reduction of Fe and Mn, and redoximorphic features (including redox depletions, redox concentrations, and reduced matrix). Saturation conditions include episaturation, endosaturation, and anthric saturation.