

## Plant Available Water Capacities for Soil Textural Classes in Montana<sup>1</sup>

	<b>Texture</b>	<b>Soil Textural Class</b>	<b>Estimated Average Plant AWC (in/ft)<sup>2</sup></b>	<b>Range in Estimated Plant AWC (in/in)</b> (For use on Soil Interpretation Records) <sup>3</sup>
Sandy Soils	Coarse	Sands	0.5	0.02-0.06
		Loamy sands	1.0	0.06-0.10
		Loamy fine sands	1.25	0.08-0.12
		Loamy v. fine sands	1.25	0.08-0.12
		Fine sands	1.25	0.08-0.12
		Very fine sands	1.25	0.08-0.12
Loamy Soils	Moderate coarse	Sandy loam	1.5	0.11-0.15
		Fine sandy loam	1.5	0.11-0.15
	Medium	v. fine sandy loam	2.0	0.15-0.19
		Loam	2.0	0.15-0.19
		Silt loam	2.0	0.15-0.19
		Silt	2.0	0.15-0.19
	Moderately fine	Clay loam	2.2	0.16-0.20
		Sandy Clay Loam	2.2	0.16-0.20
		Silty clay loam	2.2	0.16-0.20
Clayey soils	Fine	Sandy clay	2.0	0.15-0.19
		Silty clay	2.0	0.15-0.19
		Clay	2.0	0.15-0.19

1 Soluble salts and gravel will decrease plant available water capacity; whereas, organic matter and good soil structure will increase it. The capacity increases about 0.1 in/ft for each 1% organic matter. Soils with water restricting layers like compact subsoil, shallow bedrock or stratification can increase PAWC of the overlying layers. Soils that are deep, medium textured and uniform can have decreased PAW but allow for deeper rooting.

2 Soil depth measured to depth of crop rooting or depth to a root-limiting layer.

3 For the loamy and clayey soils, the range in plant AWC is 10 to 15% on each side of the median AWC figure. For sandy soils, (other than 'sands') the range is 20-25%. For 'sands' the PAWC is extremely variable and depends upon the size of the individual sand grains, i.e. medium sands hold more water than coarse sands.

Approved by Soils Committee, MSU, Plant and Soil Science Planning Conference, January 31, 1984.