

Understanding Soil And Water Relationships

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The 2008 crop season has certainly started out as a wet one. Excessive moisture has delayed planting and made field operations difficult at best.

By mid-May, some areas in southern Illinois had already received as much rain as they would in a dry year. Many areas had recorded up to 70 to 80 percent of normal annual rainfall by mid-May.

The characteristics and physical properties of a soil influence the soil-water relationship. It is often stated that an ideal soil composition is 50 percent mineral and organic matter in combination with 25 percent air and 25 percent water. Obviously, the water has been displacing the air in our soils for most of this spring.

Quite a few southern Illinois soils have poor internal drainage, and some also have poor surface drainage. Much of this is dependent on soil texture, structure and slope.

Texture is essentially the size and composition of the particles that make up the soil. An example of coarse soil might be large sand. An example of a fine-particle soil would be clay. Silt represents the medium-sized particles. A real world soil is usually made up of a combination.

Why is this important? Sand drains quickly

but has low water-holding capacity. Clay holds large amounts of water; however, it is quite slow to release water. Medium-textured silt loam soils are considered to have both good drainage and good water-holding capacity.

Soil structure is defined as the arrangement of soil particles into aggregates of different sizes and shapes. The clusters of soil particles are called peds. Structure does not change texture, but a desirable structure can improve tilth as well as air and water movement. A structure that is granular to angular blocky is considered desirable.

Additional soil characteristics such as moisture-holding capacity, permeability, porosity, water availability, depth, and bulk density are also important. Soils are complex and dynamic in that they continue to change.

Amount of slope and length of slope are field characteristics rather than soil characteristics. Slope does influence surface drainage capability and erosion potential. Soil scientists classify slope by gradient, complexity, length and aspect.

So now you know . . . it is not just a wet field; it is an elaborate, blended, intricate, saturated soil. Seriously, remember that soil is a valuable life-sustaining resource. Improve your soil through informed management decisions. Δ

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