# Good tilth increases the moisture absorption ability of farm soil

Trashy fields of crop residue are not forgotten on idle fields. They are busy...visibly, controlling erosion and conserving moisutre. Not so visibly, but quite important, crop residues in fields in conservation tillage are improving tilth.

Good tilth indicates that soils are loose and easily crumbled to provide a good seedbed. This allows ease of root growth, provides easy movement of soil moisture and better use of fertilizer. The end result is improved yields.

Soils are a living and breathing environment for plants and soil organisms. When soil is too densely packed, there is little space for crop air, water and soil as. Soil tilth is improved by the addition of the organic matter that is left on the surface layer and by using less equipment which causes compaction. This is one of the prime benefits of using conservation tillage.

Because we farm the soil, compaction will always be a problem. To what degree that problem affects our crop depends on how much compaction has occurred. The more trips over the field, the bigger the problem. Compaction layers are caused by heavy equipment on medium and coarse textured soils. This layer, often called the plowpan, occurs immediately below the depth of tillage.

Every time a tractor tire or a tire of a heavy implement rolls over the soil surface, it compresses the soil and crushes the soil particles together into a tighter mass. To eliminate or reduce this plowpan, reduce the number of trips across the field with conservation tillage and use as light weight equipment as possible.

Compact soil has a great deal of difficulty absorbing moisture, and water runs off carrying valuable topsoil and nutrients with it. Compaction also prevents good root development. Because the roots can't penetrate the plowpan, they tend to spread along the surface and are cut off from the subsoil moisture and plant nutrients.

Farmers have been concerned about soil fertility for years. All types of fertility programs are advanced to get yield increases, but many of them overlook tilth as a factor in growth. Not that fertility is unimportant. High yields cannot be reached without it, but high yields cannot be reached without soil tilth. Soil that has a good physical condition plus excellent fertility level usually produces higher crop yields.

Nutrient uptake by the crop system is hampered by lack of air in tight soils. Because the root system must have air to use fertility in the soil, the tighter soil becomes, the less efficient the roots are in getting plant food and nutrients.

In examining your crops for poor tilth, look at the growing crops. Corn may appear stunted. Uneven growth is one of the first signs of compaction. Corn purpling is often blamed on cold soil, phosphate deficiency, or herbicide injury, but tight soils limit the plant's ability to take up nutrients.

In soybeans, the growth may be stunted or the beans may turn prematurely yellow. Take a close look at soil particles; they may be more spherical. Those driven on for years will have sharper and more angular edges.

Soil compaction has been known to reduce corn plant potassium uptake by 70 percent, nitrogen by 30 percent, magnesium by 20 percent, and calcium by 10 percent.

Good tilth increases the moisture absorption ability of the soil and creates a better environment for healthier root growth. This also controls erosion by reducing runoff and increases the soil's earning power.

To get started with conservation tillage and improving your soil tilth, contact the district conservationists at the local office of the U.S. Department of Agriculture's Soil Conservation Service.

Simplicity