



NORTH PLATTE
Natural Resources District

Press Release

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No-Till Notes: What Is Soil Quality?

By Kathy Buttle NRCS Resources Conservationist

This week's column is written by Kathy Buttle, Resources Conservationist specializing in soils. Kathy is based out of the USDA-Natural Resources Conservation Service (NRCS) office in Scottsbluff.

As a conservationist with the Natural Resources Conservation Service (NRCS), I advocate Continuous No Till Cropping Systems. My responsibility is to assist private landowners in conserving all of our resources. We use an acronym "SWAPA" to identify those resources; soil, water, air, plants, and animal. There is a reason soil comes first. If we take care of our soil, it will take care of the other four resources.

Tillage is not a natural occurrence. By using a no till system with a diverse crop rotation, we will improve the quality of the soil.

What is soil quality? Soil quality is the capacity of the soil to function, to sustain plant and animal productivity, to maintain or enhance water and air quality, and support human health and habitation. Soil grows our food, filters our water, cycles our nutrients, and supports the structures that shelter us.

Soils vary in their capacity to function. Quality is specific to each type of soil. We need to understand there are inherent soil properties that we can not change. Factors like climate, topography and parent material we have little or no control of. We refer to this concept as soil capability.

The dynamic factors that we do have control of are tillage and management practices and diverse crop rotations. The dynamic quality is what we refer to as soil quality. There are three indicators of soil quality; physical, chemical, and biological. Physical indicators are infiltration rates, soil structure, aggregate stability and bulk density. Examples of chemical indicators are organic matter, pH, electrical conductivity (salt content), and cation exchange capacity. An interesting indicator is the biological or the measure of living organisms and their activity.

While we can't measure soil quality, we can assess it or compare it to other management systems and monitor it over time. If you would like to test the quality of your soil, contact your local NRCS office and ask to have a conservationist come to your farm. We have soil quality test kits that we can use to evaluate your soil.

While working with ag producers who are transitioning to no till farming practices, I have noticed that soil quality is not something that they are concerned with at the start. However, as they see what soil quality can do for them, it seems to become a major consideration for them after a few years. As producers, we contemplate what crop to plant, what form of fertilizer and how in what quantity to use, what pests we need to deal with, our equipment. Soil should be our first concern. The soil supports the plant, feeds and waters our crops, and with help from diverse crop rotations, manages pests.

For questions regarding soil quality or conservation of any natural resource, contact your local Natural Resources Conservation Service.