

**A LITTLE BIT COUNTRY
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Growing Interest in Organic Matter

Over the years I have heard many farmers say “If you treat your soil well, it will treat your crops well”. The major focus of these farmers was to minimize soil loss through wind and water erosion to tolerable levels. But today’s aggressive farmers want to completely eliminate erosion and enhance productivity to levels which were beyond the dreams of the previous generation of farmers. They are convinced they can do this by increasing soil quality.

Many soil properties impact soil quality, but farmers, researchers and soil managers are beginning to understand the influence organic matter has on soil health. Organic matter enhances water and nutrient holding capacity. According to USDA’s Natural Resource Conservation Service (NRCS), soil organic matter holds 10 to 1,000 times more water and nutrients than the same amount of soil minerals. This is key, especially in times of drought or water stressed periods. Under irrigation, higher organic matter levels can decrease the amount of applied water and leaching of nutrients beyond the crops rooting depth.

Managing for increased levels of organic matter will require exploitation of new farming practices such as continuous cropping, diverse crop rotations which include crops with high biomass, and cover crops. As with other facets of life, there will not be a single recipe that will work for everyone. Soil variations and climate will have major roles when choosing farming practices with the ultimate goal of increasing organic matter.

At first, management for higher organic matter levels may require higher pesticide, herbicide or nutrient applications. Ernie French, former Superintendent of the Williston

Research Center, found this to be true as he experimented with reduced tillage and continuous cropping.

Over the past two decades, farmers in this area have been moving in the direction of soil improvement beyond erosion control. Thanks to the efforts of people like French and government farm program incentives, tillage fallow has been, for the most part, eliminated. Continuous cropping is becoming a normal practice rather than half fallow and half wheat. Evidence of this can be found in the 2010 Acreage Summary Report released this past fall by USDA's Farm Service Agency. That report showed 42,000 acres fallowed compared to a total of 640,000 acres planted to annual crops.

"Go slow" is a key message I hear from farmers who are aiming to improve soil organic matter and soil function. Like growing a new crop, expect a transition period and a learning curve associated with management changes. Be aware that soil biological and physical properties will improve before increased soil organic matter is noticeable.

Besides being cost effective, the increased usage of no-till and continuous cropping seems to be working in our favor. However, in time, such cropping systems alone may contribute to soil compaction. To prevent this, farmers may be tempted to incorporate tillage which will be counterproductive to the goal of building organic matter levels. According to USDA-NRCS, occasional tillage can destroy all of the organic matter gained during several years of no-till. Cover crops with high-biomass production appear to be a likely response to compaction caused by continuous cropping and no-till.