Soil Health Introduction

There has been much buzz within the agricultural community about **Soil Health**, but what is Soil Health and what does it have to do with agriculture and the rest of us?

Soil health is directly related to the biological activity of soil. Healthy soil is home to billions and billions of microorganisms. In fact, in just a hand full of healthy soil there are more microorganisms than there are people on earth and perhaps as many as 30,000 different species. As soil organisms increase in numbers and diversity; soil structure and soil chemistry improve making the soil richer and healthier. The key to healthy soil is to create a habitat in which soil microbes can live and thrive. That habitat is based on carbon derived from living plants and crop residue.

Although tillage was once thought of as a good agronomic practice, it is perhaps the single most detrimental thing one can do to undermine soil health and soil productivity. Tillage wreaks havoc on soil organisms by destroying them and their habitat. A single tillage after years of no-till undermines years of soil building. Tillage destroys soil structure, causing soil compaction, crusting, less infiltration, excessive runoff and soil erosion. No-till, crop rotation, and ***keeping the soil covered at all times***, with crop residue and ***with a diversity of live plants***, creates an environment in which soil microbes can thrive, soil structure is enhanced, nutrient and moisture availability are improved, weeds and other pests are suppressed, runoff is reduced, and soil erosion is minimized.

Improving soil health should be the goal of soil conservation. Healthy soil is the key to continued soil productivity and resolving many natural resource problems including soil erosion, flooding, and nonpoint pollution of our streams. Healthy soil has greater infiltration capability and greater water holding capacity; resulting in less runoff, less flooding, and less soil erosion. Healthy soil increases the nutrient and moisture available to plants; allowing for the production of high yielding crops that can better withstand drought and crops that require less chemical inputs. However, healthy soil cannot be restored overnight. It takes time, commitment, patience, and good management skills to rebuild and maintain the physical, chemical, and biological properties of the soil.

Soil health affects us all in many ways. Healthy soil is good for the greater environment, contributing to purer water, cleaner air, and improved fish and wildlife. In the next 40 years, it is projected that the human population of the world will increase from 7 billion in 2010 to more than 9 billion in 2050. In just 25 years, between 1982 and 2007, 14 million acres of prime farmland were lost to development in the U. S., an area half the size of Tennessee. By 2050, several million more acres of prime farmland will have been developed for other uses. To feed the world in 2050, food production will need to rise by 70 percent over the 2010 level. As the world population continues to grow and agricultural land continues to decline, healthy soil becomes increasingly important if agriculture is to keep pace with our ever increasing demand for food and fiber. By taking care of the soil it will take care of us. However, our failure to take care of the soil will surely lead to our eventual downfall as it has led to the decline and collapse of past civilizations.