

IMPROVING SOIL HEALTH IS A JOURNEY

Improving soil health on your farm is a process or journey and the more we emulate nature, we can start to decrease inputs according to Ray Archuleta, a national recognized speaker on soil health. Ray was the keynote speaker at a farm near Blue Hill on March 26th. The Berns brothers, who farm near Bladen, hosted a workshop with an audience of over 200 farmers and local FFA students. Ray reinforced we are on the right track with less tillage.

Ray is a NRCS Conservation Agronomist and a member of the National Soil Health and Sustainability Team. Ray teaches with a passion and demonstrations were geared towards how cover crops can increase soil health and improve productivity. With a late spring this year, some farmers will be tempted to till the soil when it is too wet on top. If that happens, we create compaction and clods detrimental to plant health.

In the Berns brothers new farm shop building, Archuleta started his class with a soil aggregate stability test, one indicator of soil health. He had soil clods from different farms, one was from a no-till farm in North Carolina and a no-till farm in Nebraska and a conventional tilled field from Nebraska. The clods were dry and placed in a tube of water. You can try this with your garden or farm soil. You want to see how water rushes in to fill the pore spaces. The low disturbance soil did not fall apart. The high disturbance soil fell apart and made the water murky or colored quite rapidly.

One of the reasons the soil of low disturbance is better is because of the microbe and fungi activity and glomalin. Glomalin or biotic glues are produced abundantly on hyphae and spores of mycorrhizal fungi in soil and in roots. Soil is a living ecosystem not a growing medium. The soil Ray had from North Carolina was from a farm that has been in no-till for 40 years. It currently is 2.75% organic matter which is excellent for that area. In a hot, humid environment and when the soil doesn't freeze very often the soil microbes are eating all the time. When Europeans entered North Carolina the woods were 3% organic matter in nature. The farmer hasn't used nitrogen fertilizer for 19 years, no phosphorus in 9 years and he uses one herbicide now instead of five. To do this with his normal cropping system, he uses manure and cereal rye with an 8 way cover crop mix and has been doing this for 30 years. Low disturbance with cover crops make good things happen to your soil including an increase in soil test values. We can't do this with high disturbance farming.

The Berns brothers who hosted the workshop have developed a cover crop seed SmartMix Calculator. With wheat stubble there are all sorts of choices. If grazing is your goal, there are better choices for that situation. In a strict corn-bean rotation, cover crop choices are much narrower to choose from.

The SmartMix Calculator is at <http://www.greencoverseed.com/smartmix.htm>. This calculator allows you to choose from nearly 50 different species of legume, brassica, grass, and broadleaf crops to make the mix that best fits your operation. Choose and change seeding rates and watch the calculator analyze your mix for C:N ratio, nitrogen fixation potential, grazing potential, winter tolerance, diversity index, and frost tolerance. The calculator gives you seeds per pound, seeds per acre, price per pound and total cost of the mix are immediately available. Anyone can use the calculator online without ordering seed.