

# Measuring Soil Health Like Never Before

Midwestern BioAg has partnered with Trace Genomics to provide the most innovative and comprehensive analysis of soil biology, chemistry, and pathology available to our customers. Take a deeper look into the health and productivity of your soil.

## Why use Trace Genomics?

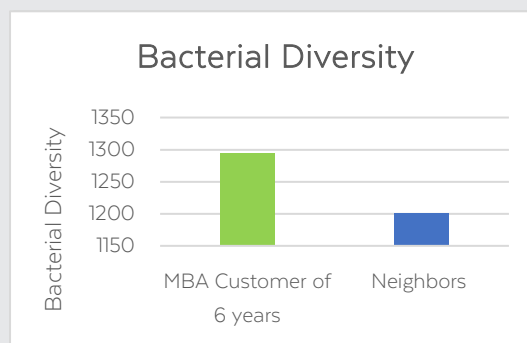
- Soil health has historically been difficult to measure. More precise analytics from Trace Genomics, (ex. bacterial diversity, active soil carbon, total organic carbon) allow us to better understand the effects of management practices on soil health
- We can now demonstrate how the Midwestern BioAg system makes your farm more resilient and profitable with data-driven insight from Trace Genomics
- Trace Genomics provides a full chemical soil test and 21 biology and pathology analyses to track changes in soil health

## Measuring Changes in Soil Health

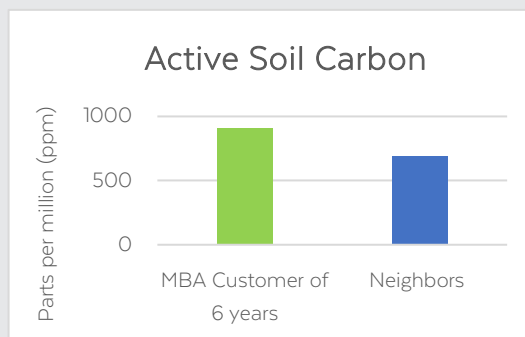
The figures to the right tell a story of three adjacent fields with varying management practices. These fields were sampled to a depth of 6 inches on August 12th, 2021.

- Each of the fields were planted in corn and located within 150 yards of each other near Utica, MN
- The soils are classified as Seaton Silt Loams with similar slopes
- The BioAg customer (green bars) has been using an MBA prescribed fertility program for the previous 6 years
- An average was composited for two immediately adjacent neighbors' fields (blue bars), who have been using other fertility programs

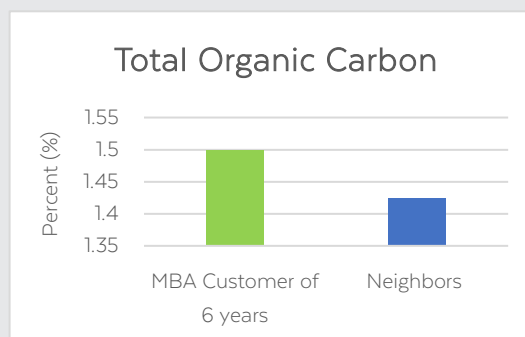
## Comparing Three Soil Health Building Analyses



**Bacterial Diversity** indicates the number of species of bacteria and archaea present and the relative abundance (evenness) of each species. Although the value presented is a unitless number, a higher value is a positive indicator for soil health.



**Short-term changes in carbon.** Active soil carbon can reflect carbon changes from management practices and is strongly related to total organic carbon trends in as little as a few years.



**Long-term changes in carbon.** Total organic carbon is the measurable form of carbon in soil organic matter. Although total organic carbon is the best indication of carbon stabilized in soil, increases in total organic carbon are slower and may take years to decades to be detectable.