

Soil Health Corn Trials with Continuum Ag FRESH PLOTS



In a series of trials in Iowa, Continuum Ag is working on programs to transition from conventional to a regenerative/biological farming system in corn/soy rotation. Biological inputs are complementing or replacing conventional fertilizer. The trials are evaluating how well the products stimulate soil microbiology and provide improved plant nutrient uptake.

In 2019, we used Pacific Gro Oceanic with Biochar 2-2-0.3, at 14 gal/acre in furrow in place of the 10-34-0 starter. Though this provided less nitrogen, the N efficiency was 25% higher, and yield was a bit higher (267 bu/acre versus 262). Magnesium uptake was 9% higher and Calcium uptake was 3% higher. And soil biological activity was 23% higher, as measured by CO₂ Burst.

In 2020, we trialed multiple applications rather than a heavy starter application. Pacific Gro Oceanic 2-1-0.3 was applied together with Sea Crop, a micronutrient biological product derived from ocean water. There were four applications: pre-plant, in furrow, and broadcast sprays at V-3 and V-6 (2 gal Pacific Gro, 1 gal Sea Crop). Corn yield increased over 5%.

Sap analysis showed **improved amino nitrogen uptake**, higher total nitrogen, but lower nitrate. Insects are attracted to high nitrates in plant sap. So by increasing amino N and reducing nitrate N, insect pressure is reduced, as well as disease pressure.

Better plant health was noticeable in darker green foliage and less disease pressure. The control plot had yellow lower leaves, showing stress and N deficiency, some leaf disease, and leaves starting to roll — all limiting yield potential. The treated plot had green lower leaves, no N deficiency, no disease, a cooler canopy and flat leaves that capture more sunlight.

Soil nutrient increases show the benefits of a biological approach: + 11.3% water-extractable organic carbon, + 43.8% phosphorous, + 91.8% potassium and + 23.2% iron.

In 2021, the trial field rotated to soy beans. After corn harvest, Pacific Gro was applied to feed the microbes and help decompose residues, which improves the soil for the next crop.

Pacific Gro was applied pre-plant (4.5 gal/acre PG Sea Phos) and broadcast sprayed mid-season (2 gal/acre PG Sea Phos, 1 gal/acre Sea Crop, 1 gal/acre Meta Grow ST and Meta Grow C-Food). The control field received 100 lbs/acre potassium sulfate.

- Yield was about the same, at 65 bushel/acre soybeans.
- Plant nutrient status was significantly improved: +33% brix, +70% plant phosphorous and potassium, +36% plant nitrogen, +29% plant sulfur.
- Soil calcium increased + 16%.

It appears that the soil is very well set up for an excellent corn crop in 2022. There's healthy soil biology and plentiful available nutrients.

