



"We're excited to be looking at the biological side of fertility and Solvita fills that role."

**Mac Ehrhardt, Owner, Mgr.
Albert Lea Seed, Freeborn County, MN**

The Challenge

Southern Minnesota soils are heavy with high organic content and aggressive soil tillage is a common practice. This has led to structural degradation and excessive N-mineralization.



Native Prairie Grass where some soil samples were taken.

Discovery

Albert Lea Seeds arranged to sample three soil landscapes on Le Suer, Webster and Lester soil series. Samples included prairie, old-growth forest, no-till and conventional plowed and cover-cropped.

Albert Lea Seeds was founded in 1923 as a family-owned seed store. Current owners Tom and Mac Ehrhardt, grandsons of Lou Ehrhardt, the founder, currently operate the Seed House. They offer all types of cover crop seeds and are Certified Organic Processors for processing organically-raised grains, soybeans and other field crops.

WHY ALBERT LEA USED SOLVITA SOIL TESTING

Mac and Tom worked with local growers and Woods End labs to establish a testing program to include CO₂-Burst, SLAN, bulk-density and water capacity.

Results

Significant differences were observed for all soil test comparisons. The 2 highest CO₂ respiring soils were native prairie and old-growth forest. The No-Till-cover-crop system came in a close third. The lowest CO₂ respiration was ripped-tilled and moldboard soils. The highest SLAN amino-N was found in the previous manure-slurry management - all characteristic results.

Solvita CO₂ correlated highly with soil water capacity. *Results are available on request.*



Old growth woodland vs adjacent conventional tilled field samples.



Results of comparing differing soil-management systems in southern Minnesota by Solvita soil health. a study by Albert Lea Seeds and Woods End Laboratories

Soil Samples: Paired soil samples taken in Albert Lea MN. Date: December 2015.

Soil Series: Le Sueur, Webster, Lester. **Soil tests:** Solvita CO₂, SLAN, BD and WHC @ 50%WFPS.

RESULTS: Solvita strongly correlated ($p < 0.008$) with soil water-holding-capacity (Fig 1) and negatively in proportion to soil bulk density ($p < 0.01$)(Fig2)

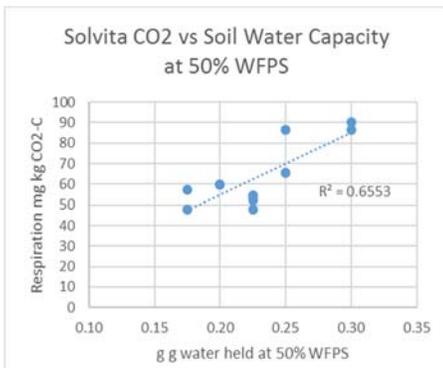
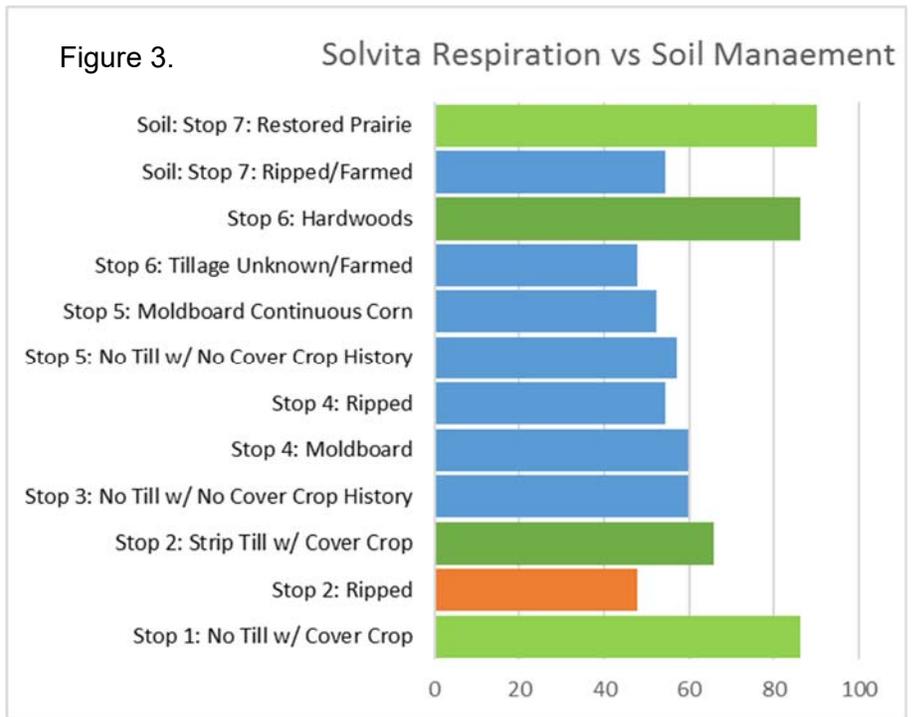
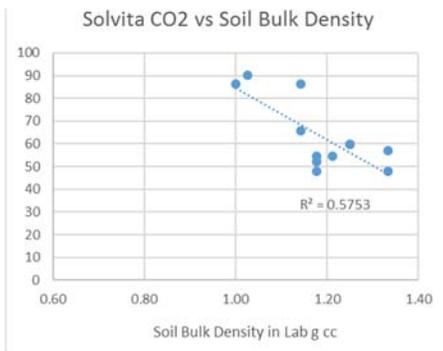


Fig 1 (above) and Fig 2 (below)



Management related to observed CO₂ burst in all cases (Fig 3). The restored prairie highest and ripped-soil lowest (90 vs 45ppm). Amino-N (SLAN) had large differences with the highest found after manured soil and 2nd highest No-Till was tied with Old Growth Forest in organic-N reserves (Fig. 4)

