

Soil Health and Agriculture Research Extension (SHARE) Farm Research Projects in Mooreton, ND and Logan Center, ND

FY 2021 research mid-year report, North Dakota Soybean Council

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Objectives of the research

Research and Extension efforts at the SHARE Farm – North will initially: (1) demonstrate and evaluate field-scale, whole system strategies on saline and non-saline soils developed and guided with farmer-input and (2) transfer science-based knowledge to ND farmers using farmer-driven Extension approaches. Additional objectives and cooperators may be added as the project develops in coming years.

For FY2021, objectives are to (1) evaluate field-scale soil moisture and temperature under no-till and conventional tillage practices, (2) Evaluate field-scale cover crop establishment in each part of the rotation, yield and soil dynamics under (a) no-till/cover crop and (b) conventional tillage/no cover crop treatments, (3) evaluate changes in soil properties under (a) no-till/cover crop and (b) conventional tillage/no cover crop treatments.

Completed work – Mooreton SHARE farm

- Oat cover crop flown onto soybean in later September
- Worm survey conducted
- Monitored water table depths and water quality
- Soybean yield and cover crop biomass measured
- Soil samples at 5x5 meter grid resolution were acquired
- Veris EC measurements acquired and salinity map generated
- Conventional tillage treatments deployed with a chisel plow
- Deployed soil moisture and temperature sensors

Completed work – Logan Center SHARE farm

- Soil moisture and temperature data for no-till/cover crop and conventional tillage collected
- Weed pressure and stands assessed
- Rye/radish/camelina interseeded into corn with a modified drill in late June/early July
- Corn yield and cover crop biomass measured
- Post-harvest cover crop samples obtained
- Soil samples at 5x5 meter grid resolution were acquired

Preliminary results

- Samples recently collected and lab work is still being conducted, data compiled
- Extension program evaluations being compiled and analyzed
- Corn yields at Logan Center were 158 and 145 bu/ac for conventional and no-till, respectively

Work to be completed

Host Soil Health Café Talk program; Other extension workshops and farmer group meetings held; tillage strips freshening (spring 2021); plant fields; interseed cover crops