Cover Crop Options for Salinity Management

The Situation
Soluble salts are a part of the geology in North Dakota. Soluble salts in Traill County are present in varying levels of severity depending on landscape position and also management choices. How producers manage their salt-affected land will dictate the size of the problem and long-term use of the land for agricultural production. Increasing producer awareness of how to better manage these trouble areas using approaches such as crop choice/rotation and soil disturbance level will help control the issues at hand.

Extension Response
NDSU Extension Agent Alyssa Scheve has offered educational programming on soil health since 2013. This has included discussing soil health issues in several newsletter articles, a presentation at Eastern Ag Day in January 2015, and several one-on-one discussions with producers in person or on the telephone. It has also included use of a soil health demonstration plot that was established near Cummings, ND.

Scheve collaborated with local producers to identify potential locations for the Traill County salinity demonstration site in 2013. The site was established along with seven other demonstration sites in surrounding counties using EPA 319 funds to expand soil health programming. The main goals of this site were to increase awareness of salinity issues, demonstrate salinity management options, and provide learning opportunities.

The Traill County plot was mapped for salinity to learn more about the soil variability in the location. In 2015, three mixes were seeded into wheat stubble to demonstrate the effectiveness of cover crops to manage soil salinity: 1) cereal rye, radish, and turnip, forage peas, 2) cereal rye, forage peas, and crimson clover, and 3) cereal rye, sorghum/sudangrass, and rapeseed.

With funds from the Traill County Crop Improvement Association, Scheve hosted a Salinity Management Field Day at the Traill County salinity demonstration plot on September 29, 2015. The goals of this field day was to educate producers and industry professionals alike about the management techniques that will help in making the soil healthy again. Topics ranged from weed management to the use of buffer strips in ditches to affect salinity. Scheve taught the session focused on utilizing cover crops to build soil health. Eighteen producers and industry professionals attended the field day.

Impacts
Evaluations of field participants were used to assess improvements in understanding of soil health concepts. Evaluations showed:

- 33% increase in understanding in the use of cover crops to build soil health
- 33% increase in understanding in the use of buffer strips to manage ditch effect salinity
- 40% increase in understanding of the benefits of using cereal rye as a cover crop

Producers in Traill County have implemented practices to better manage salinity as a result of Scheve's programming. For example, one producer increased cover crop acres from 60 to 600 acres in order to improve soil health on difficult fields.

Feedback
“I'm more open to taking a chance at something new!”

“We are considering more widespread options on some of our tough ground in the future on old grain ground.”

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