

## WHAT ABOUT COVER CROPS?

In the past couple of years I have discussed the use of cover crops in cropping systems, particularly in no-till systems. A couple of years ago we had a no-till/cover crop field day in Nemaha County. The NRCS has been promoting the use of cover crops as a way to improve soil health. Just last week a tour across Nebraska visited producers that have been using cover crops in their operations for several years. Earlier this summer a group of producers and educators visited farms that have been using cover crops, and research on cover crops in North and South Dakota. There have also been cover crop seed companies develop that are growing, selling and distributing cover crop seeds to producers in Nebraska and neighboring states. Cover crops have been used for a number of years by organic producers as green manures to provide nutrients and fertility to the soil for the following crop. Livestock producers have been planting forage crops following wheat, corn silage or sometimes over seeded into soybeans and/or corn for fall, winter and spring grazing or hay for several years.

On Saturday, September 7<sup>th</sup>, a number of producers in southeast Nebraska hired a helicopter to fly on cover crop seed mixtures into standing corn and soybean fields. Other producers in the region have used airplanes to overseed into corn and soybean crops, while some agribusinesses and producers have developed ground rigs to overseed into standing crops. The key to making any of these systems work is water. Sufficient water either through natural rainfall or irrigation is required for timely establishment and growth. The general rule of thumb is to plant cover crops, right before leaf drop in soybeans. This will ensure more favorable seed to soil contact for the cover crop seed and improve the chances of cover crop establishment.

So what are the benefits of cover crops? Cover crops can provide erosion control, add organic carbon and/or nitrogen to the soil, improve soil structure, provide weed control and be a source of forage for livestock. What are negative impacts of cover crops? If cover crops are not terminated in a timely manner, cover crops may use up valuable soil moisture that could impact the following crop. Experiments conducted at the ARDC and on-farm have shown variable results on the effect of cover crops. There have been both positive and negative responses to the use of cover crops. A recent national survey conducted by USDA SARE (Sustainable Agriculture Research and Education) and CITC (Conservation Information Technology Center) surveyed over 750 farmers in 36 states that used cover crops. The farmer survey indicated that in the fall of 2012, corn planted after cover crops had a 9.6% yield increase compared to side by side fields with no cover crops. Soybean yields increased 11.6% following cover crops compared to fields with no cover crops. Cereal rye is one cover crop that can have a negative impact on germination and growth of the subsequent corn crop if it is not managed properly. Some producers across the Midwest have had challenges in terminating annual ryegrass when it is used in cover crop mixes. It can almost act like a weed in fields. Some cover crops may also tie up nitrogen for the subsequent corn crop, so supplemental nitrogen may be needed to maintain corn yields. There are a number of

cover crop mixtures that are being used by producers in Nebraska and other states. Some of the brassica species, i.e. tillage radish, Ethiopian cabbage, rape are being used to help penetrate the soil. Various legumes are being used to provide nitrogen to the soil, i.e. vetch, sun hemp, cowpea, Austrian winter pea, and crimson clover. Cereal crops are being used to provide carbon to the mixes and add grazing potential, i.e. brown mid-rib forage sorghum, sudangrass, brown mid-rib corn, pearl millet, rye, triticale, oats, barley, or wheat. The use of cover crops in the fall is an excellent practice to add organic matter to the soil and provide protection from erosion. If you have never used cover crops before, oats works very well if you just want something to hold the soil that will winter-kill.

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