Nehl's Switch from Tillage to No-till and Cover Crops Nets Profits

The home in which Robert Nehl lives has been in his family since Woodrow Wilson was president. You’d have to go back even farther to find the roots of the Corson County land he farms today. “I have a picture of my great-grandpa with a horse and plow,” Robert, 36, said. “He came here in 1914 and built the home in 1925.”

The farm land was worked in much the same way for years. Each of the four generations that have lived there and farmed have passed down similar ideas and techniques. Sure, equipment has changed some, and so has the way they’ve gone about planting and harvesting their crops each year.

But in 2013, nearly 100 years after his great-grandfather first put a plow to the ground, Robert decided it was time for a bigger change. With the help of district conservationist Ed Bahm of the Corson County NRCS office, Robert planned and implemented a no-till and cover crop plan for his land.
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“The wheat I had in 2014 was the best I ever had where there was cover crops,” he said. “It was the nicest wheat I saw all year long.”

Robert had farmed for a few years in the early 2000s but sold his equipment in 2005. He worked at a local grain elevator for three years, all the while keeping an eye toward returning to farming. “I talked to a lot of guys,” he said. “You could look around and see who had a good crop year in and year out.”

Wanting to do Better

In 2009, Robert rented the farm back and, in his words, “did OK.” He wanted to do better. “I knew what I was doing wasn’t working,” he said. “I decided to shift gears and do something different.”

The information Ed shared with him was backed up by some of his neighbors and some of those he talked to while working at the elevator: No-till. Cover crops. Patience.

In August of 2013, while the combine was still bringing in wheat, the tractor and air seeder were in the field putting in a cover crop. Robert said the success of that first cover crop, an 8-species variety, was fueled by some nice rains. He grazed cows on it for 3 1/2 weeks, pulling them off only because of bad weather.

“They only ate 30 or 40 percent of it,” he said. Soil tests the following spring (2014) showed 125 pounds of available nitrogen per acre. Elsewhere, there was only 35 to 40.

The no-till concept goes against the full tillage methods used on Robert’s farm for decades. The cover crop was a mix of turnips, radishes, lentils, winter peas, sweetclover, oil sunflowers, sorghum sudangrass and forage oats.

Half of the 147 acres was planted to wheat and the other half to corn in the spring of 2014. “It was just as good a corn (as anywhere on the farm) but it was on the poorest soil on the place,” Robert said.

The plow pan created by years of tillage can be seen in the radishes and turnips. They grow straight down until they hit the pan, then angle off. In time, the radish, turnips and other crops will break through and leave what Ryan Beer, NRCS rangeland management specialist, calls a more mellow soil.

A mix of seeds should include warm and cool season grasses and broadleaf plants. “The more diversity, the better it does,” Ryan said.

Seeing results so quickly was big benefit for Robert. Other farmers in the area told him it might take five years to see significant results. The first year alone, the soil test recommendations for 100-bushel corn showed a savings of $38.36.
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Soils tests done at the end of March 2014 showed nitrates at 128 lbs. per acre on the cover crop acres and 32 lbs. per acre on non-cover crops. Organic matter was 4 percent compared to 3.5 percent, potassium was 374 ppm compared to 271 ppm, and chloride was at 24 lbs. compared to 16 lbs.

Spring wheat on the cover crop acres yielded 60 to 62 bushels per acre and averaged 14 to 14.2 percent protein. Spring wheat on non-cover crop acres yielded 50 to 52 bushels at 12 to 13.5 percent protein. The 14 percent wheat brought $6.33/bushel compared to $4.83 for 12 percent. The gross return per acre was $379.80 compared to $241.50 – a 57 percent increase.

Robert said he knew the results were good on the first round he made with the combine. “My dad said ‘that’s twice what I used to think was a good crop,’” Robert said. “I never dreamt a guy could raise what I did the last couple years.”

Robert said it takes some extra manpower to plant the cover crops, especially when harvest is going on at the same time. He’s watched other farmers plant part of their cover crop one day and finish it a month later.

“They don’t give it an honest shake,” he said. “The reason he’s successful is because he gets it in the same day,” Ryan said.

Grazing the cover crops not only put shine on Robert’s cows but also sped up the process of creating the litter layer that promotes soil health. Their nutrients don’t oxidize into the air but instead go back into the soil. The concepts of grass management and crop management are basically the same, Ryan said. “It takes grass to grow grass and stubble to make stubble,” Ed said.

Robert has a son who is 18 months old. He’s already showing an interest in cattle, machinery and farming. Perhaps one day he’ll come up with another way to farm the land Robert is on now. For now, Robert is ready to stay on the path he’s on and collect data for a few more years.

“I’m not sure why I’d change,” he said. “The profitability of it is there all day long.”

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Robert shows a couple examples from the mix of cover crops used that include turnips, radishes, lentils, winter peas, sweetclover, oil sunflowers, sorghum sudangrass and forage oats.