



# Project

From page B1

Kevin Harms explained the research effort on his family farm during a recent tour, noting that he operates the farm along with his son, Danny, and Kevin's brother, Norman.

The Harms family farms about 3,250 acres in Livingston, McLean and Ford counties. They had a dairy operation until 2007 and now focus on corn and soybeans.

"We became involved in the Indian Creek Watershed Project last summer. We signed up five different enhancements or practices," said Kevin Harms. "We use cover crops in the fall for scavenging nitrogen. We put it on after cornstalks to protect from soil erosion and organic matter buildup and maybe some tillth.

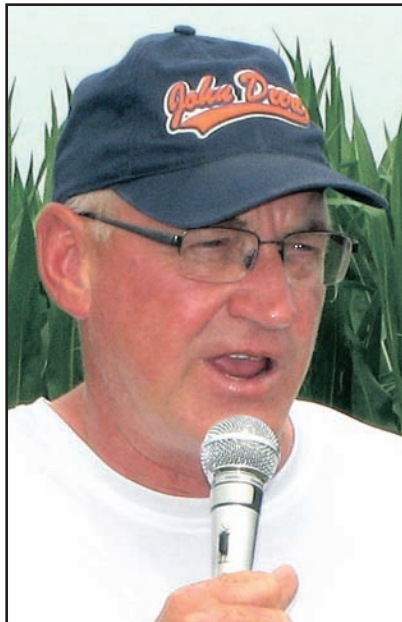
"On the nitrogen, we've started doing a nitrate testing. Our normal program was fall anhydrous — side-dressing is something that we're going back into, so we test the nitrates in the soil before we side-dress and go by the recommendations given to us for that."

The Harms take stalk samples at black layer in the fall and analyze them for nitrate levels.

"It's a way to perhaps manage next year's nitrogen. We'll find out whether there were extra nitrates left over in the stalk or not from our application this year," Harms said.

Pointing to the field at the tour stop, Harms said a nitrogen study of four 20-acre side-by-sides is being conducted.

"We have 20 acres of ESN applied this spring. We divided that into two 10-acre plots, one with the normal 150-pound application and the other with approximately 15 percent reduction at 125 pounds, which is



Kevin Harms

what the company advertises you can do with the ESN," he said.

"It's a little more expensive product, but if you could reduce the rates, it could be a very attractive way of applying nitrogen. The sustained release part of it makes it environmentally friendly, and hopefully this sustained release will be yield friendly, too.

"We side-dressed the next two plots at 150 pounds of 28 when the corn was about one foot tall. Next to that are one-half 75 pounds in the fall of anhydrous and 75 pounds of 28 side-dressed. The fourth plot is for our normal program of 150 pounds of fall anhydrous. Hopefully, we'll get some interesting comparisons out of that.

"They asked me why we were doing this, and I said to be honest I thought it would be a good way to find a way to produce a crop cheaper and use our nutrients more. But obviously the real purpose of this is to improve water quality not only here in the Indian Creek Watershed, but all the way

through the Mississippi River Basin."

"We want to get that nitrogen in the plant when it needs it," said Tim Smith of Crop-smith.

Smith is contracted through the Conservation Technology Information Center, which assisted Harold Reetz of Reetz Agronomics to design the demonstration sites and nutrient efficiency studies.

"These plots are going to help us demonstrate if these different management practices are better in this watershed. Then we can take those results to all the farmers and help them fine-tune their nitrogen rates and their timing and their placement and maybe even their product selection," Smith said.

"We want to make everybody a better farmer, everybody more efficient, we want to make the water a little cleaner and we want to make the yields a little higher."

Also during the Harms farm tour stop, John Niemyer, Agrium sales representative, explained the use of ESN.

Niemyer said is a coated urea nitrogen fertilizer that delivers nitrogen to the crop with control and predictability. A flexible, micro-thin polymer coating over top of the nitrogen granule enables this precision.

This unique membrane allows water to diffuse into the granule, dissolving the nitrogen within, according to Niemyer.

The urea liquefies into a nitrogen solution, yet remains encapsulated within the coating. The tightly controlled and consistent coating process produces a product that performs consistently.

The nitrogen solution moves through the membranes in a

predictable manner, matching the nitrogen demand curve of the crop.

"The product is designed to put on just before corn. When you use it in the springtime, it will release slowly at first when the corn is very small," Niemyer explained.

He said as the soil warms and crop growth continues, the granules release nitrogen more quickly and steadily. This continues throughout the growing season to keep up with the rapid plant growth. This process is called temperature controlled diffusion.

John Deere's role on the Harms farm involved providing through Crop Production Services a John Deere 2510H nutrient applicator to apply fertilizer.

Pauley Bradley, John Deere nutrient application product manager, said there were three reasons that John Deere became involved in this study.

"Nitrogen is critical for us to raise the food and feed and fuel that we need to feed the market, and we know we're under pressure with how we manage our nitrogen. This was an excellent opportunity to demonstrate some technologies," Bradley said.

"About five years ago, John Deere recognized that there was need in the marketplace to develop some technologies to apply nitrogen more timely — in-season nitrogen application. So we developed some technologies to help do that more productively and profitably with less risk. One of the products we brought to market was 2510H toolbar applicator to inject nitrogen in-season."

Deere's 2510H Nutrient Applicator employs high-speed, low-disturbance injection technology to place anhy-

drous ammonia beneath the soil surface. It uses 30 percent less fuel and disturbs the soil less than traditional shank-and-knife application.

"That was one reason we had the opportunity to participate with other companies like Agrium with our technologies and see how we can improve agriculture and corn growing," Bradley said.

"The second reason is this initiative is unique in the fact that its ambition was to try to get at least 50 percent of the corn growers and acres involved the watershed engaged in participating and applying practices to their land.

"That was something that gained a lot of attention around what agriculture can do if it really unifies and you get a large broad effort like that.

"We wanted to see what the outcome would be, so we're interested to find out what that will be, understanding it will take a few years before we see meaningful results.

"The third reason is partnerships. We've been a supporting of Conservation Technology Information Center, and they are engaged in this. We also worked with Crop Production Services, the local retailer here, to use that toolbar on about 2,300 acres here in the watershed."

The CTIC and Livingston County Soil and Water Conservation District are project leads. Project partners include the Illinois Environmental Protection Agency with funding provided through the Clean Water Act and U.S. Department of Agriculture's Natural Resources Conservation Service, as well as support from corporate sponsors.

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