

# Precision ups yields, lowers N rates

By CURT ARENS

**T**ECHNOLOGY can be great when it saves money and places inputs precisely. Eric Fuchtmann of Creighton and his father, Clifford, have integrated technology into their cropping system, utilizing 20 years of soil test results for nitrates to vary the rate of anhydrous ammonia fertilizer applied over the 1,000 acres of corn they raise.

Eric Fuchtmann says that the system they use now is the fruition of years of tinkering, as well as waiting for technology to catch up to their ideas. "We've been using anhydrous ammonia for years. We usually apply in mid-April, a few days before disking and planting," he says.

## Exactly where they want it

"Anhydrous kind of gets a bad name," he continues. "But the way we are using it, the nitrogen gets exactly where I want it."

Fuchtmann first began looking at varying the application rates when the price of anhydrous began to soar a few years ago. He purchased an inexpensive valve that was wired to a power window switch. Pushing the valve one way raised the pressure and increased the rate for irrigated land. Pushing it the other way reduced the pressure for a lower rate on the dryland corners of their center pivots.

The nitrogen rates for different soil types on Fuchtmann's land are based on the University of Nebraska's algorithm, according to certified crop adviser Mark Pavlik of Pavlik Crop Consulting. Pavlik grid-sampled Fuchtmann's land, breaking each field down into 3- to 5-acre zones. In areas of the fields where finished cattle had been grazed, for instance, sampling proved that residual soil nitrate levels were higher.

"Sandy soils have lower yield goals and, consequently, lower nitrogen requirements for corn," says Pavlik. "Loam soils have higher yield goals and require more nitrogen," with recommendations being made after considering residual nitrates present. "There

## At a glance

- Father-son duo uses variable-rate technology, GPS and grid sampling.
- Corn yielded 200 bushels, with 100 pounds per acre of N.
- In 2009, they advanced to automatic rate switching.

is more variability for nitrogen recommendations on dryland corn because water is the limiting factor for yield," Pavlik says.

Fuchtmann purchased a hand-held GPS unit, and Pavlik loaded the zone areas into the GPS. Along with a Raven 440 monitor, Fuchtmann was able to switch manually between two different valve settings, using one setting for irrigated land and the other for dryland, but referencing between the GPS unit and the monitor on zones where nitrogen had been carried over.

"It keeps you busy watching everything," Fuchtmann says about that system. However, by using grid soil samples in coordination with varying anhydrous rates, Fuchtmann was able to achieve 200-bushel-per-acre corn with only 100 pounds of anhydrous on the land where the cattle had grazed and cycled nutrients back into the soil.

The Raven Accu-Flow system also includes a super-cooler mechanism that's mounted on the toolbar, keeping anhydrous in its liquid form longer. This allows for a constant flow and application rate, even if ground speed is varied.

## Automatic rate switch

Last season, Fuchtmann took his system one step further, purchasing an Ag Leader Insight monitor that allows him to place a nitrogen prescription based on Pavlik's soil nitrate zone maps and yield map data into the mechanism, so the rate would be changed automatically according to the GPS location of the tractor.

"As you go, it switches it for you," Fuchtmann says. "It worked like a dream. We had 100% satisfaction with this



**COMBINATION PACKAGE:** Eric Fuchtmann combines variable-rate technology, or VRT, tools and other smaller steps to make precision nitrogen application work.

system as far as fitting into what we wanted to do."

"They used a little less fertilizer" with this new system, says Pavlik. "But they are not wasting fertilizer on the sandy areas. If they get rain, they have a greater yield opportunity" by having their anhydrous placed in the correct amount on the right places in the field.

Fuchtmann also maximizes his anhydrous utilization by paying attention to details. He applies anhydrous into standing cornstalks with a toolbar with 20-inch coulters with each application knife and closing discs behind the knives. In addition to Raven Accu-Flow, he makes sure that the hoses are all the same length and application knives are of the same brand. He employs a CDS-John Blue Impellicone anhydrous flow divider on the toolbar to make sure fertilizer is delivered evenly between the knives.

Fuchtmann says that anhydrous is typically cheaper than other forms of nitrogen. Utilizing long-term soil nitrate testing and emerging variable-rate application technology makes it even more economical. "It can create a big savings on nitrogen," he says.

*Arens writes from Crofton.*



**NITROGEN PRESCRIPTION:** Eric Fuchtmann compares soil nitrate zone maps (left) to data fed into the Ag Leader Insight monitor, allowing him to make a nitrogen prescription for corn.

## Coming Events

### March

**3-4:** Governor's Ag Conference, Holiday Inn, Kearney. Call 402-471-2341.

**3-4:** Triumph of Agriculture Exposition, Qwest Center, Omaha. Call 402-346-8003.

**4-6:** Nebraska Winery and Grape Growers Forum and Trade Show, Holiday Inn, Kearney. Go to [agronomy.unl.edu/viticulture](http://agronomy.unl.edu/viticulture).

**17:** Winter No-till conference, Veterans Club, Ord. Call 308-728-3781.

### April

**7-9:** Nebraska FFA Convention, Cornhusker Hotel, Lincoln. Call 402-471-2441.

**8-9:** Ethanol 2010: Emerging Issues Forum, sponsored by the Nebraska Ethanol Board, Magnolia Hotel, Omaha. Call 402-471-2941.