

Sunday, March 5, 2006

Farmers put technology to work

GreenSeeker computes nitrogen levels in fields

By Mike Surbrugg
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MIAMI, Okla. — Brent Rendel gets a lot of looks from people when he walks across one of his family's wheat fields in Northeast Oklahoma with something resembling a metal detector.

He's not with the U.S. Environmental Protection Agency looking for lead and zinc levels, nor is he looking for the odd chunk of metal or abandoned coins. They see him using a GreenSeeker Variable Rate Applicator meter on one of the 38 wheat fields farmed by his family.

The meter feeds information to a computer program that reports on nitrogen needs for each field to get the desired level of grain production.

The recommendation is based on growing conditions being ideal from the time the reading is made until grain is harvested.

Data include things such as current Oklahoma weather information.

The Ottawa County Extension Service office is one of 14 in the state where Oklahoma State University has provided a GreenSeeker unit at no cost.

The unit would cost about \$4,000 for individual farmers to buy, said Stan Fimple, Ottawa County extension agent. He attended a school last year to learn about the system and was successful in getting OSU to do GreenSeeker demonstrations on fields of wheat and corn in 2005.

"We will have it as long as farmers show an interest to use it," Fimple said.



Globe/Mike Surbrugg

Stan Fimple (left), Ottawa County agent for the Oklahoma State University Extension Service, and Brent Rendel use a GreenSeeker Variable Rate Applicator meter to test nitrogen levels on one of the Rendel family's wheat fields near Miami, Okla. Fimple sought the GreenSeeker equipment for area farmers, who can use it without charge.

Using it means setting aside a small portion of each field where extra levels of nitrogen are applied in addition to the nitrogen put on over the field at planting.

These plots become monitors for the GreenSeeker to measure in addition to the rest of the field.

The Rendel family applies 25 pounds of nitrogen per acre at planting, and 75 pounds as top-dressing about this time of year. The goal is to harvest 50 bushels

of wheat per acre. The rule of thumb is two pounds of nitrogen can generate a bushel of wheat, he said.

Last fall, he applied 25 pounds of nitrogen over all his wheat fields and then put on either 50, 75 or 125 pounds extra nitrogen in the test plots for each field.

"I put it on by hand and spent the better part of three days doing this on 38 fields," Rendel said.

He finds some fields where plots with extra nitrogen can be

seen with larger and greener plants, but no change in others.

The computer data advise him which fields have potential for economic benefits from applying a specific level of extra nitrogen and those that will not get high enough yields to cover extra nitrogen costs.

The OSU wheat demonstration in Ottawa County in 2005 was done on a Rendel wheat and corn field.

The unit was used two weeks apart on the 115-acre wheat

field. Each time, it advised no additional nitrogen was needed to supplement 25 pounds per acre applied at planting.

"Normally, I would have put an additional 75 pounds of nitrogen per acre on that field," he said.

The field in the test matched the 40-bushel average for the farm. The test plot saved him \$3,000. He did not pay to put on nitrogen, he said.

Economic benefits can come by knowing where and where not to apply additional nitrogen on fields, he said. The 2005 corn trial recommended no additional nitrogen above that applied at planting.

The field did not produce the most corn per acre on the farm, but was the best for profit-per-acre, he said.

Roger Teal, OSU plant and soil scientist, talked about the GreenSeeker system at a meeting Feb. 16 in Afton. He said the process shows no two fields are alike for nitrogen needs.

Information may provide data on the amount of nitrogen stored deeper in the soil, he said. A soil test to measure nutrients in subsoil can provide information, he said.

Excessive nitrogen applications often happen when farmers overestimate grain yields their fields can produce, he said. Higher costs for nitrogen make it impractical to apply it at levels that exceed plant needs.

In corn fields, the nitrogen readings should be taken when plants are in the eight-leaf stage. This will require a spray unit that can work above taller plants and place nozzles so the nitrogen gets to the ground, he said.

Oklahoma farmers can get information on how to use the system at no cost by contacting Fimple at (918) 542-1688.