

Moisture Laden Soils

New Nitrogen Supports Plants Through Rainy Weather

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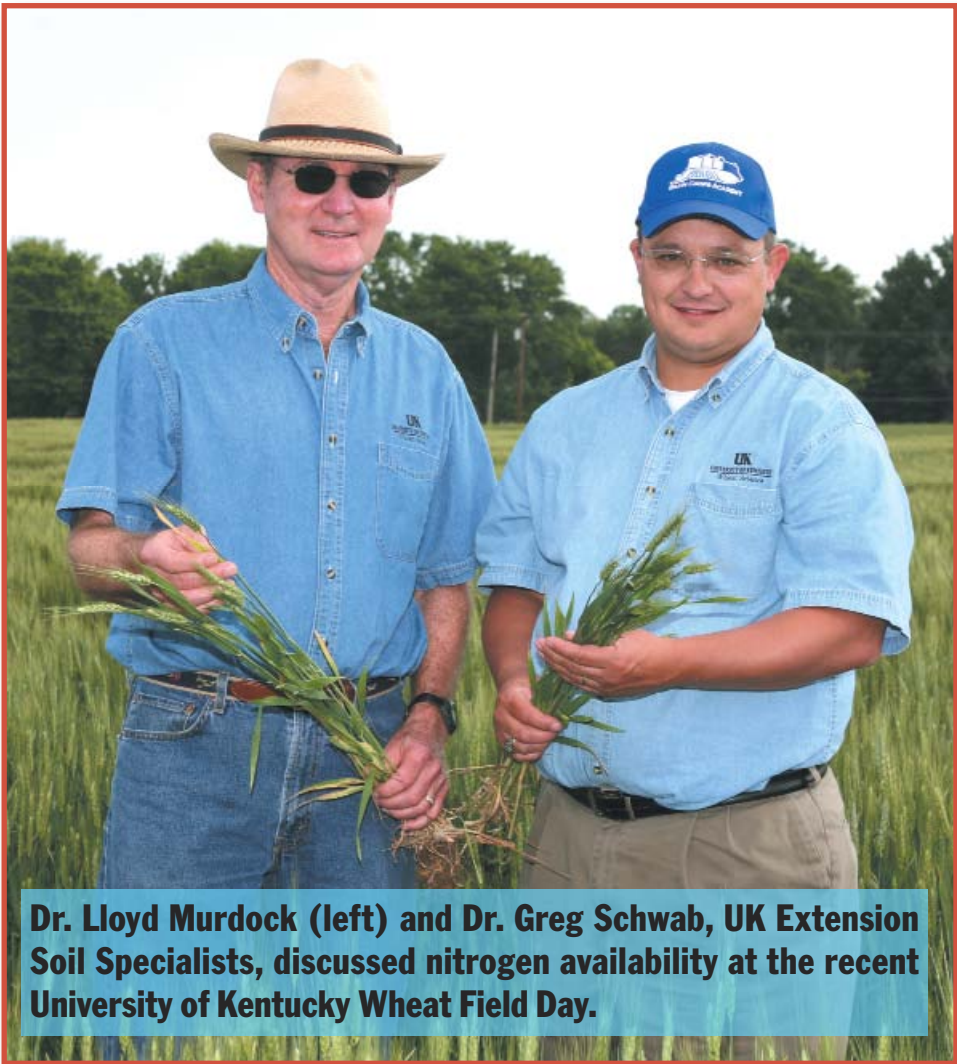
Nitrogen and its seeming unavailability to plants this spring was a topic discussed by Dr. Lloyd Murdock and Dr. Greg Schwab, UK extension soil specialists, at the recent University of Kentucky Wheat Field Day.

“We had like 14 inches of rain in February and March and there’s a lot of issues with what appears to be nitrogen on some of those fields,” said Murdock. “We looked at those problems

losing nitrogen as it is losing root mass.

“Consequently, from our studies that we’ve got out, it seems that you need a fairly constant source of nitrogen,” he added. “If the nitrogen leaches a little bit below the root zone, which readily happens on those more marginally drained soils, then the plants are unable to pick it up. Then, of course, there are other problems that occur with root mass, but we feel that’s one of the primary reasons.”

Bottom line is a continuous source of nitrogen is needed during this type of year.



Dr. Lloyd Murdock (left) and Dr. Greg Schwab, UK Extension Soil Specialists, discussed nitrogen availability at the recent University of Kentucky Wheat Field Day.

and we’re testing a new type of fertilizer to help overcome this.”

Greg discussed the new fertilizer while Murdock centered his talk on what caused the nitrogen deficiency in plants.

“Most wheat is planted on well drained soils which is where wheat is best adapted, but with prices as they are we have a lot of wheat moving into soils that are marginally drained and marginally adapted to wheat,” Murdock continued. “With the price of wheat, people can make pretty good money if they have a good year. On years that we don’t have excessive rainfall, those fields do pretty well with wheat. On years that we have excessive rainfall, they can struggle and this is one of those years.”

Even on a well drained soil, a little bit of nitrogen is lost with all that rain this spring, but the amount of nitrogen lost is minimal, usually from 10 to 20 pounds. On the marginally drained soils, more nitrogen is lost and the crop turns yellow.

“Farmers have been asking many questions as to why does my wheat look bad, it looks like it’s nitrogen deficient,” he said. “I almost have a tendency to agree with them, but when we take deep soil samples and look at the total amount of available nitrogen in the profile there’s not that much difference between the poorly drained and well drained soils with wheat fertilized similarly; so there are probably other issues.

“Then we look further as to why this is happening,” Murdock said. “It appears that one of the culprits is the fact those soils stayed so saturated that a lot of the roots actually died. We did have root mass close to the surface on the more poorly drained soils but it was emaciated compared to well drained soil, so consequently it looks like we did lose more nitrogen in the soils but not enough to make the difference. What really seems to make the difference is the fact that it stayed wet for days and days and days, causing the loss of a lot of root mass, and you lose the ability to take up that nitrogen.”

Murdock’s group feels that is the problem with these soils on this type of year. It’s not so much

Schwab continued to introduce the new type nitrogen, called ESN, manufactured by Agri LM out of Canada.

“It’s a plastic coated urea, and the technology has been in use for a long time in the turf industry,” Schwab said. “It was quite expensive years ago, more than \$1 per pound of nitrogen, but today they have changed the formulation so that they can put that plastic coating on for a lot lower price. So this product is basically the same as what was used for all those years in the turf market but now priced in a way that it’s agriculturally viable for producers. It’s about 7 to 10 cents per pound of nitrogen more expensive than uncoated urea.”

The plastic coating allows the nitrogen to be held in the prill before being slowly released to the plant. It takes both warm temperatures and moisture to release the nitrogen.

“So during the period where Lloyd talked about having a high amount of rainfall, we had plenty of moisture but the temperatures were relatively cool so even though the nitrogen was there it wasn’t subject to as much loss because it was protected in that plastic shell,” Schwab said.

“We’ve been working with this product since about 2003 and it has shown to be pretty beneficial in most years for these wetter soils,” he continued. “This year it doesn’t look like it performed as well as we hoped, but it was an extremely wet year. Those fields that were treated with ESN do look a little lighter. We’re interested to see how they yield relative to what the former practice was.”

Schwab said the product is being tested at five study locations in western Kentucky. The ESN applications are being compared to the standard former practice.

While other companies are pursuing similar technologies to slow the release of nitrogen, Agri LM is the only one right now that has the availability in the United States.

Schwab explained the plastic shell controls the release of the nitrogen throughout the growing season and the UV light breaks down the plastic shell with time.

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