

Controlled-release fertilizers show promise in southern Illinois fields

By NAT WILLIAMS

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BELLEVILLE, Ill. — Corn producers in southern Illinois looking to maximize input efficiency must apply the right product the right way and at the right time, according to Steve Ebelhar.

The University of Illinois soil fertility specialist told producers the unique soil and weather combination in the southern portion of the state offers challenges when it comes to fertilization.

“We can manage nitrogen efficiently to get the most bang for our buck,” he said. “The way we can do that is look at things that work for us, especially in southern Illinois.”

Side-dressing anhydrous ammonia or liquid nitrogen using a knife-injection system is the most efficient method, but is feasible in many cases, Ebelhar said.

“Especially in no-till, if we can get that nitrogen placed below the surface at the time that the corn crop needs it most, it’s going to be the most efficient use of it,” he said. “Logistically, that’s impossible for us to side-dress 12.5 million acres of corn in Illinois.”

While corn growers in southern Illinois often are forced to dodge rains during the period that corn needs to be fertilized, there usually is a window of weather during which application can be made, Ebelhar added.

“Mother Nature sometimes interferes with our plans by raining every other day, or not raining at all,” he said. “Most of the time we get a pretty good window of three to four weeks where we can put our nitrogen on.”

Another option is applying

nitrogen before planting. Producers who decide to do that should make sure they are using a product that releases the nutrients whenever they are needed.

“If you go much before planting you probably should consider putting an inhibitor with it,” Ebelhar said. “The one I’m thinking of is N-Serve. N-Serve has worked very well for us to prevent nitrogen loss from early applications.”

Urea is not the best choice for surface applications, he added, though products such as ammonium nitrate, ammonium sulfate and calcium nitrate are expensive.

In addition, surface application of dry fertilizer presents problems.

“UAN contains only 50 percent urea, but if you dribble that on the surface it kind of limits the contact of that urea with residue,” Ebelhar said.

“And residue is where we find urease, the enzyme that promotes the reaction of breaking urea down into ammonia gas. If that occurs at the surface, that ammonia gas can be lost in the atmosphere.”

Fall application of nitrogen, which is an option on soils in central and northern Illinois, does not work well in southern Illinois.

“We simply can’t hold that nitrogen long enough, even with inhibitors, to have it available when the corn crop needs it,” Ebelhar said.

“The other thing that doesn’t work real well is unprotected application of urea or UAN on the surface, especially no-till. We have a lot of residue and nitrogen loss from volatilization.”

Another option is use of controlled-release products, which have a physical barrier that prevents the nitrogen from being lost to volatilization. They are also designed to release nitrogen when the corn crop needs it.

Nitrification inhibitors, such as Agrotain, keep the ammonium from being converted to nitrates. Other forms are Agrotain Ultra and Agrotain dry concentrate. The products are urease inhibitors, which work only for volatilization losses from urea or UAN.

“No-till is where this product really seems to shine for us,” Ebelhar said. “You’re putting it on the surface. There’s a lot of residue there, so there’s a lot of nitrogen volatilization occurring.”