

# Prairie Pothole Poses Production Challenges



## Denny Friest

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Participant, Iowa Soybean Association  
On-Farm Network

- Corn
- Soybeans
- Swine farrow-to-finish



While most farmers are anxiously awaiting long-promised drought-tolerant corn hybrids, Denny Friest would welcome moisture-tolerant hybrids on his north-central Iowa farm. Too much moisture is often the biggest challenge of farming the dense, poorly drained Clarion-Nicolette-Webster soils, which are typical of North America's vast Prairie Pothole region.

"It's hard to complain about too much moisture, but Mother Nature almost always gives us more than what we'd like to have," relates Friest. "Our soil here is heavy, dense and prone to ponding. I lose far more yield to too much moisture than to not enough. Moisture creates issues from planting through the production season." He has installed 4-inch tile every 70 feet in several fields. Though tiling is not a total solution to improving crop performance, it has decreased yield variability across fields.

### TILLAGE IS A "MUST DO"

Friest also has learned getting the crop off to a good start requires managing fall crop residue using a disk ripper to help soils warm up and dry out the following spring. The goal of this mulch-till approach is to open up the soil but leave 70 percent of the corn residue on the soil surface. His planter is equipped with trash whippers to manage the remaining residue and further warm the seedbed. A 20/20 AirForce™ system on the planter is used to optimize seed-to-soil contact for better germination.

Mulch tillage has proved particularly essential to maintain yields in corn following corn. Replicated strip trials conducted through Friest's participation in the Iowa Soybean Association's On-Farm Network verified the advantages of

mulch-till compared to moldboard plowing and no-till.

As one of the original On-Farm Network participants, he fully utilizes this management tool to evaluate the yield benefit of new products and crop production practices.

"There are certain requirements participants must meet, but we can test anything we'd like as long as there are three replicated strips across the field," Friest explains. "Through the years, I've looked at hog manure, fungicides, soil insecticides, tillage, different plant populations and various fertilizers. With all the new traits available in seed, we are always looking at new hybrids to see what will work best."

### MOISTURE COMPLICATES NUTRIENT MANAGEMENT

Nutrient management is one of Friest's greatest challenges.

"We've been working very hard on nutrient management over the last six or seven years, and something is always changing. It is frustrating," he says.

For example, Friest has seen a significant drop in his normally high P soil test levels, which he attributes to nutrient draw-down from 200 bu/acre corn yields. He also has found the use of phytase in swine feeds has lowered P available from manure, which is a source of N, P and K for a portion of his acres.

He explains, "We know hog manure now will not provide enough P to meet crop removal rates of P for both corn and the following soybean crop, so fields receiving hog manure also receive supplemental P to provide a base of 120 lbs/acre for our 200 bu/acre yield goal."

Friest adds, "To meet P needs and the

possibility our soils also need supplemental sulfur, we've been evaluating MicroEssentials® SZ.™ We've seen good yield response in strip trials." In his 2009 comparison, the corn receiving MicroEssentials produced 10.9 bu/acre more than the untreated check and 6.8 bu/acre more than that which received MAP.

Nitrogen management also is a significant challenge, according to Friest. "We monitor our N use very carefully. We've seen evidence of significant leaching of N from fall-applied manure, so management of this resource must be done carefully."

He continues, "We're not only looking for economic benefit to our fertility practices, but also environmental benefits. We need to be good environmental stewards, and if we can maintain productivity with less nitrogen, everyone wins."

Encouraged by a program from ISA to cut N use, Friest has decreased N application by 25 to 30 percent, or 50 lbs/acre, and now applies around 150 pounds when targeting 200-bushel yields on corn following corn. He prefers to apply N in the spring to reduce the opportunity of leaching and has seen yield advantages to sidedressing in June with 50 lbs/acre.

Friest fully expects nutrient management to remain high on his list of factors to evaluate and closely control.

"We have a lot of good tools in our arsenal. We just need to continue working to see what fits best," he concludes.

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