

How to handle corn's most costly input

By TOM J. BECHMAN

HERE'S a nitrogen-related question for this month's Indiana Certified Crops Adviser panel.

I have 33,500 plants per acre in one field. That hybrid likes high population. I shot for 30,000 in another field but only got 25,000 due to wet weather. About 35 pounds were applied as starter. How much N should I sidedress in each field?

Steve Dlugosz, agronomist, Harvestland Co-op, Wayne County: Adequate nitrogen is essential for maximizing yields, even when stands may be a little lower than desired. Significantly

Crops Corner

reducing N rates on a thin stand could be costly, especially if future wet weather is an issue. I would sidedress a rate similar to the one you planned for.

Gene Flaningam, Flaningam Ag Consulting LLC, Vincennes: The high-population hybrid has the best yield potential. This field apparently hasn't received the adverse weather conditions that can both reduce populations and available N from starter. Assuming the low population

field has a flex-ear and would yield similar to the high-population hybrid, I would not change the N rate on these two fields. Check out the nitrogen rate calculator at extension.agron.iastate.edu/soilfertility/nrate.aspx.

Willis Smith, Senesac Inc., Fowler: There are several more things we need to know, such as nitrogen and corn price. Beyond that, the old rule was 1.2 pounds of N per bushel, less credits after soybeans. So 200-bushel corn would need 210 pounds commercial N ($200 \times 1.2 - 30 \text{ credit} = 210$). If you had



already applied 35 pounds, I would have recommended 175 more.

Recent data indicates N needs may be less than 1 pound per bushel. Use 0.95 pound here. If you shoot for 230 bushels in the 33,500 field, the equation works out to adding 153 pounds per acre.

All research indicates lower population requires less N. Simple math says the 25,500 field needs 76% of the 33,500 field, or 116 added pounds. If it's a flex hybrid, add an extra 20 pounds. I would recommend 136 pounds per acre.

Opinions vary on whether to cut N rate

EVERYONE has one. That field planted the wrong day where the stand isn't what you like. Suppose you wanted 30,000 plants per acre, but have 25,500 instead. Worse yet, the range is 15,000 to 32,000 plants per acre. You were going to sidedress 180 pounds. Should you cut back?

Jesse Grogan says "no," but not everyone agrees. Grogan, an Indiana Certified Crops Adviser, is with LG Seeds, Lafayette. He's basing his decision on the fact that the yield potential may not be affected much. That's reflected in tables used by insurance adjusters in hail situations, assuming the field was planted on time. Find the table at www.kingcorn.org/news/timeless/haildamageyoungcorn.html.

"Plant stand varies within the field, but it's difficult to adjust N rate on the go,"



Grogan says. "Some plants will receive more than needed, but will have maximum potential of yield. My advice is to use the initial N rate that was determined for original yield potential."

Second opinion

"This is challenging," says Greg Kneubuhler, also a CCA, with G&K Concepts, Harlan. "The population range alone will significantly affect overall yield potential. The 32,000 areas will obviously require more N than the 15K population areas.

"Based on what I know I would probably reduce my sidedress rate some, assuming we're fertilizing a 25,500 stand. Even at 25,500, depending on planting date, we're only losing 6% to 8% yield. The only other variable is how consistent the stand is. Reducing nitrogen by 10% should be a safe place to sidedress."

That's significant, however, since 10% of 180 is 18 pounds. At 50 cents per pound, that's \$9 per acre. Yet at \$6-per-bushel corn, 1.5 more bushels per acre would pay for the \$9 of extra N. You make the call!

Apply nitrogen with corn plant in mind

Key Points

- Nitrogen program may need to be designed differently for corn after corn.
- Starter application of N fertilizer important in corn-after-corn situations.
- Multiple applications of N could pay on sandy soils where leaching is more likely.

CORN after corn on irrigated ground on Del Unger's farm near Carlisle may receive as many as five to six applications of nitrogen. The last few applications, often with zinc added, are applied as 28% N through irrigation. The Ungers are prepared to inject N and other nutrients until tasseling if necessary.

Even on nonirrigated land, the Ungers break up their N application during the year. The goal is to apply some N preplant, then apply a healthy dose of N as starter fertilizer. To increase the amount of nitrogen in the starter fertilizer, they mix 28% with 10-34-0.

Then after the corn emerges and takes off, they typically sidedress with additional nitrogen.

Corn-after-corn angle

Applying ample nitrogen as starter fertilizer in corn after corn is important, notes Jim Camberato, a Purdue University Extension agronomist. "You've got a lot of residue out there in that situation, and you need to increase the N rate of starter fertilizer applied," he suggests. "We would recommend 40 pounds of N or more as starter in that situation, especially if it's a no-till field."

Camberato doesn't see much advantage for splitting up N applications several times, except on sandy soils. Since N can leach through sandy soils quickly, he sees an advantage for making multiple applications instead of one larger one if you're set up to make it work. If you can inject 28% N through irrigation water, such as the Ungers can, then the practice should pay for itself.

