

Find the right balance of N-P-K

By JOSH FLINT

WITH fertilizer prices seemingly strapped to a Saturn V rocket, now would be the time to develop a variable-rate technology plan.

As most know, the crux of a good VRT program begins with soil testing. According to Bob Hoelt, University of Illinois professor of soil fertility, not all soil tests are created equal.

"I do not recommend any nitrogen soil test for Illinois," Hoelt says. "None of the tests currently available have reliably predicted N need across a wide range of conditions. The risk of a test predicting a need for no N, when it is needed, is too great."

Calculate N rates

To help calculate how much nitrogen you should apply next season, you can use Iowa State's N-Rate Calculator, online at extension.agron.iastate.edu/soilfertility/nrate.aspx. This tool tells the rate of return using various application rates. The site uses information from University of Illinois for the Illinois soil calculations.

Key Points

- With fertilizer prices on the rise, consider varying input rates.
- Phosphorus and potassium tests have proven their worth.
- Remember to test soil pH and hog manure.

Fred Below, U of I professor of plant physiology, puts a little more stock in N tests. He suggests the Illinois Soil Nitrogen Test, developed by Richard Mulvaney. "I think it's the best thing out there right now as far as predicting the yield potential with regard to N application," Below adds.



In general, Below thinks Illinois farmers are applying too much N. He expects soil tests and price increases have started to bring N application rates down.

Maximize P and K

Hoelt and Below agree phosphorus and potassium tests are a lot more accurate. "There's almost no excuse for having P and K limit your yields with today's soil tests," Below notes.

While N gets a lot of attention, P and K have also jumped in price.

"The important thing is where you don't need it, rather than where you need it," Hoelt notes. "With today's fertilizer prices, you don't want to spread it where you already have enough."

Even though reliable tests exist for P and K, Dan Froehlich, Mosaic Crop Nutrition's U.S. agronomy manager, has heard many farmers are considering cutting back these nutrients by 20%. Farmers who do this could be tossing N money in the trash, Froehlich warns.

"If you don't have adequate levels of P, the plant isn't ca-

pable of pulling in all of the available N," Froehlich says.

Rather than cutting P and K by 20%, Froehlich recommends cutting all three nutrients by 10% if money is tight.

Don't forget

While most are concerned with N, P and K levels, Hoelt says it's a big mistake to ignore soil pH. In his opinion, it's the most accurate test. A low pH can result in reduced microbial growth, which is important for nutrient release. Low pH can reduce root growth and result in reduced water and nutrient uptake.

"If you get too acidic, you're going to reduce P availability," Hoelt adds.

Many have not considered variable application of lime because the input was cheap and readily available, Hoelt notes. Yet as the price of lime continues upward, it makes sense to include pH as part of any VRT program.

In many parts of the state, farmers are beginning to look at hog manure as a viable source of nutrients. "In the past, the nutrient value has been undervalued because most viewed



LIMITING FACTOR: Fred Below says there's no reason phosphorus and potassium levels should limit yields.

it as a waste product," Below adds. Now, he says manure is better described as liquid gold.

Since hog manure includes N, P and K, Hoelt says it's essential to get an analysis before application. He adds, "The pit has to be agitated very well before you pull a sample." If this isn't done, solids may not be included in the sample, which could cause the nutrient content to register artificially low.

■ For more information on P guidelines, go to back-to-basics.net, Mosaic's soil fertility Web site.

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