

September 12, 2008

## PROTECTING YOUR NITROGEN FERTILIZER INVESTMENT

With the dramatic increase in nitrogen fertilizer prices over the past year, producers may be wondering if such large investments in fertilizer are worth it. The thought of investing \$100 or more per acre in nitrogen fertilizer is causing producers to think about how to protect that huge investment.

There are several management options producers can consider to protect their investment in nitrogen fertilizer, and insure that as much as possible is used by the crop this season. In the good old days, producers could take advantage of cheap fertilizer in the fall, open the applicator up a little more and things would seem to work out. This year, a local producer shared that high moisture dryland corn that yellowed and dried up earlier versus the green areas was a 35 bushel/acre difference. So what can we do to protect this huge nitrogen fertilizer investment in wet years?

1) This fall, consider the use of a nitrification inhibitor. N-Serve® is the only product labeled as a nitrification inhibitor. It protects nitrogen from leaching and denitrification losses. N-Serve® is applied at the rate of 1 quart/acre, which currently costs around \$10.00/acre. Years ago we used N-Serve® and learned it corroded parts or oxidized anything that had aluminum, like the float gauges in the ammonia tanks. The answer was replacement with stainless steel parts. UNL data has shown elevated ammonia levels in soils, even as long as the month of June from a fall application of ammonia with N-Serve®. It all depends on the soil temperature and moisture. Does N-Serve® always increase yield? - no. Would I have liked to had a side-by-side comparison in a year like this year? - yes. Should we reconsider N-Serve® fertilizer at \$1,000/ton prices of ammonia? - yes. I know some area farmers are considering the new on-farm injector kit technology as an option, especially if local fertilizer dealers no longer handle N-Serve®. But think about it, if you are doing late fall application, N-Serve® may be an answer to protect that huge investment longer and reduce weather risks.

2) Delay your N application. The longer N is in the soil, the more likely that some of it will be lost – either by leaching, denitrification, or ammonia volatilization. However, multiple applications will require more trips over the field, and those costs need to be considered against the cost of other options.

3) Inject fertilizer below the soil surface. Broadcast application of N fertilizers over the top can increase the potential for ammonia volatilization (primarily for fertilizers containing urea) or for runoff. Immobilization of N in decomposing residue is also a concern with broadcast application. Placing N below the soil surface minimizes the potential for volatilization or runoff. If injecting fertilizer is not an option, surface banding fertilizer instead of broadcasting it can help increase efficiency, though not to the degree of injection.

4) Use a urease inhibitor. Agrotain® is the only product currently on the market labeled as a urease inhibitor, which protects urea-based fertilizer from ammonia volatilization. Agrotain® is applied to fertilizer, so the cost per acre depends on the rate of fertilizer applied. Last spring, the



cost of using Agrotain® with urea was \$0.04 - \$0.06/lb N. To protect 150 lb N/acre as urea with Agrotain®, the cost was \$6.00 to \$9.00/acre.

If a new practice that you implement can help protect against losing 20 percent of the N applied, for example, that may save \$20/acre worth of fertilizer, and perhaps 5-10 bushel/acre of yield potential worth \$25 to \$50/acre, if the applied N fertilizer rate is near the economic optimum rate. With a potential investment of \$10,000 to \$14,000 for N fertilizer alone for a typical irrigated quarter-section field, adding \$800 to \$2,500 to insure that investment seems worthwhile.

Randy Pryor, Extension Educator  
University of Nebraska-Lincoln Extension in Saline County  
306 West 3<sup>rd</sup> Street, Wilber, NE 68465

Phone (402) 821-2151 • Fax (402) 821-3398 • e-mail: [randy.pryor@unl.edu](mailto:randy.pryor@unl.edu)