

As the harvest of 2009 stretched later and later, many producers who would have applied nitrogen fertilizer in the fall were unable to do so because of wet conditions and in some places, standing crops. The excessive rainfall seen across the Midwest likely contributed to significant nitrogen losses from denitrification and/or leaching, making appropriate nitrogen application very important for the 2010 growing season.

Dr. Howard Brown, GROWMARK manager of agronomy services, asks producers to consider a nitrogen management system this spring, as opposed to simply applying fertilizer as they may have in the past.

“Taking into consideration the 4 R’s of Nutrient Management (right source, right rate, right time, and right placement) may help optimize nitrogen utilization and harvest yield while minimizing nitrogen loss,” he said. “Managing nitrogen as a system rather than an application will help minimize the chance of a temporary nitrogen shortage early in the growing season, help feed the plant nitrogen later in the season, and may help reduce the rate of nitrogen applied overall.”

For optimal results, Brown recommends a three-step nitrogen application process. First, the primary nitrogen source should be knifed in at the appropriate time. This will allow roots to reach the nitrogen in June and July, when they need it most. Anhydrous ammonia can still be knifed in this spring if weather permits and appropriate precautions are taken, he said.

Then, just ahead of spring tillage or planting, broadcast a nitrogen source to be readily available for early plant growth. This will replace the residual nitrogen that may have been leached or denitrified because of record rainfall received in 2009.

Make sure to use a urease inhibitor if urea or a urea-containing nitrogen source is surfaced-applied with no incorporation to minimize nitrogen loss by volatilization. If urea-containing nitrogen will be incorporated by tillage or rainfall within 24 hours, the inhibitor should not be necessary.

Finally, a post-application of nitrogen may be needed, whether knifed-in anhydrous ammonia, UAN, or other appropriate nitrogen source. Surface-applied urea treated with Agrotain can be another option based upon trials evaluated in 2009. This method provided a substantial harvest yield response and is creating serious interest in some areas.

“Keep in mind, though, that rainfall is necessary to move the nitrogen to the roots in a post-application scenario,” Brown cautioned. “If there is a prolonged dry period following application, the effectiveness of the supplemental nitrogen will be limited regardless of where it is applied.”

Applying nitrogen throughout the growing season may increase nitrogen utilization, but as with any nutrient that must move into the plant with soil water, success depends on each individual field and weather conditions.