Anhydrous Ammonia Application -- Spring 2019

John E. Sawyer
Iowa State University, jsawyer@iastate.edu

Follow this and additional works at: https://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, and the Agriculture Commons

Recommended Citation
https://lib.dr.iastate.edu/cropnews/2529

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
Anhydrous Ammonia Application -- Spring 2019

Abstract
It was a late harvest in fall 2018. Soils were wet and frozen when it was time to apply anhydrous ammonia. Those situations resulted in much less than normal anhydrous ammonia application last fall. Therefore, considerable anhydrous ammonia needs to be applied this spring. There is only so much capacity to switch from one nitrogen (N) fertilizer product to another. In Iowa, historically the two largest N fertilizers are anhydrous ammonia (largest) and urea-ammonium nitrate (UAN) solution, with granulated urea a distant third.

Disciplines
Agricultural Science | Agriculture

This article is available at Iowa State University Digital Repository: https://lib.dr.iastate.edu/cropnews/2529
It was a late harvest in fall 2018. Soils were wet and frozen when it was time to apply anhydrous ammonia. Those situations resulted in much less than normal anhydrous ammonia application last fall. Therefore, considerable anhydrous ammonia needs to be applied this spring. There is only so much capacity to switch from one nitrogen (N) fertilizer product to another. In Iowa, historically the two largest N fertilizers are anhydrous ammonia (largest) and urea-ammonium nitrate (UAN) solution, with granulated urea a distant third.

What should be considered if there is a tight window of time between ammonia application and corn planting?

**Important considerations:**

1) Application procedures are key to avoiding injury to corn seedlings. Deep injection (6-8 inches) and a good seal of the injection track are the best ways to avoid ammonia placed in or movement into the corn root zone.

- Ammonia has a greater opportunity to move from the initial injection site in coarse, dry, or cloddy soils.
- Ammonia movement up the injection track can be greater if soils are wet and the injection system smears the sidewalls.
- If you can smell ammonia after an application pass, adjust equipment or wait for better conditions.
- Wing sealers immediately above the outlet port on the injection system can help close the injection track, limit the size of the retention zone, and reduce vertical movement.
of ammonia.

2) Adjust planting plans to help reduce the opportunity for crop injury. There is no magic number of days to wait to avoid injury; time will help, but won’t prevent injury. However, other precautions can be taken:

- Do not plant directly over ammonia injection tracks.
- Using GPS technology to offset planter rows 4-6 inches or more from ammonia injection tracks to avoid root/seedling injury.
- Ammonia applications on an angle from the direction of crop planting is a way to reduce crop row-length exposure to ammonia bands.
- Reduced application rate and narrower band spacing reduces the concentration of ammonia in each injection band.
- If the injection zone is offset away from future corn rows, an application can be done the same day as corn planting.

3) The chance for crop injury increases with higher application rates due to greater ammonia concentration and a larger retention zone. If the injection point is 6-8 inches in depth, the outer edge of an ammonia retention zone (which would be low in ammonia concentration) could be four inches from the point of injection, and with seed planted at a 2-inch depth directly over an ammonia track, then the seed would be outside but close to the outer edge of the applied ammonia band. Shallower injection, greater movement upward from the injection point, wider spacing (greater rate per injection point), and higher rates are situations that could lead to greater chance of root/seedling damage.

4) Anhydrous ammonia can be applied sidedress. It takes equipment (applicator and nurse tanks) that is set up to travel between corn rows. As long as the injection track does not cause soil to cover corn rows (not yet emerged or emerged plants), then sidedress application can begin right after planting and until corn is too tall to get application through the field. Considering sidedress application helps widen the window of ammonia application and will help lessen short-term product supply issues.

Final Thoughts:

Be mindful of what is happening at application, especially if soil conditions are not ideal. If the soil is breaking into clods or the injection track is smearing, there isn’t good coverage of the injection track with loose soil, or ammonia is escaping (remember your nose tells you if ammonia is escaping; a white vapor is condensed water vapor, not ammonia which is colorless), then stop and either change the way the equipment is working or is set up, or wait until the soil has better structure or moisture.
Category: Soil Fertility

Links to this article are strongly encouraged, and this article may be republished without further permission if published as written and if credit is given to the author, Integrated Crop Management News, and Iowa State University Extension and Outreach. If this article is to be used in any other manner, permission from the author is required. This article was originally published on March 15, 2019. The information contained within may not be the most current and accurate depending on when it is accessed.

Crop:

Corn

Tags: anhydrous ammonia  nitrogen application

Author:

John Sawyer  Professor

Dr. John Sawyer is a professor of agronomy and extension specialist in soil fertility and nutrient management at Iowa State University. His extension program involves soil fertility management, efficient crop nutrient utilization, and environmentally sound fertilizer and manure systems. Dr. Sawye...