Agronomy Profile



Applying fall nitrogen

Overview

Poor nitrogen (N) application methods or timing could result in a shortage of available N to meet your corn crop's needs next season. Understanding proper N application methods can help maximize N efficiency on your operation.

What you should know

- Anhydrous ammonia is typically preferred for commercial N application. It contains ammonium nitrogen which carries a positive charge. It keeps the N in the soil by attaching to negatively charged clay and organic matter in the soil.
- Anhydrous ammonia needs to be incorporated, ensuring nitrogen is deep enough in the soil to avoid being impacted by occasional warm temperatures in the winter.
- Don't apply N when temperatures are too warm. Nitrosomonas bacteria, which start the conversion process of stable NH4+ to less stable NO2- and NO3-, become inactive around 40° F.
- Applying a nitrogen stabilizer with long-term control helps keep N in the soil in the corn root zone until the following growing season.

Action steps

- 1. **Determine Cation Exchange Capacity (CEC):** Soils with less than 12 CEC won't hold fall-applied nitrogen long enough to be useful next season.
- 2. **Monitor soil temperature:** Check soil temperature for a few days at a 4-inch depth during the heat of the day. Look for temperatures below 50° F and falling.
- 3. **Select nitrogen type:** Anhydrous ammonia is a concentrated source of ammonium nitrogen. Other 100 percent ammonium N products like ammonium sulfate or urea can work if they are deep-banded.
- 4. **Apply a nitrogen stabilizer:** Nitrapyrin helps keep fall-applied N in the soil and prevents nitrosomonas bacteria from converting ammonia to nitrate N.
- 5. Choose hybrids that use N early: Hybrids with fixed or semi-flex ear types use a majority of N early in their production.

For more information, contact:



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Anhydrous ammonia is a preferred source of commercial nitrogen for fall applications.



- Simple steps help make the most of fall-applied nitrogen.
- Ensure soils are capable of holding N.
- Apply at soil temperatures of 50° F and falling.
- Incorporate 100% ammonium nitrogen products and use a nitrogen stabilizer.
- Look for hybrids that use most of their N early in the season.

NOTES: