# **Agronomy Profile**



# Nitrogen management

#### **Overview**

Nitrogen (N) can be lost from the soil between application and crop uptake. By managing applications, you can maximize yield by making sure N is available when corn plants need it most.

## What you should know

- N sources applied as ammonium (NH4+) are converted to nitrite (NO2–) and subsequently to nitrate (NO3–) via the nitrification process.
- Because soil bacteria are responsible for nitrification, the rate is heavily dependent on soil temperature and moisture. It typically begins when soil temperatures reach 50° F. Once soil temperature exceeds 50° F, nitrification rates increase with temperatures.
- Peak in-season N losses occur from May to July, or anytime up to 75 days after crop emergence (see Figure 1).
- N deficiency usually appears as a V-shaped yellowing of the lower, or older, leaves of the plant.
- Because NH4+ carries a positive charge, it binds to the negatively charged soil. N losses, such as leaching and denitrification, occur when fertilizer N is converted to the negatively charged NO3– form.

## **Action steps**

- 1. **Estimate N available in your fields:** Visual scouting may not be enough. In-season soil sampling or leaf tissue sampling can determine N concentration.
- 2. Choose the application method and N source:
  - Injecting N into the soil by deep banding anhydrous ammonia, or coulter injecting UAN, are the best applications. These minimize volatilization and reduce foliar damage.
  - Broadcast or top-dress applications of urea, ammonium nitrate or UAN are great alternatives, but they vary in volatility and potential foliar damage, so consider options carefully.
- 3. **Stabilize N:** Adding a nitrogen stabilizer helps keep N in its preferred form, NH4+, ensuring N is available in the root zone between the V8 and VT stages when plants need it most.

#### For more information, contact:



#### www.nutechseed.com 1-888-647-3478

# Figure 1. Corn has the highest nitrogen needs after the V8 stage.

#### In-season Fertilizer N Loss Potential



Peak Loss Root Zone Occurs During May, June & July



- Successful N management maximizes yield and profitability while minimizing N losses.
- Be sure to time application before soils get warm and bacteria starts the denitrification process.
- Carefully consider application options and N source to get the most out of your program.

#### **NOTES:**