TIMING OF NITROGEN APPLICATION

TRIAL OVERVIEW

- There is considerable interest in applying nitrogen (N) later in the growing season; therefore, farmers and agronomists want to know when is the best time to sidedress N in a later-season application.
- Because N is a major and required investment in corn production, knowing when corn plants are most responsive to an application of N can help farmers determine the application time for the best return on their investment.

RESEARCH OBJECTIVE

- To compare the effectiveness of different N application times during the growing season.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Monmouth, IL	Silt Loam	Corn	Conventional	04/25/2017	09/28/2017	290 bu/acre	36,000 seeds/acre

SITE NOTES:

- A 114 RM SmartStax® RIB Complete® corn blend product was utilized in the trial.
- Nitrogen in the form of 32% UAN (32-0-0) was used as the N source.
- 80 lbs/acre of N was applied before planting and incorporated.
- Nitrogen was sidedressed with a high-clearance sprayer using 360 Y-DROP® at an application rate of 100 lbs/acre with a urease inhibitor at three growth stages:
  - V4 (4 leaf collars) on 6/09/17
  - V8 (8 leaf collars) on 6/19/17
  - V12 (12 leaf collars) on 7/05/17
- The trial consisted of 3 replications.
- Data from 2016 was added for supporting information.

UNDERSTANDING THE RESULTS

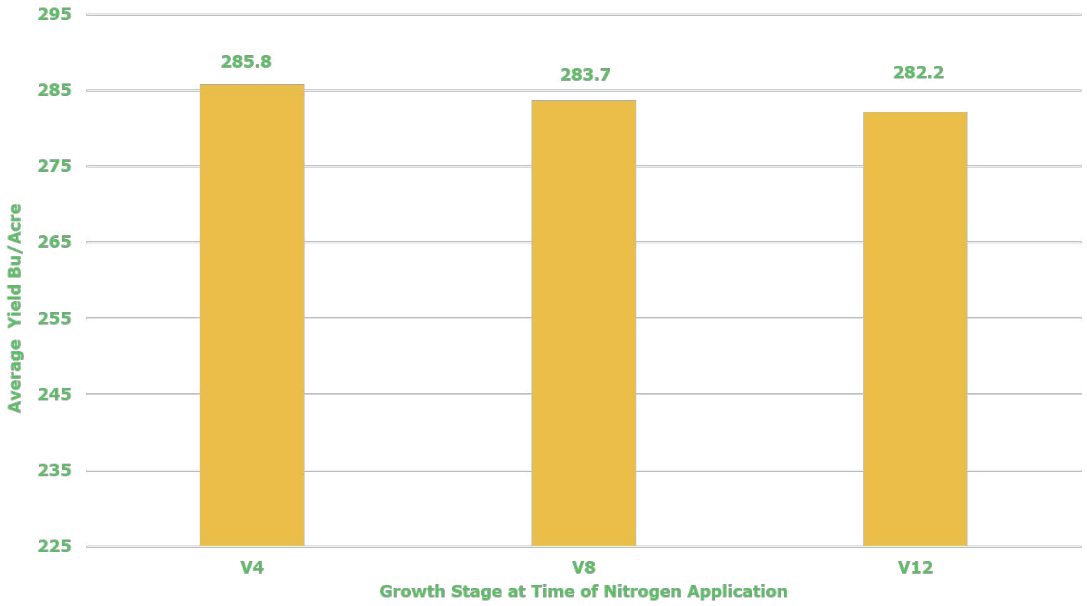

Figure 1. Average yield (bu/acre) response to nitrogen application timing in 2017 at Monmouth, IL (3 replications).

- Individual corn products may respond differently to the timing of an application of N.

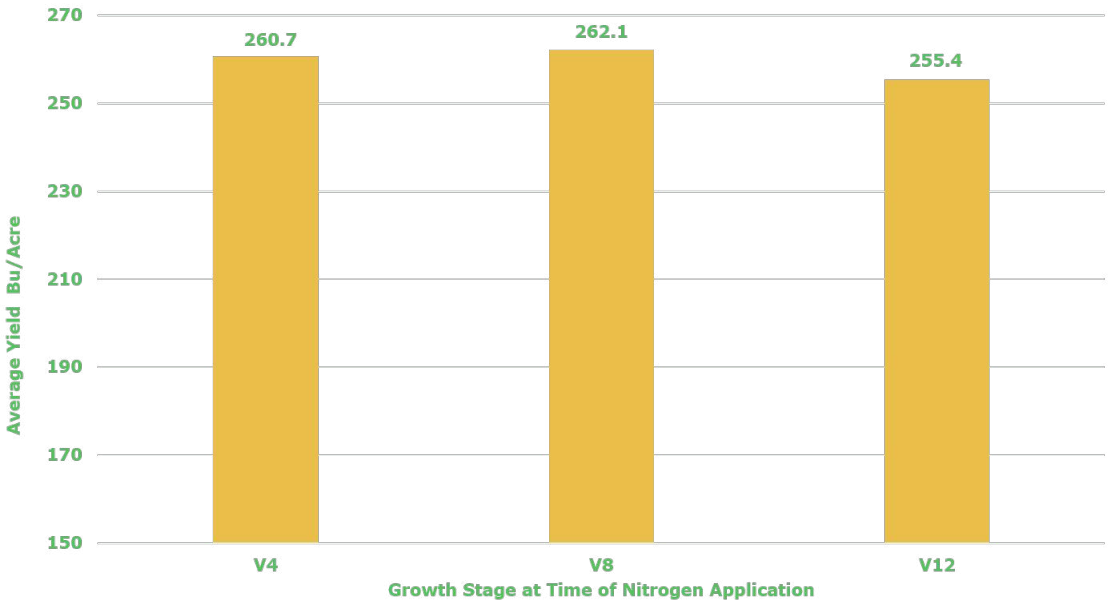

Figure 2. Two-year (2016 - 2017) average yield (bu/acre) response to nitrogen application timing at Monmouth, IL.

- The cost to potentially obtain greater yields, based on the timing of an application of N, may not be economically feasible when all costs are considered.
- The ideal timing of a later-season application could change yearly because of weather and environmental challenges.
- In 2016, the V8 application demonstrated a larger response (2016 response: V4 = 235.7, V8 = 240.4, and V12 = 228.7).[2] However, the average differences for the combination of 2016 and 2017 were minimal (Figure 2).

WHAT DOES THIS MEAN FOR YOUR FARM?

- Nitrogen applications later in the growing season have the potential to improve yields and reduce the potential for N loss through leaching and nitrification.[1]
- Environmental conditions and the costs associated with N applications should be considered when making a N plan for each field.
- Use of 360 Y-DROP® for later growth season N applications can allow for greater flexibility in the timing of the application and use in taller corn.

SOURCES
1 Scharf, P.C. and Lory, J.A. 2006. Integrated Pest Management. Best management practices for nitrogen fertilizer in Missouri. IPM1027.
2 Timing of nitrogen sidedress application in corn. 2016. Demonstration Report. Monsanto Learning Center at Monmouth, IL.