TIMING OF NITROGEN SIDEDRESS APPLICATION IN CORN

TRIAL OVERVIEW

- There is substantial interest among farmers in mid-season nitrogen (N) application.
- N uptake by corn plants is usually greatest from V8 (8 leaf collars) growth stage through pollination and is weather dependent.
- Adequate N from V5 (5 leaf collars) through V8 growth stages can be critical as the plant is determining the number of potential ears and ear girth at this time.
- Sidedressing can help minimize N losses because N is applied closer to the time of plant uptake.
- N is a significant input cost. Determining when corn responds best to N sidedress application timing might contribute to maximizing net return.

RESEARCH OBJECTIVE

- The objective of the trial was to evaluate different timings for N sidedress applications.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Monmouth, IL	Silt loam	corn	conventional	04/26/2016	09/20/2016	240 bu/acre	36,000 seeds

SITE NOTES:

- A 114 relative maturity SmartStax® RIB Complete® corn blend product was planted in all treatments.
- 80 lbs/acre of 32% UAN (32-0-0) was applied before planting in the spring and incorporated for all treatments.
- 100 lbs/acre UAN with a urease inhibitor was sidedressed using a high-clearance sprayer with 360 Y-DROP® at three different corn growth stages.
- Treatment timings were:
  - V4 (4 leaf collars) on June 3, 2016
  - V8 (8 leaf collars) on June 21, 2016
  - V12 (12 leaf collars) on July 5, 2016
- The trial had three replications.

UNDERSTANDING THE RESULTS

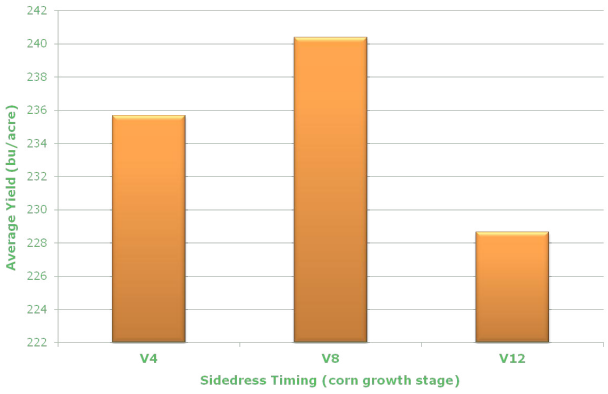

Figure 1. Average Yield by Timing of Sidedress Application. 2016 Monsanto Learning Center at Monmouth, IL.

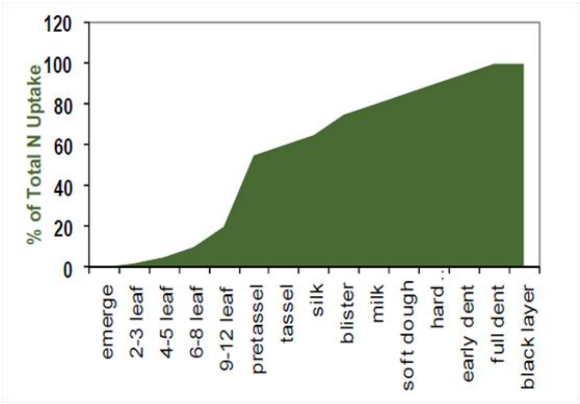

Figure 2. Percent of total N uptake for corn by growth stage. Source: Nitrogen data adapted from "How a corn plant develops". Special Report 48. Iowa State University.

- Sidedress application at the V8 growth stage had the largest yield response in this study.
- High clearance equipment with 360 Y-DROP® allows application timing flexibility and allows later application of N in taller corn.

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WHAT DOES THIS MEAN FOR YOUR FARM?

- Ideal later season N application timing could vary from year to year due to weather and environmental conditions.
- Individual seed products may respond differently to timing of N application. Consult your local DSM or Technical Agronomist for timing recommendations.
- All costs should be considered when making N management decisions, as yield differences due to N sidedress applications may not be economically justified in all cases.

SOURCES
1 Fernandez, F.G., Nafziger, E.D., Ebelhar, S.E., and Hoeft, R.G. 2009. Managing nitrogen. Chapter 9. Illinois Agronomy Handbook, 24th edition. C1394. University of Illinois. http://extension.cropsci.illinois.edu/handbook/.
2 Abendroth, L.J., Elmore, R.W., Boyer, M.J., and Marlay, S.K. 2011. Corn growth and development. PMR 1009. Iowa State University Extension.
3 Miller, E., Nielsen, R.L., and Camberato, J. 2011. Response of corn to late-season nitrogen application. Corny News Network. Purdue University. https://www.agry.purdue.edu/ext/corn/news/timeless/CornRespLateSeasonN.html.
Web source verified 11/07/16. 161031152414

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