

Northern Ohio Field Notes

June 17, 2022 John Schoenhals, Pioneer Field Agronomist

This week's topics include:

- **Corn Nitrogen Applications**
- **"Early" Fungicide Applications**
- **Enlist Herbicide Applications**

Corn Nitrogen Applications

Corn requires only a small fraction of its total nitrogen during the seedling stage, but its needs escalate rapidly once corn reaches the V8 growth stage (8 leaf collars). Knee-high corn can grow to shoulder height (approximately V12 to V14) in about two weeks, and reach the tassel/silking stage (VT/R1) in about two more weeks if conditions are favorable. Such rapid growth is equaled by few other crops and requires a large supply of nitrogen to fulfill the demands of prolific development.

To summarize the nitrogen uptake curve to the right, nitrogen uptake:

- is only 10% of total N from planting to V8
- is more than 50% of total N from V8 to tasseling (VT/R1)
- is about 35% from VT/R1 through grain fill

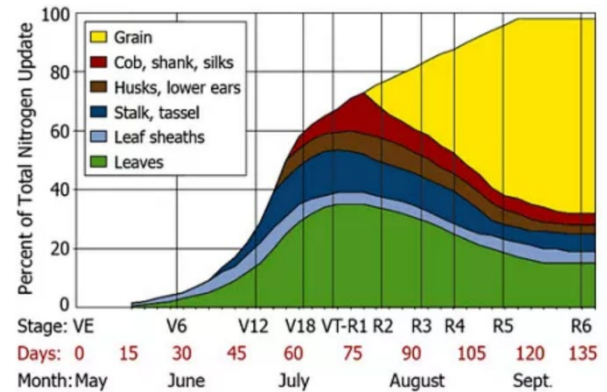


Figure 1. N uptake by corn. Adapted from Richie, et.al, 2005 (*How a Corn Plant Develops*).

Nitrogen applications must supply nitrogen for rapid growth, with enough left for grainfill during the later part of the season.

My nitrogen applications have been delayed - is this going to affect yield?

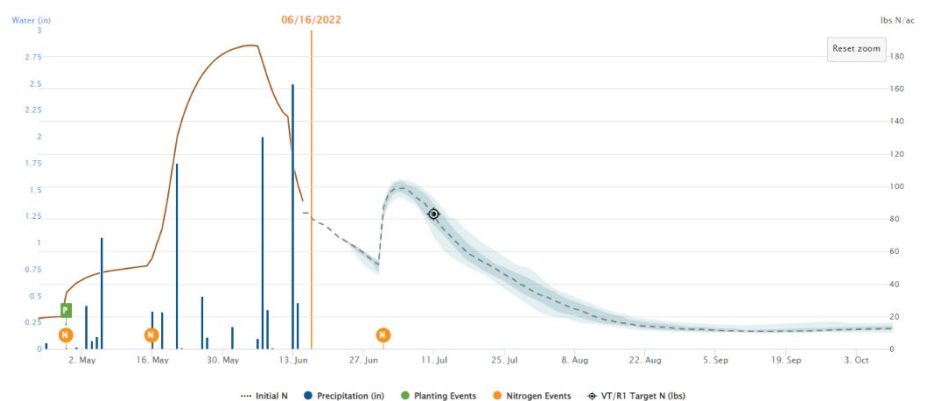
As long as at least 25-40lbs of nitrogen have been applied in preplant, planting, or "weed and feed" applications, and sidedressing can occur by V8, minimal impacts on yield are expected. The exception would be in areas where excessive rainfall or compaction have limited root growth and caused significant denitrification of applied nitrogen, which can lead to stunted/yellowed corn that may be slow to recover.

With wet soils and fast-growing corn, I'm afraid I won't be able to get across acres before corn is too big. What other options are there?

Hopefully, with a drier forecast and prioritization, most acres can be sidedressed before size becomes a major issue. In cases where alternatives are needed, broadcasting (or flying on) urea or using Y-drops on a sprayer are options. In either case, since large amounts of nitrogen are being placed on the soil surface without incorporation, an above ground (urease) inhibitor should be used to limit volatilization losses.

How much nitrogen have I lost in these huge rain events?

It can be very difficult to quantify nitrogen losses, but the longer nitrogen has been on the field, the higher the chance of nitrogen losses (especially if it was applied without an inhibitor). The Granular Platinum Plus level offers "Nitrogen Essentials" field modeling for nitrogen, which takes into account management practices, weather, and soils to estimate nitrogen losses and forecast whether nitrogen is likely to be adequate or run short. If additional late-season nitrogen is needed, Y-drop applications are preferred.



Granular "Nitrogen Essentials" nitrogen modeling showing the impacts of large rain events on nitrogen availability- and recommending additional "rescue" application of nitrogen prior to VT/R1.

I don't have a perfect stand of corn! or I planted corn at the beginning of June! Should I lower my nitrogen rates?

As long as the surviving stand is at least 26,000 and no other major issues are present, yield potential is still strong and is dependent on upcoming weather. While a slight reduction in nitrogen rates at populations lower than 30,000 may be warranted, major changes to nitrogen programs are not recommended.

“Early” Fungicide Applications

“Traditional” application timing for fungicide on beans is R3 (pods beginning to form on the top nodes of the plant), and corn is VT/R1 (tasseling/silking); however, an earlier application in a 2-pass program can create a strong ROI.

Soybeans

While an R3 fungicide application is considered “standard practice” for many growers, additional yield benefits can be obtained by adding an R1 (beginning flowering) fungicide application to the program. This timing can increase yields by improving overall plant health and helping to manage white mold. White mold in soybeans is favored by wet, warm, humid weather after soybeans begin to flower. This disease can be especially problematic on highly productive soils where soybeans have lush growth. There is no cure for white mold once it begins, so preventative fungicides are important.

Approach (rather than Approach Prima) applied at first flower is a recommended application for high management, or where white mold is a concern. A second application of Approach may be warranted 10-14 days later in high-pressure white mold situations. An R3 foliar fungicide is still recommended for overall plant health.

Corn

The severity of tar spot in corn in 2021 will lead to a heightened interest in fungicide applications this year. While the window from VT/R1 through brown silk is still the “preferred” application window, interest has increased for earlier applications in a 2-pass program.

A 2-pass fungicide program in corn would be most valuable in the following circumstances:

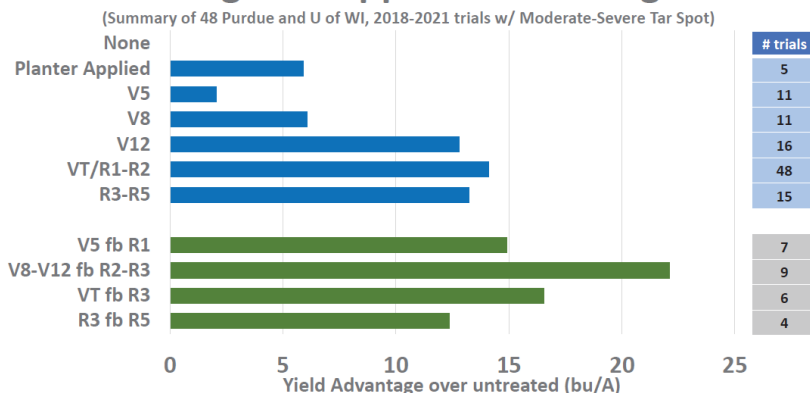
- High-management corn with high yield goals
- Irrigated corn acres
- Corn-back-to-corn acres

In a 2-pass corn program, the first application is often made between V6 and V14, with the second application between VT/R1 and R3. As shown in the included data, a 2-pass program aimed at about V10/V12 and R2/R3 has shown the best performance under moderate/severe tar spot pressure.

Post Emergence Enlist Application Best Practices

- Enlist E3 soybeans are tolerant to Enlist 2,4-D, glyphosate, and glufosinate
- Enlist One rate: 2pts/acre
- Enlist Duo rate: 4.75pts/acre
- 15GPA is recommended for best coverage (20 GPA when spraying with glufosinate/Liberty)
- NO cutoff date; apply from burndown through R1
- NO time-of-day application limitations
- NEAR-ZERO VOLATILITY
- CAN tank mix with AMS (and glufosinate)
- Many tank mix and nozzle options- visit www.EnlistTankMix.com for details
- when adding clethodim to Enlist One, use a minimum of 10 fl oz/A clethodim (12 fl oz/A if volunteer corn is V5 or larger). Assure II and Fusilade are not recommended to be used with Enlist.
- when mixing with Enlist One, do not pour glyphosate products into the tank/inductor at the same time as Enlist One. Add products individually, cleaning the inductor between each product and allowing time for recirculation. Make sure sprayer is at least half full of water before adding glyphosate (which is usually the last chemical added to reduce foaming). Durango DMA is preferred glyphosate, but other formulations work fine as long as mixing order is correct.
- it is normal to see some spotting/speckling on soybeans after herbicide applications, due to oils and surfactants in many products, especially during hot weather. New growth will be normal.

Fungicide Application Timing



Note that the expectation of V12 vs VT/R1 vs R3 vs multiple applications is dependent on weather conditions and timing of infection

- Optimum spray timing is dependent on weather (especially moisture) and scouting during the season
- BEST PLAN or if wet/cool early season, spray V8-V12, plan to spray again at brown silk-R3 unless turn hot/dry
 - If dryer/hotter early season, spray at R1-brown silk, possibly again at R3-R4 if weather turns moist
 - If only willing to spray 1 time in season no matter what, aim late R1/brown silk (unless dry, then delay)
 - If unable/unwilling to spray tall corn, spray as late vegetative stages as possible
 - Ensure any herbicides/adjuncts/etc are compatible with corn growth stage at time of application