



# Influence of the Timing of Cereal Rye Cover Crop Termination on Corn Yield

## Trial Objective

- Cereal rye has become a common crop to use in Midwest cropping systems; however, while cover crops can reduce erosion, utilize excess soil nutrients, and increase soil organic matter, they must be terminated in a timely manner in the spring to avoid negatively impacting the following cash crop.
- In this trial, different termination timings with a burndown herbicide application were assessed to provide information to farmers on the most effective termination time to maximize the yield potential of the following corn crop.

## Research Site Details

| Location     | Soil Type | Previous Crop  | Tillage Type            | Planting Date | Harvest Date | Potential Yield (bu/acre) | Seeding Rate (seeds/acre) |
|--------------|-----------|--|-------------------------|---------------|--------------|---------------------------|---------------------------|
| Monmouth, IL | Silt loam | Corn followed by cereal rye planted in the fall after corn harvest in 2017 | No-till into cereal rye | 5/23/18       | 10/1/18      | 250                       | 36K                       |

- The cereal rye was terminated using Roundup PowerMAX® herbicide with ammonium sulfate at four different dates: April 27<sup>th</sup> (26 days prior to planting), May 8<sup>th</sup> (15 days prior to planting), May 23<sup>rd</sup> (at planting), and May 30<sup>th</sup> (7 days post planting).
- Prior to planting 200 lb/acre of nitrogen in the form of 32% urea and ammonium nitrate (UAN) (32-0-0) was applied.
- Two replications of each treatment were used.

## Understanding the Results

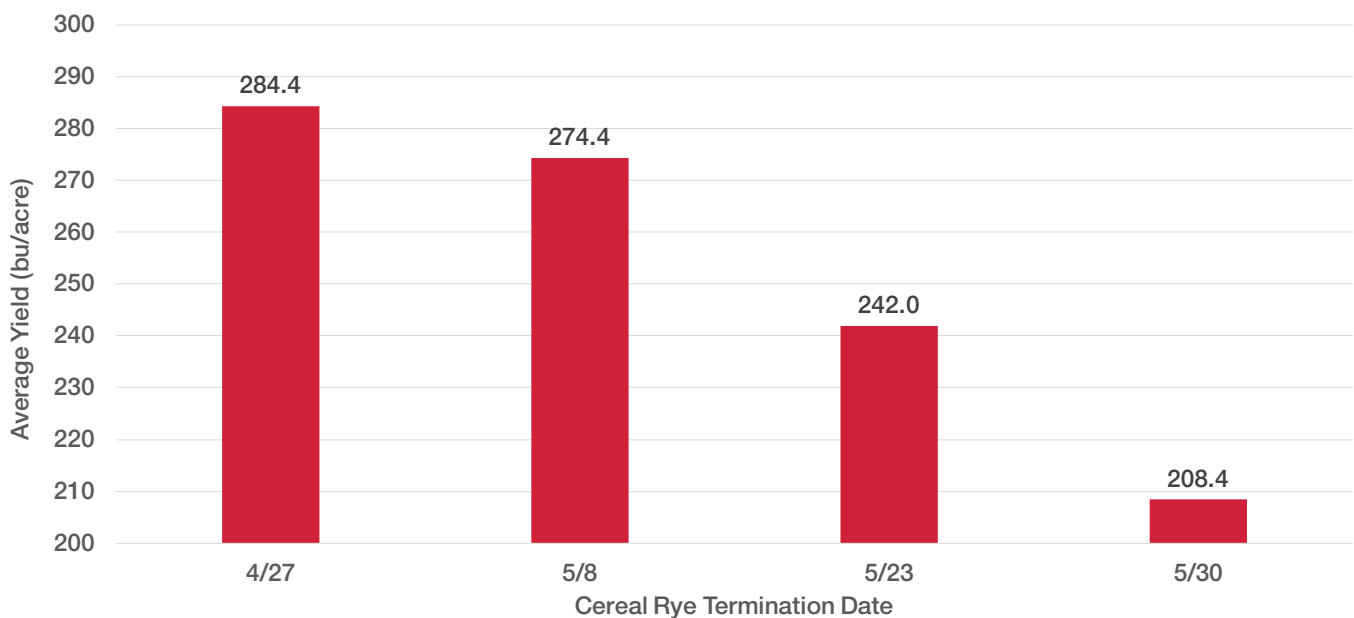


Figure 1. Average yields of corn by the cereal rye cover crop termination date.



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- A factor that may have reduced the rate of decomposition of the cereal rye in 2018 was the colder than average temperatures in the early spring. With the slower rate of decomposition, nitrogen availability may have been limited during the early growth period of the corn crop.
- Corn yield decreased with later termination dates (Figure 1).



**Figure 2. Cereal rye cover crop terminated 26 days prior to planting (photo taken June 11, 2018).**



**Figure 3. Cereal rye cover crop terminated 15 days prior to planting (photo taken June 11, 2018).**

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*Figure 4. Cereal rye cover crop terminated at planting (photo taken June 11, 2018).*



*Figure 5. Cereal rye cover crop terminated 7 days post planting (photo taken June 11, 2018).*

## What Does This Mean for Your Farm?

- This trial conducted this year showed termination made in a timely manner had a beneficial impact on corn crop yield.
- Waiting too long to terminate a cover crop may reduce yield potential due to nitrogen tie up.
- Termination of a cereal rye cover crop close to planting may negatively impact yield due to competition with the emerging corn plants.

## Legal Statements

The information discussed in this report is from a single site, replicated demonstration. This information piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

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**Performance may vary**, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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