



# The Importance of Quality Seed Treatments in a High-yield Soybean System

## Trial Objective

- Recent research indicates that soybean crops benefit from earlier than historically accepted planting dates.<sup>1</sup>
- Planting into cool, wet soils like those found early in the growing season increases the risk of damage from insect seed pests and soilborne pathogens.<sup>2</sup>
- This research was conducted with a goal of understanding the value of protecting an early planted soybean crop from disease and insect pests.

## Experiment/Trial Design

- This research was conducted at the Bayer Crop Science FOCUS site in Woodford County, Illinois from 2018-2022.
- Soybean products ranging in maturity group (MG) from 2.7 to 3.6 were used, although different products were used in different years.
- Seed was either untreated or treated with Acceleron® Seed Solutions Standard (fungicides metalaxyl, fluxapyroxad, pyraclostrobin and the insecticide imidacloprid) and ILeVO® Seed Treatment.
- Standard fertility and weed management practices were followed, and plots were harvested as they matured.

| Location    | Soil Type | Previous Crop | Tillage Type | Planting Date   | Harvest Date        | Potential Yield (bu/acre) | Seeding Rate (seeds/acre) |
|-------------|-----------|---------------|--------------|---|---------------------|---------------------------|---------------------------|
| Roanoke, IL | Silt loam | Corn          | Conventional | 4/25/18<br>5/8/18<br>5/23/18  | 9/24/18<br>10/4/18  | 70                        | 140,000                   |
| Roanoke, IL | Silt loam | Corn          | Conventional | 4/9/19<br>4/23/19<br>5/7/19<br>5/18/19<br>6/3/19<br>6/18/19                       | 10/9/19<br>10/23/19 | 70                        | 140,000                   |
| Roanoke, IL | Silt loam | Corn          | Conventional | 3/7/20<br>4/6/20<br>4/20/20<br>5/9/20<br>6/1/20<br>6/15/20                        | 10/7/20<br>10/15/20 | 70                        | 140,000                   |
| Roanoke, IL | Silt loam | Corn          | Conventional | 3/10/21<br>4/6/21<br>4/19/21<br>5/3/21<br>5/14/21<br>5/24/21<br>6/7/21<br>6/15/21 | 10/18/21            | 75                        | 140,000                   |
| Roanoke, IL | Silt loam | Corn          | Conventional | 3/29/22<br>4/12/22<br>4/27/22<br>5/12/22<br>5/24/22<br>6/4/22<br>6/13/22          | 9/28/22<br>10/14/22 | 75                        | 140,000                   |



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## Understanding the Results

- In general, the yield of seed treated entries was higher with earlier plantings (Figure 1).
- The difference in yield performance between treated and untreated was greatest in early plantings; the advantage of treatments was less pronounced in later plantings (Figure 2).

The average seed treatment potential return on investment (ROI) was \$75.43 across all planting dates (Figure 2) based on a treatment cost of \$15 and soybean value of \$16/bu.

Yield Performance of Untreated versus Treated Soybean Seed by Planting Date  
2018-2022 (Woodford County, IL)

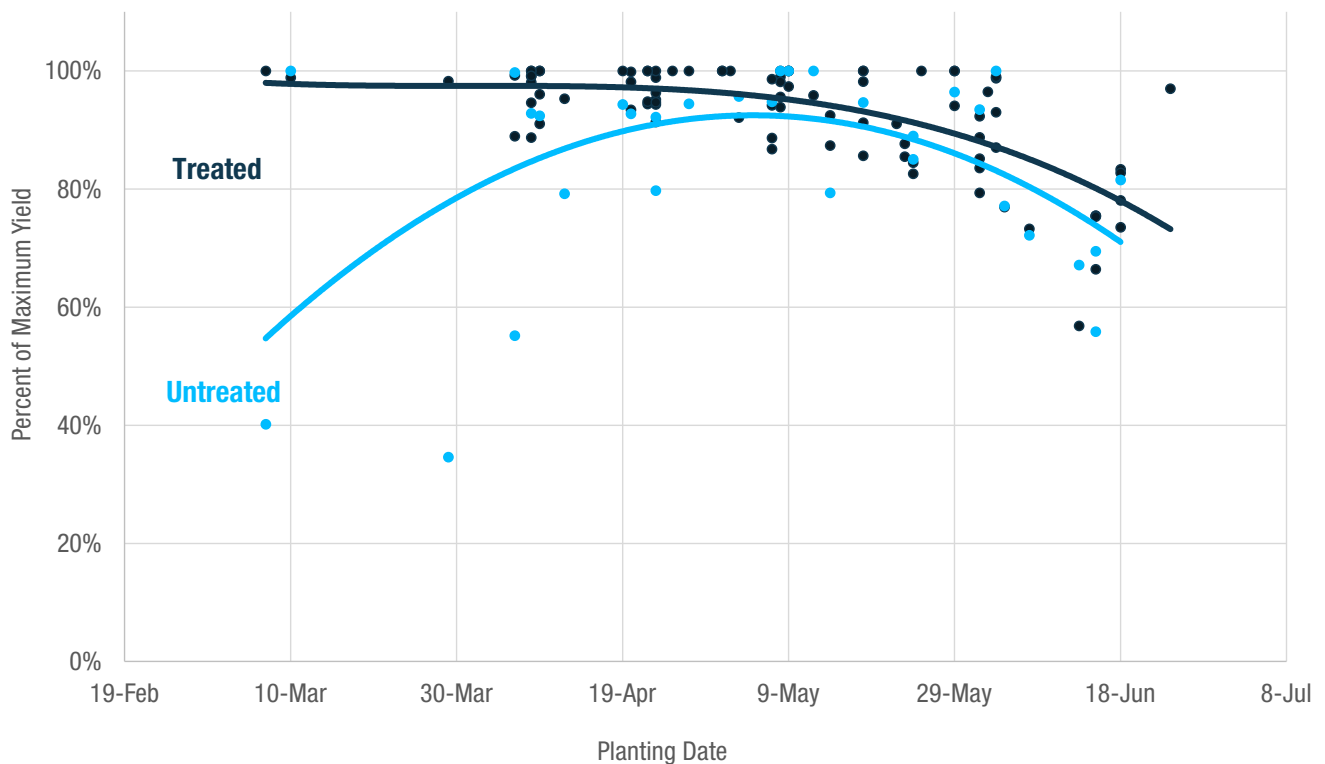


Figure 1, Yield performance of untreated versus treated soybean seed by planting date 2018 to 2022. Woodford County, IL.

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Yield Advantage of Treated versus Untreated Soybean Seeds Across Planting Date and Return on Investment (ROI) of Seed Treatment 2018-2022 (Woodford County, IL)

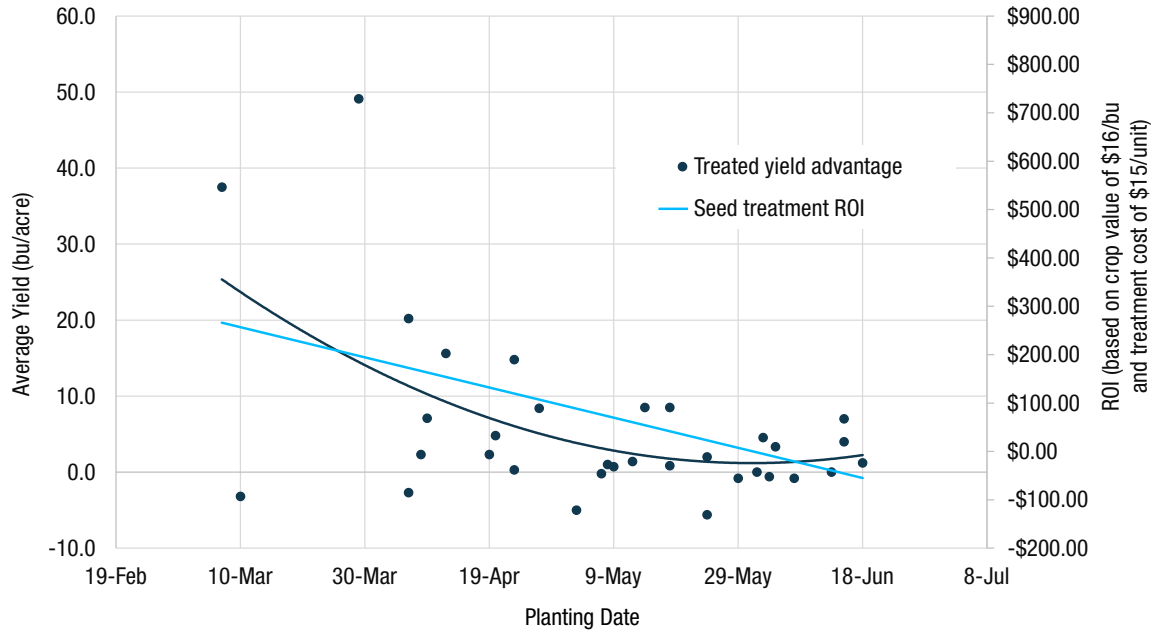


Figure 2. Yield advantage of treated versus untreated soybean seeds across planting date and potential return on investment (ROI) of seed treatment 2018 to 2022. Woodford County, IL.



Figure 3. Difference between treated (left) and untreated (right) soybeans planted on March 7, 2020 in Woodford County, IL. Final stand counts were 91,000 plants per acre in the treated entry, but only 19,000 in the untreated. Photo taken July 29, 2020.



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## Key Learnings from these trials

- Soybean seed treatment is especially critical in very early plantings, with observed yield differences up to 50 bu/acre between treated and untreated.
- Seed treatment has a positive ROI in Illinois until around the end of May, by which time considerable yield potential has been forfeited.

## Sources:

<sup>1</sup>Nafziger, E. 2020. Planting corn and soybeans in 2020. farmdoc. Department of Crop Sciences, University of Illinois at Urbana-Champaign. <https://farmdoc.illinois.edu/field-crop-production/uncategorized/planting-corn-and-soybeans-in-2020.html>

<sup>2</sup>Wise, K., Bradley, C., Chilvers, M., Conley, S., Faske, T., Giesler, L., Mueller, D., Sikora, E., Smith, D. Tenuta, A., and Tilmon, K. Factors to consider before using a soybean seed treatment. CPN-4003-W. Crop Management. Crop Protection Network. A Product of Land Grant Universities. <https://crop-protection-network.s3.amazonaws.com/publications/cpn-4003-crop-management-factors-to-consider-before-using-a-soybean-seed-treatment.pdf>

## Legal Statements

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

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.

FOR SOYBEANS SEED TREATMENT PRODUCTS APPLIED DOWNSTREAM, EACH ACCELERON® SEED APPLIED SOLUTIONS OFFERING is a combination of separate individually registered products containing the active ingredients: BASIC Offering: metalaxyl, penflufen and prothioconazole. STANDARD Offering: metalaxyl, penflufen, prothioconazol and imidacloprid. FOR UPSTREAM TREATED SOYBEANS, EACH ACCELERON® SEED APPLIED SOLUTIONS OFFERING is a combination of separate individually registered products containing the active ingredients: BASIC Offering: metalaxyl, fluxapyroxad, and pyraclostrobin. STANDARD Offering: metalaxyl, fluxapyroxad, pyraclostrobin and imidacloprid.

Not all products are registered in all states and may be subject to use restrictions. The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited.

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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