Fungicide Protecting Yield – Soybeans

AGRONOMIC INSIGHTS

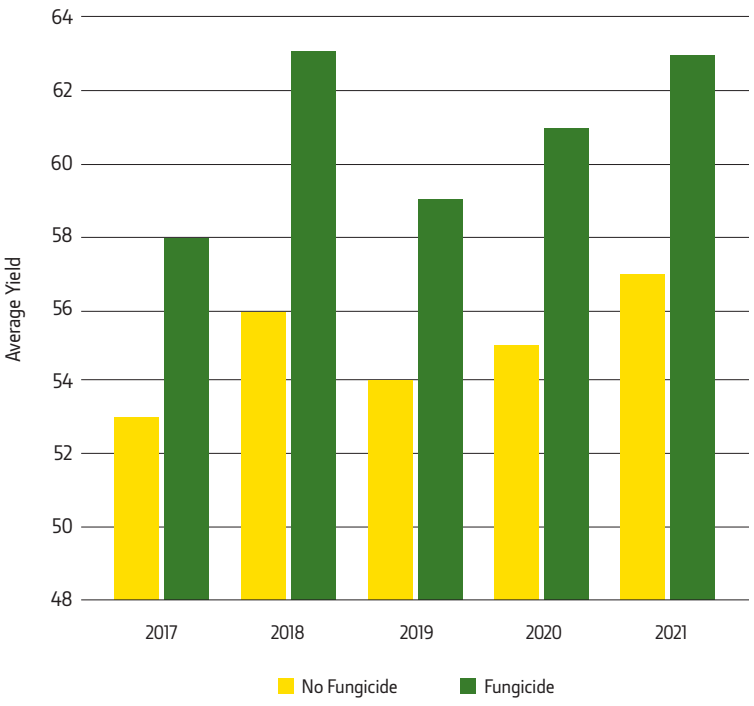
While herbicides are generally part of a soybean producer's crop protection plan during the growing season, fungicides provide opportunities for protecting yield, too.

Less than 22% of soybean acres are treated with a fungicide, according to the USDA Agricultural Chemical Use Study.[1]

YIELD RESPONSE TO FUNGICIDE

From 2017-2021, there was an observed 4.5 to 7 bu/ac yield advantage with a fungicide application in soybeans.[2]

Yield difference between no fungicide vs. fungicide



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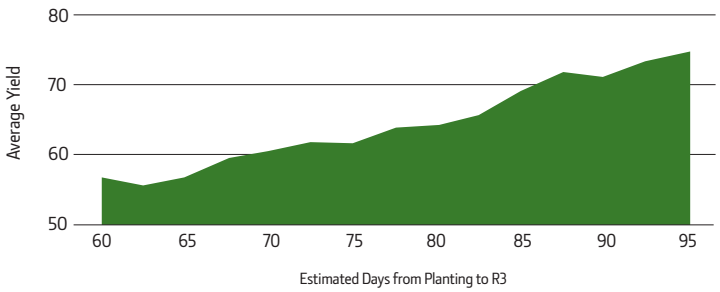
AGRONOMIC INSIGHTS

TO APPLY OR NOT TO APPLY…
There are a lot of considerations to think through:

- Pod and stem blight, Cercospora leaf blight, frogeye leaf spot, brown and target spot, and white mold have appeared as problematic diseases.[3]
- Management decisions:
  - Are you going to be proactive or reactive?
  - If reactive, what will make you want to apply?
  - What is the availability of the product and/or applicator?
  - Weather?
  - Cost compared to projected ROI impact?
  - Apply on your highest potential yielding acres? Apply on acres that have susceptible variety characteristics?

TIMING OF FUNGICIDE APPLICATIONS:

- Determining the best time for fungicide applications is a combination of:
  - Disease presence
  - Crop growth stage
  - Environment
- The chart below shows fields from 2017-2021 that had a fungicide application pass within 14 days of the estimated start of the R3 growth stage. Industry and academic research supports fungicide application between the R1-R3 growth stages. However, we have seen a general increase in yield when application is closer/within the R3 growth stage – suggesting that a slight delay in application may be optimal.[4]



JOHN DEERE SOLUTIONS

John Deere's 400/600 sprayers and Hagie™ STS sprayers leverage technology for precise and uniform application quality from start to finish.

- **AutoTrac™ Vision:** continues the use of AutoTrac when previous guidance lines are not available or were not established.
- **AutoPath™:** generates guidance lines based off of planting pass and sprayer track spacing to get in the field and spraying quickly, while minimizing crop damage.
- **ExactApply™:** provides precise droplet sizing for a consistent rate by maintaining target rate and pressure with varying speeds, increasing the quality of application.
- **Field Analyzer in John Deere Operations Center™:** documents and measures application effectiveness by comparing yield of the applied area to the unapplied area, or compare yield results of an applied area to the whole field's average yield for more insight.
- **All Wheel Steer:** reduce crop damage during turns with all wheel steer (AWS) on Hagie STS sprayers. The rear tires follow in the same path as the front tires during tight turns. AWS also reduces the turning radius, increasing maneuverability.

[1]United States Department of Agriculture – National Agricultural Statistics Service. 2020 Agricultural Chemical Use Survey. https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/2020_Soybeans/soybean-chem-highlights.pdf
[2]Based on anonymized operational data shared by John Deere customers.
[3]Crop Protection Network (2020). An overview of white mold. https://cropprotectionnetwork.org/publications/an-overview-of-white-mold
[4]Based on anonymized operational data shared by John Deere customers.