

FUNGICIDE APPLICATIONS IN CORN

Weather patterns during the spring allowed much of the corn to be planted during April. Corn will soon be tasseling in areas of Illinois and Indiana. Precipitation has been rather erratic across the territory. However, the forecast indicates a larger front moving through late next week with accompanying precipitation. With corn and soybean canopies closing near this time, extended leaf wetting will likely be increasing the probability of disease infection.

While scouting to make fungicide recommendations, it will be critical to consider key factors that encourage disease infection.

Corn:

- Disease susceptible hybrid
- Continuous corn production
- Higher percentage of surface residue
- Higher plant populations
- Cover crop fields, particularly ryegrass
- · Field history of residue-born diseases
- Irrigated acres
- Disease present in the lower canopy prior to or at tassel

Research has demonstrated protecting the upper canopy i.e., ear leaf and above is critical to allow corn plants to capture solar energy to optimize photosynthesis and grain fill. If applying prior to tassel, research has elucidated that V10-V12 treatments are optimal. However, generally VT-R1 applications are most consistent for managing foliar diseases in corn. When targeting late-season, aggressive pathogens such as tar spot or southern rust, making applications near R2 or R3 could improve efficacy. In severe cases these pathogens may require sequential applications encompassing VT followed by R2-R3 treatment.



CORN YIELD RESPONSE TO LUCENTO® AND TOPGUARD® EQ FUNGICIDES APPLICATION AT VT-R3

6-21-21

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Technical Service Manager

Nick Hustedde 618-978-2268

Contact your local FMC representative for more information:

Joe Kritenbrink 317-407-6883

Lonne Fry 309-221-5000

Caleb Harper 765-586-2924

Jenn Maruszewski 812-798-5049

Dennis Hartleib 618-699-5403

Dylan Veracini 815-590-0651

Michele Meyer 573-694-1622





FUNGICIDE APPLICATIONS IN SOYBEANS

Soybean planting appears to occur earlier each year, which is generating more nodes and canopy closure quicker in the season. Dense canopies shed moisture leisurely resulting in longer leaf wetting periods, not only from rainfall events but also morning dew. Earlier planting dates also increase the amount of time of active growth is occurring, enhancing the probability for disease exposure. This may intensify disease infection periods and, with current commodity prices, return on investment with a multi-site of action fungicide is likely. Particularly if strobilurin-resistant isolates of septoria brown spot or frogeye leaf spot have traditionally been problematic. While scouting to make fungicide recommendations, it will be critical to consider key factors that drive disease infection.

Soybeans:

- · Disease susceptible variety
- Early planting
- Dense canopy
- · Higher percentage of surface residue
- Field history of residue-born diseases
- Irrigated acres
- Low lying fields retaining dew later into the day



Foliar Fungicide Comparisons in Soybean Dr. Darcy Telenko – Purdue University West Lafayette, IN 2020



Topguard[®] EQ Fungicide 5 fl. oz./A + Hero[®] Insecticide 5 fl. oz./A @ R3







INSECTICIDE / FUNGICIDE APPLICATION BENEFITS

University and industry trials have demonstrated optimized yields when implementing high-technology management systems e.g., in furrow, fungicide, insecticide and nutritional in corn and soybeans. The use of fungicides preserves photosynthetic leaf area for grain fill, and when employing mitochondrial respiration inhibitors, plant health effects are often observed. These effects encompass increased CO₂ assimilation, water use efficiency and stress tolerance during critical reproductive stages. Utilizing insecticides to address defoliating as well as insects that feed on developing seeds may also promote greater yields and seed quality.

Weather patterns will determine disease progression. However, insect pressure is beginning to materialize. As crops enter reproductive stages, this represents a vital period to protect them from biotic and abiotic stress. Replicated research has shown preserved yield potential by employing high-tech management programs, emphasizing crop protection from furrow to finish. Talk to your FMC representative to determine the best options to utilize **FMC Freedom Pass** programs to optimize crop yields and return on investment.





In this replicated trial, adding each input – fungicide, insecticide, nutritional – separately improved crop yields 2.1-3.5 bu/A. However, the high-tech treatment including all inputs in a program resulted in a 7.2 bu/A increase vs. the standard.





In this replicated trial, adding each input – in-furrow, fungicide, insecticide, nutritional – separately improved crop yield 8.9-16.9 bu/A. However, the high-tech treatment including all inputs in a program resulted in a 34.4 bu/A increase vs. the standard.





- Use Rate: 5 oz.
- Methods allowed: Ground, aerial, chemigation
- Adjuvants: Corn Yes, prior to V8 and after VT. Soybeans – Yes at any stage
- Number of Applications: 2
- Do not apply more than 11 fl. oz./A per year
- Final Application timing: Corn R4
- REI: 12 hours, except 5 days for detasseling
- PHI: Corn 30 days (Grain and Stover), 10 Days forage Soybean – 21 days

Field Corn, Seed Corn, Popcorn, Soybean Recs:

OPGL

ED

- Use Rate: 5-7 oz.
- Methods allowed: Ground, aerial
- Adjuvants: Corn Yes, prior to V8 and after VT. Soybeans Yes at any stage
- Number of Applications: 2 (corn), 3 (soy)
- Do not apply more than 14 (corn), or 15.5 (soy) fl. oz./A
 per year
- Final Application timing: Corn R4
- REI: 12 hours, except 5 days for detasseling
- PHI: Corn 7 days, Soybean 21 days



Whitestown, IN – 2018 FELS – Pod Infection/Seed Quality

Lucento[®] fungicide 5 oz./A + NIS 0.25% v/v @ R3 Untreated Check





Yield Increase 5.5 bu/A



Milan, TN – 2018 FELS/Purple Seed Stain –Seed Quality



Lucento fungicide 5 oz./A + NIS 0.25% v/v @ R3

Yield Increase 8.6 bu/A





SOYBEAN GROWTH STAGES

When making fungicide applications, it is important to abide by label suggestions based upon soybean growth stage. Below is a guide from Iowa State University that will help distinguish in the field.

Vegetative Stages			Reproductive Stages		
L?	VE	Emergence - cotyledons have been pulled through the soil surface	-2	R1	Beginning flowering - plants have at least one flower on any node
	VC	Unrolled unifoliolate leaves - unfolding of the unifoliolate leaves		R2	Full flowering - there is an open flower at one of the two uppermost nodes
×	V1	First trifoliolate - one set of unfolded trifoliolate leaves	×	R3	Optimal fungicide timing for targeting the disease complex in soybean Beginning pod - pods are 3/16 inch (5 mm) at one of the four uppermost nodes
<u> A</u>	V2	Second trifoliolate - two sets of unfolded trifoliolate leaves		R4	Full pod - pods are 3/4 inch (2 cm) at one of the four uppermost nodes
A.	V4	Fourth trifoliolate - four unfolded trifoliolate leaves	161	R5	Beginning seed - seed is 1/8 inch long (3 mm) long in the pod at one of the four uppermost nodes on the main stem
	V (n)	nth trifoliolate - V stages continue with the unfolding of trifoliolate leaves. The final number of trifoliolate's depends on the soybean variety and the environmental conditions		R6	Full seed - pod containing a green seed that fills the pod capacity at one of the four uppermost nodes on the main stem
			A. F.	R7	Beginning maturity - one normal pod on the main stem has reached it's mature pod color

Soybean Aphid



General Facts:

- Overwinters as an egg on buckthorn
- Multiple generations per year
- Damage from feeding on sap
- Indirect damage from spread of soybean mosaic virus and alfalfa mosaic virus

Threshold:

 Varies with several factors: insecticide cost, application cost, infestation timing, current timing, expected yield and price of soybeans

Soybean Insect Complex

R8

color

Two-Spotted Spider Mite



General Facts:

- During drought conditions, they will move to soybeans
- Foliar coverage is critical
- Assess mite movement into fields along corners and edges to prevent heavy infestations within the field

Threshold:

- None, easier to manage the population than rescue a heavy infestation

Three-Cornered Alfalfa Hopper

Full maturity - 95% of the pods have reached their full mature



General Facts:

- Generally, causes problems on beans less than 12" tall
- Feed on main stem near the soil line
- Seedling plants my be girdled and die; larger damaged plants may lodge
- Later feeding on pod petiole will cause pod abortion

Threshold:

- One per sweep

Potato Leafhopper



General Facts:

- Overwinters near the Gulf
- Adult females insert two to three eggs per day into soybean plants
- Feed on phloem
- Cause distorted leaf veins, yellow-brown leaves (hopper burn) and may stunt the plant

Approximate Threshold:

- Five leafhoppers/plant

Corn Earworm (Podworm)

SM



General Facts:

- Moths lay eggs in the upper canopy. One female can lay up to 1,800 eggs.
- Caterpillars (four pairs of prolegs) feed on leaves, blossoms, and pods

Threshold:

[cost of trt/(price/bu x 1.93)]/ 0.68

Soybean Stem Borer



General Facts:

- Overwinters as a larva in the base of the stem
- Adults emerge in late June and lay eggs through August
- Control is difficult the larva are in the stem and cause lodging; proper timing is key to adult control

Approximate Threshold:

- One per 10 sweeps

Japanese Beetle



General Facts:

- Adults emerge in early June and feed most of the summer
- They group feed and stay exposed to sunlight making them easier to control
- Grubs from these adults can cause problems next year in field corn

Threshold:

- 30% defoliation at pre-bloom stage 15% defoliation from bloom to
- pod-fill

Bean Leaf Beetle



General Facts:

- Overwinters as an adult
- Two in-season generations per yearDirect damage from feeding on leaves
- and pods

 Indirect damage from spread of bean
- pod mottle virus (see photo)

Threshold:

- Difficult to determine depending on direct or indirect damage. Scout earliest planted soybeans first.

Guideline:

- \$7 insecticide cost, \$12 bu soybeans
- Nine beetles/20 sweeps



General Facts:

- Move into the north from the south on weather fronts
- Females lay 10-30 eggs per cluster
- Depending on species it takes 23 days to two months from egg to adult
- Feed directly on pods and seeds
- Approximate Threshold: - One per ft. of row

Hero insecticide is a Restricted Use Pesticide. Always read and follow all label directions, precautions and restrictions for use. Some products may not be registered for sale or use in all states. FMC, the FMC logo, Hero, Lucento and Topguard are trademarks and HatchTrak is a service mark of FMC Corporation or an affiliate. Revytek is a trademark of BASF SE. Trivapro and Miravis are registered trademarks of Syngenta Group Company. Delaro is a trademark of Bayer CropScience. ©2021 FMC Corporation. All rights reserved. 06/21.