

# INSECT MANAGEMENT DECISIONS IN SEED CORN

## OPTIMIZE INSECT MANAGEMENT AND GRAIN QUALITY WITH THE FMC INSECTICIDE PORTFOLIO

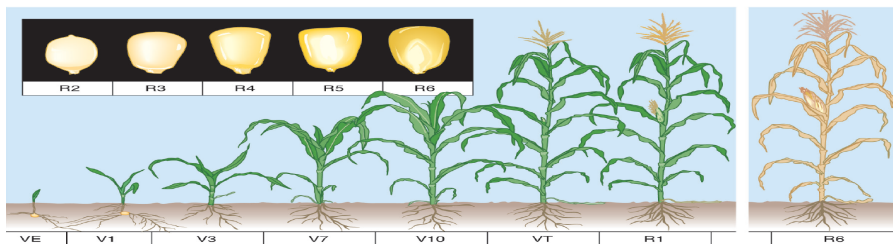
Effective management programs are critical for reducing insect populations that contribute to grain imperfections and subsequent seed viability. History has demonstrated that over-reliance on a single pesticide mode of action will increase the risk of selecting for resistance. When selecting a program to employ in seed production, several factors should be considered: 1. Integrated pest management; 2. Efficacy on important insects; 3. Re-entry interval; 4. Pre-harvest interval; and 5. Impact on beneficial insects.

**Table 1. Commonly Used Insecticides in Seed Corn Production**

Insecticide	IRAC Group	Key Insects Controlled	REI	Signal Word	PHI	Impacts Beneficial Insects
Mustang® Maxx insecticide (Zeta-cypermethrin)	3A	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Aphids, Stink Bugs, Grasshopper	12 hr.	Warning	7 Days	Yes
Hero® insecticide (Zeta-cypermethrin + bifenthrin)	3A	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Aphids, Stink Bugs, Grasshopper, Mites**	12 hr.	Caution	30 Days	Yes
Brigade® 2EC insecticide/miticide (bifenthrin)	3A	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Aphids, Stink Bugs, Grasshopper, Mites**	12 hr.	Warning	30 Days	Yes
Steward® EC insecticide (Indoxacarb)	22	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle (suppress.), Stinkbugs (suppress.), Grasshopper	12 hr.	Caution	14 Days	Minimal
Prevathon® insect control (Chlorantraniliprole)	28	Lepidoptera*, Grasshopper	4 hr.	None	14 Days	Minimal
Baythroid® (β-cyfluthrin)	3A	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Stink Bugs, Grasshopper	12 hr.	Warning	21 Days	Yes
Asana® XL (Esfenvalerate)	3A	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Corn Leaf Aphid, Grasshopper	12 hr.	Warning	21 Days	Yes
Warrior® (Lambda-Cyhalothrin)	3A	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Aphids, Stink Bugs, Grasshopper	24 hr.	Warning	21 Days	Yes
Lorsban® (Chlorpyrifos)	1B	Lepidoptera*, Corn Rootworm Adult, Brown Marmorated Stink Bug, Grasshopper	24 hr.	Warning	21 Days	Yes
Lannate® (Methomyl)	1A	Lepidoptera*, Corn Rootworm Adult, Aphids, Brown Marmorated Stink Bug.	48 hr.	Danger	21 Days	Moderate
Intrepid Edge® (Methoxyfenozide + Spinetoram)	5 + 18	Lepidoptera*	4 hr.	Caution	1 Day	Minimal
Cobalt® (Chlorpyrifos + Lambda-Cyhalothrin)	3A + 1B	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Aphids, Brown Marmorated Stink Bug, Grasshopper	24 hr.	Warning	21 Days	Yes
Besiege® (Lambda-Cyhalothrin + Chlorantraniliprole)	3A + 28	Lepidoptera*, Corn Rootworm Adult, Japanese Beetle, Aphids, Stink Bugs, Grasshopper	24 hr.	Warning	21 Days	Yes

- \*Lepidoptera insects include: Corn earworm, armyworm spp., corn borer spp., Western bean cutworm, stalk borer etc.
- \*\* Hero rate 10.3 oz., Brigade rate 5.12-6.4 oz. for mite activity.

Image courtesy of the University of Illinois



Utilizing IRAC group 3A, 22 and 28 insecticides in rotation will mitigate the risk of selecting for resistance. Employing products with minimal impact on beneficial insects in rotation will reduce mite and aphid flares while maintaining activity on key ear feeding pests.

# DISEASE MANAGEMENT DECISIONS IN SEED CORN

## OPTIMIZE FUNGAL DISEASE MANAGEMENT AND GRAIN FILL WITH PREEMPTOR® SC FUNGICIDE

Corn inbred lines encompass reduced tolerance to common fungal leaf diseases. Mechanical damage resulting from de-tasseling events causes entry points for fungal diseases. Protecting leaf area with fungicides optimizes sunlight capture for carbohydrate assimilation and grain fill improving quality and yield.



### Active Ingredients in Preemptor® SC Fungicide:

#### Fluoxastrobin (Group 11, Strobilurin):

Strobilurin efficacy on common fungal diseases is comparable. Important differentiating factors for strobilurin fungicides include:

- Plant mobility (translaminar, xylem movement)
- Rainfast
- Plant health effects (ethylene reduction, water use efficiency, carbon assimilation etc.)

#### Flutriafol (Group 3, Triazole):

Triazole fungicides differentiate by:

- Disease efficacy
- Plant mobility
- Soil uptake

#### Flutriafol Features Benefits:

- Improves gray leaf spot, Northern corn leaf blight and Southern rust efficacy.
- Low Log Kow demonstrates water partiality enabling mobility with water and dissolved nutrients up the plant and out to leaf margins.
- Low Koc value indicates weak attraction to clay and organic matter enabling soil availability for root uptake.

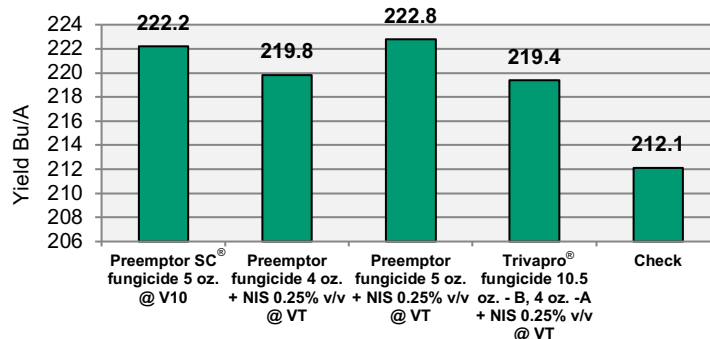
Table 1. Strobilurin characteristics

Order of commercial launch	5	2	1	3	4	6
	Approach® Fungicide	Quadris® Fungicide	Sovran® Fungicide	Flint® Fungicide	Headline® Fungicide	Fluoxastrobin
Uptake into leaf	Medium	Low	Low	Very low	Very low	Medium
Molecular redistribution by air	Yes	No	Yes	Yes	No	No
Metabolic stability in leaf	Medium	Medium	Low	Low	Medium	Medium
Translaminar movement	Medium	Medium	Slow	Slow	Slow	Fast
Xylem mobile	Yes	Yes	No	No	No	Yes
Systemic movement to new growth	Yes	Yes	No	No	No	Yes
Speed of Rainfastness	Slow	Slow	Medium	Medium	Medium	Fast
Plant Health Effect	XXX	XXX	X	XX	XXXX	XXXX

Table 2. Triazole fungicide physical features

Active Ingredient	Log Kow	Koc mg/g	Brand Name
Flutriafol	2.3	252	Topguard® Fungicide
Cyproconazole	2.9	390	Alto® Fungicide
Tetraconazole	3.56	1152	Domark® Fungicide
Propiconazole	3.72	648	Tilt® Fungicide

Evaluation of Foliar Fungicides for Disease Control and Yield  
Dr. Jason Bond - S. Illinois Univ. - 2016  
Carmi, IL



## Application Recommendations

4-6 oz./A

Common rust, Southern rust, anthracnose leaf blight, gray leaf spot, Northern corn leaf blight, Northern corn leaf spot, Southern corn leaf blight, eye spot

**Five-day REI for detasseling; REI for all other activities is 12 hours; 30 day PHI (grain, seed, forage or stover)**

Apply using nozzles providing thorough coverage to facilitate adequate disease control. For ground application, apply a minimum of 10 GPA; aerial application, minimum 2 GPA.

Can be tank mixed with commonly used herbicides, fungicides, insecticides and foliar nutrients. However, compatibility should be determined by jar testing.

### Special Information

Do not apply more than 12 oz./A per year • Do not apply more than 0.13 lb. ai/A fluoxastrobin and 0.17 lb. ai/A flutriafol per year • Do not make more than two applications per year • Apply no later than R4 (early dough stage) • Do not use an adjuvant after the V8 stage and prior to the VT stage of corn. An adjuvant can be used at any other growth stage. • Do not apply through an irrigation system.

The minimum retreatment interval is seven days.

Asana insecticide, Baythroid insecticide, Besiege insecticide, Brigade 2EC insecticide/miticide, Cobalt insecticide, Hero insecticide, Mustang Maxx insecticide, Lannate insecticide, Lorsban insecticide and Warrior insecticide are Restricted Use Pesticides. Always read and follow all label directions, restrictions and precautions for use. Some products may not be registered for sale or use in all states. The EPA label for Steward EC insecticide contains the following statements: This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area. Some products may not be registered for sale or use in all states. FMC, Brigade, Hero, Mustang, Preemptor, Prevathon, Steward, and Topguard are trademarks of FMC Corporation or an affiliate. Cobalt, Intrepid Edge and Lorsban are trademarks of Dow Agrosciences, LLC. Domark is a trademark of Isagro SpA. Besiege, Warrior, Quadris, Alto, Tilt and Trivapro are trademarks of a Syngenta Group Company. Asana is a trademark of Sumitomo Chemical Company, Limited. Approach and Lannate are trademarks of DuPont Crop Protection. Sovran and Headline are trademarks of BASF. Baythroid and Flint are trademarks of Bayer. ©2018 FMC Corporation. All rights reserved. 03/18