



Syngenta Seedcare Soybean Portfolio Outshines the Competition





Syngenta Seedcare provides soybean growers with early-season insect and disease protection they can count on through a proven seed treatment portfolio, which includes CruiserMaxx® Beans insecticide/fungicide seed treatment, a combination of Cruiser® seed treatment insecticide and ApronMaxx® seed treatment fungicide, a powerhouse combination of Maxim® 4FS and Apron XL® fungicides.

Applied by seed companies and retailers, seed treatments are a convenient way to reduce the threat of early-season insects and diseases and provide protection of crop investment, which can increase the chances of higher yields and profitability.

There is no doubt the Syngenta Seedcare soybean portfolio outshines the competition. Maxim 4FS and Apron XL seed treatment fungicides have consistently proven to protect seeds and seedlings against a wide range of yield-threatening insects and diseases, and that is why they are the market-leading, tried and true brands of choice

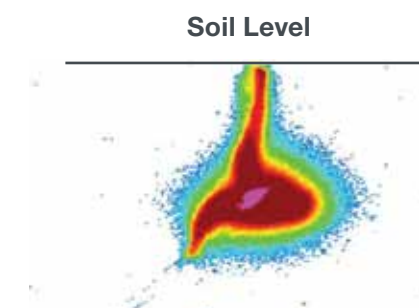
for growers. Cruiser seed treatment insecticide offers proven broad-spectrum early-season insect protection and provides a vigor effect to improve plant stand and health even under low insect pressure. The active ingredients in Maxim 4FS, Apron XL and Cruiser have consistently outperformed those in competitive products like Stamina®, Trilex®, Allegiance®, Gaucho®, Inovate™ and generic imidacloprid and metalaxyl to produce healthier plants with better root systems which are therefore better equipped to reach maximum yield potential.

Maxim 4FS (Fludioxonil)

Maxim 4FS seed treatment fungicide has been on the market for close to a decade and has become the standard in early-season disease protection because of its effective activity against key plant pathogens, including *Fusarium*. Fludioxonil, its active ingredient, also provides top protection against *Rhizoctonia*. Maxim 4FS has the unique ability to adhere to particles in the root zone, allowing it to move with the root system as it grows.

Characteristics

Proven Long-lasting Results Against Key Diseases



Distribution of C-14 fludioxonil **50 days after planting**.

Rhizoctonia Solani Control In Soybeans

Trial Was Inoculated With *Rhizoctonia Solani* (2008)



Trifloxystrobin (5 gm ai/100 kg) + Allegiance + Cruiser



CruiserMaxx Beans

Fludioxonil vs. Trifloxystrobin vs. Ipconazole

Fludioxonil (Maxim 4FS)	Trifloxystrobin (Trilex)	Ipconazole (Inovate)
Better activity than competitors on <i>Rhizoctonia</i> and <i>Fusarium</i> .	Provides less protection than fludioxonil against <i>Rhizoctonia</i> and <i>Fusarium</i> .	Provides less protection than fludioxonil against <i>Rhizoctonia</i> and <i>Fusarium</i> .
Not systemic, but has the unique ability to adhere to particles in the root zone, which allows it to move with the root system as it grows. It has been shown to be superior to non-systemic strobilurin chemistries on <i>Rhizoctonia</i> .	Locally systemic.	Systemic and contact fungicide.

Apron XL (Mefenoxam)

Mefenoxam, the active ingredient in Apron XL seed treatment fungicide, offers proven protection against soil-borne *Pythium*, which can cause seed decay, damping off and root pruning in young and old soybeans under cool and wet environmental conditions. Since mefenoxam is an active isomer of metalaxyl, Apron XL can be used at much lower rates than competitive products like Allegiance and Inovate (which both utilize metalaxyl) and generic metalaxyl.



Untreated Apron XL @ 0.16 oz/cwt Apron XL @ 0.32 oz/cwt

Soybeans from treatments with increasing rates of mefenoxam for *Phytophthora sojae* control.

Product	Rate (oz/100 lbs. of seed)	Equivalent Active Ingredient in g/100 kg of Seed
Apron XL® (mefenoxam)	0.16 oz	3.75 g
	0.32 oz	7.5 g
	0.64 oz	15.0 g
Allegiance® FL (metalaxyl)	0.2 oz	2.0 g
	0.375 oz	3.75 g
	0.75 oz	7.5 g
	1.5 oz	15.0 g

Mefenoxam vs. Metalaxyl

Mefenoxam (Apron XL)	Metalaxyl (Allegiance, Inovate)
The standard rate of mefenoxam delivers twice the equivalent amount of the active ingredient metalaxyl. Since mefenoxam is the active isomer of metalaxyl, Apron XL provides equivalent active ingredient at much lower rates than metalaxyl. Syngenta Seedcare recommends using a rate of 0.16 to 0.64 fluid oz. specific to the level of disease pressure and disease targeted, <i>Pythium</i> or <i>Phytophthora</i> .	To get the equivalent amount of active ingredient comparable to the rate of 0.32 oz. of Apron XL, an Allegiance rate of 0.75 oz. must be used.
	Adding an additional spike of metalaxyl is an option, but the treatment rate will be much higher for the same level of disease protection offered by Apron XL. This is due to differences in formulation concentration and the amount of the active isomer present.

ApronMaxx

As a formulation containing the active ingredients found in Maxim 4FS (fludioxonil) and Apron XL (mefenoxam) seed treatment fungicides, ApronMaxx offers increased root development compared to a combination of Trilex and Allegiance in regard to root length, tips and forks. This translates into greater root efficiency for uptake of water and nutrients, which leads to better growth and performance.



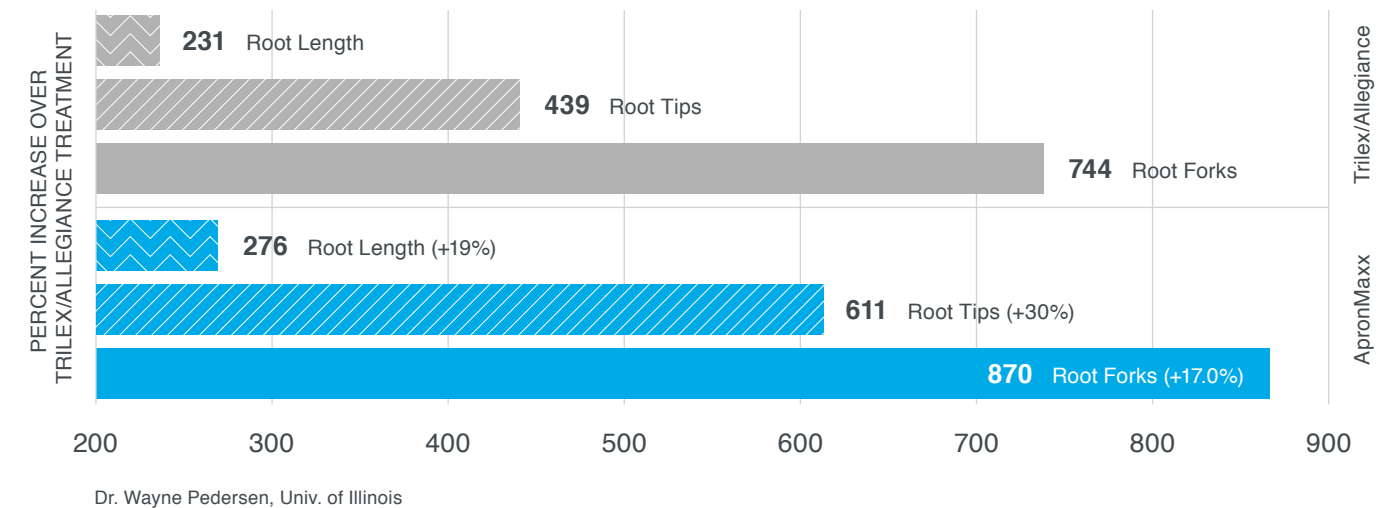
ApronMaxx



Trilex/Allegiance

Photos courtesy of Univ. of Illinois

ApronMaxx vs. Trilex/Allegiance Root Development



ApronMaxx vs. Trilex 2000

ApronMaxx	Trilex 2000 (Trilex/Allegiance)
Offers increased root development compared to Trilex 2000 in regard to root length, tips and forks.	Studies show lower levels of root development compared to ApronMaxx.

Disease Control Comparison for Soybeans

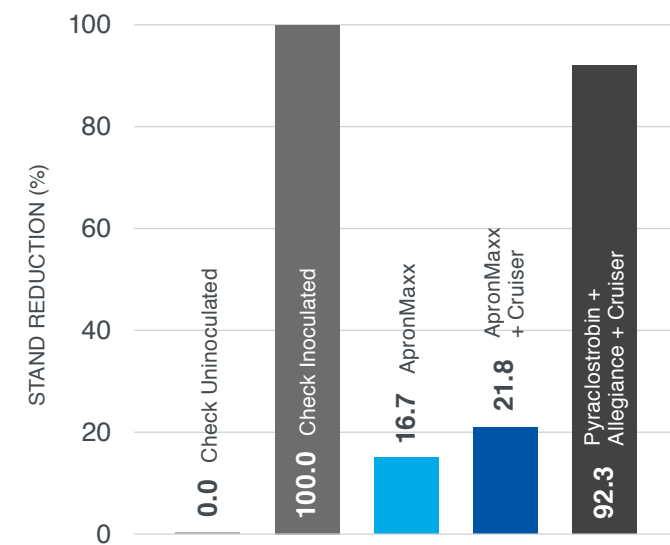
Active Ingredients	Phytophthora Damping-Off	Pythium Damping-Off	Rhizoctonia Damping-Off	Seed-Borne Phomopsis	Fusarium Damping-Off	Seed-Borne Sclerotinia
Mefenoxam, Fludioxonil	G	E	G	G	E	E
Mefenoxam	E	E	N	N	N	N
Trifloxystrobin	NA	F	F	NA	F	NA
Pyraclostrobin	NA	F	F	NA	F	NA
Metalaxyl	E	E	N	N	N	N
Ipconazole	N	N	F	G	G	N

E = excellent **G** = good **F** = fair **N** = none **NA** = information not available

*For fields with a history of early-season Phytophthora, add additional Apron XL (0.16–0.48 fluid ounces per cwt) to the standard rate of mefenoxam in ApronMaxx brand products.

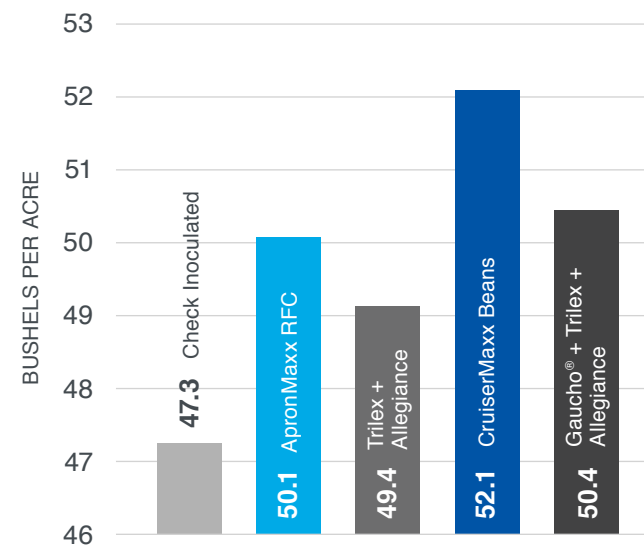
Note: Efficacy based on labeled rate of active ingredient.

Low Levels of *Rhizoctonia Solani* Show Highly Effective Control



Soybean Greenhouse Trial Inoculated with *Rhizoctonia solani*. Cruiser and ApronMaxx show lower levels of *Rhizoctonia solani*.

Seed Treatment Effect on Soybean Yield



All locations, 24 plots with yield, OH, 2-IL, NY, NE, IA

CruiserMaxx Beans

For even more effective protection against early-season pests, ApronMaxx can be combined with Cruiser seed treatment insecticide for broad-spectrum insect and disease protection in one convenient combination – CruiserMaxx Beans.

Since 2005, CruiserMaxx Beans insecticide/fungicide seed treatment combination has been used on more than 40 million acres and has provided soybean growers with insect and disease protection they can count on.

Thiamethoxam

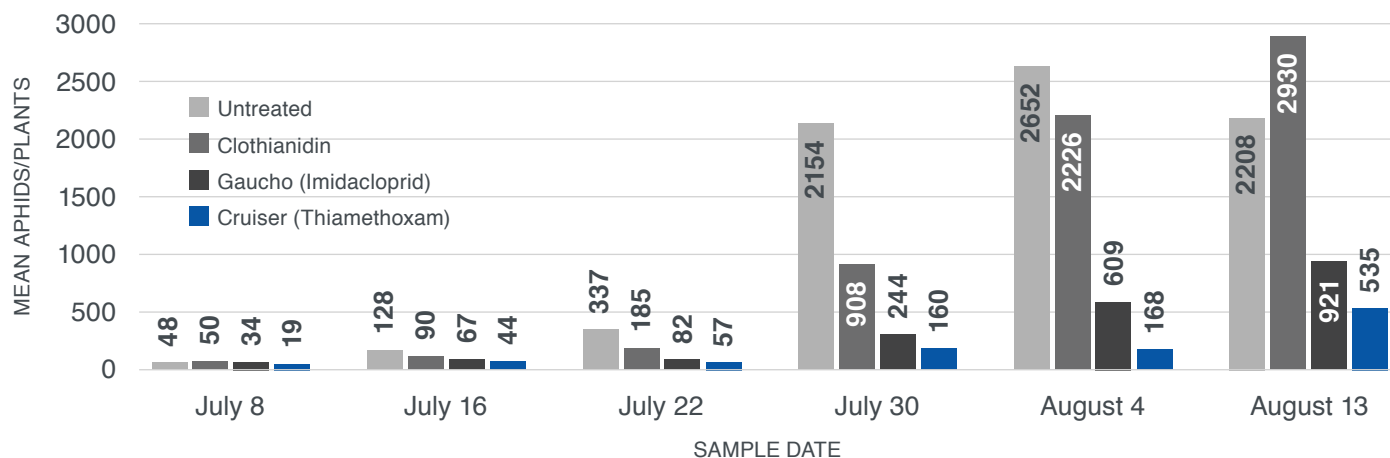
Cruiser seed treatment insecticide contains a systemic active ingredient, thiamethoxam, to deliver long residual and a wide window of protection. It is more water soluble than competitive active ingredients like imidacloprid and clothianidin, meaning it takes much less soil moisture to activate and move it into the roots and throughout emerging seedlings. This helps ensure plant protection even in dry soil conditions. Thiamethoxam is taken up rapidly by the plant and has a proven vigor effect that offers growers benefits beyond broad-spectrum insect protection.

Thiamethoxam vs. Imidacloprid vs. Clothianidin

Thiamethoxam (Cruiser)	Imidacloprid (Gaucho)	Clothianidin (NipsIt INSIDE®)
More systemic than imidacloprid and clothianidin to deliver longer residual, providing a wider window of protection, especially against soybean aphids.	Systemic.	Systemic.
<p><i>Water solubility: 4,100 ppm</i></p> <ul style="list-style-type: none"> It takes much less soil moisture to activate thiamethoxam and move it into the roots and throughout emerging seedlings, which helps ensure plant protection even in dry soil conditions. Thiamethoxam is taken up more rapidly by the plant. Thiamethoxam is more water soluble than competitive active ingredients. 	<p><i>Water solubility: 510 ppm</i></p> <ul style="list-style-type: none"> Because of low water solubility, imidacloprid is less effective under dry conditions than thiamethoxam. Less activity on foliar pests. 	<p><i>Water solubility: 300 ppm</i></p> <ul style="list-style-type: none"> Because of low water solubility, clothianidin is less effective under dry conditions than thiamethoxam. Less activity on foliar pests.
Patented Thiamethoxam Vigor Effect offers growers benefits beyond broad-spectrum insect protection.	Manufacturer does not promote a vigor effect.	Manufacturer does not promote a vigor effect.
The longer thiamethoxam remains in the soil, the more tightly it binds to the soil making it less likely to leach. This indicates that thiamethoxam is readily available to be absorbed by plant soil profile thereby reducing leaching potential.	In bioassays conducted for determination of soil absorption, imidacloprid showed stronger binding on each of the analyzed soil types than thiamethoxam. High levels of soil absorption or binding can render the pesticide unavailable for plant uptake and biological activity.	

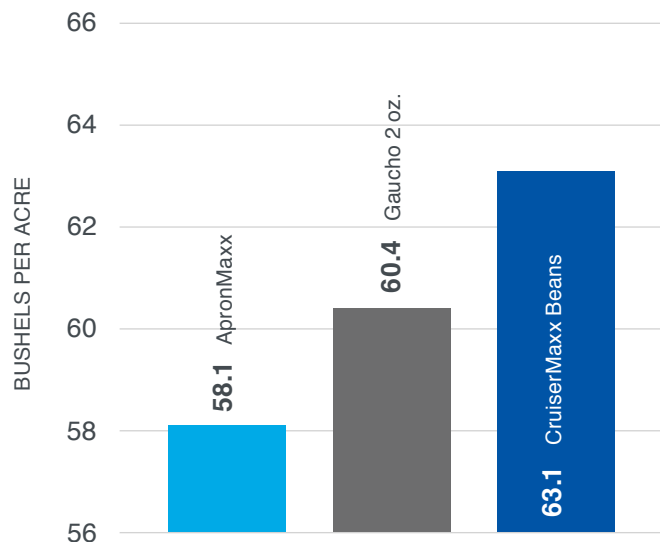
Clothianidin and imidacloprid (the active ingredient in Gaucho® insecticide) have demonstrated less activity than thiamethoxam on soybean aphids, bean leaf beetle and three-cornered alfalfa hopper.

Soybean Aphid Seed Treatment Trial

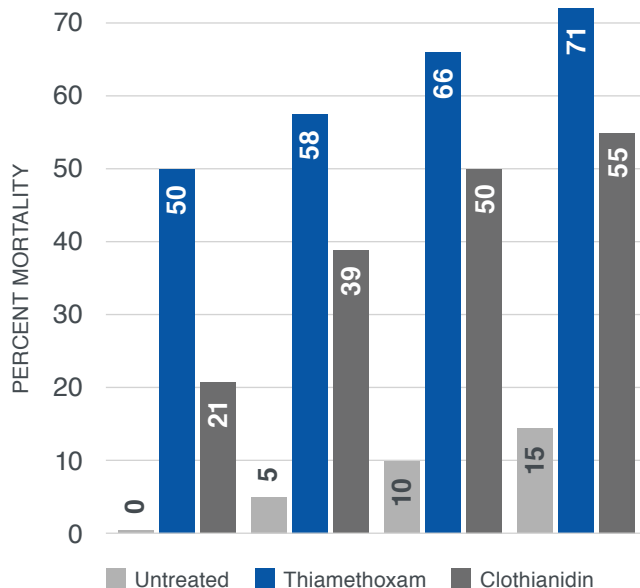


University of WI, Arlington

Bean Leaf Beetle Yield Ames, Iowa



Three-Cornered Alfalfa Hopper



For more information, visit the Syngenta Crop Protection website: www.syngentacropprotection.com or www.farmassist.com, or call the Syngenta Customer Center at 1-866-SYNGENTA (866-796-4368).

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