Active ingredient names for registered products can be found in the *seed treatment fungicide group classification by mode of action* table starting on page 569

Seed treatment index

Seed treatment of cereal, forage, oilseed and pulse crops

Purpose of seed treatment

Seed treatment provides economical insurance against many diseases and some insect pests of seed and seedlings. Chemical treatment can give seedlings a head start by preventing or reducing damage resulting from certain crop pests.

Diseases are controlled by contact fungicides that destroy fungi carried on the seed, such as common bunt of wheat, the surface-borne smuts of barley and oats, fungus stripe of barley and some leaf-spotting and seed decay fungi. Systemic fungicides destroy fungi carried in the seed, such as loose smut of wheat and barley, and they protect the early growth of the seedling.

Specific recommendations:

- Rye and flax should be treated because they are very susceptible to seed decay.
- Winter wheat should be treated to prevent bunt and seed decay as well as to promote good seedling growth.
- If bunt or smut was observed in a crop that will be used for seed, the grain should be treated. If a variety is grown that is susceptible to bunt or smut and the presence of the disease is uncertain, it may be wise to treat the seed annually or every second year, depending on the susceptibility of the variety.
- Canola should always be treated to control the seed-borne phase of blackleg.
- Alfalfa seed is treated to control verticillium wilt.

Insecticidal seed treatment will prevent or reduce damage caused by certain crop pests.

Methods of seed treatment

Custom treatment

Fungicides are applied to the seed sometime before planting. Seed cleaning plants are equipped to treat seed with liquid fungicides. Canola can only be treated by custom applicators as there are no farmer-applied seed fungicides available. Farmers can use a variety of methods for both liquid and dry formulation application.

Precautions

- **Read** and **follow** label directions carefully.
- **Treated** seed must not be allowed to contaminate grain intended for food, feed or commercial use.
- **Bury** leftover treated seed or store it safely in labelled bags for future use as seed.
- **Treated** seed offered for sale must be labelled with the name of the treated chemicals (Seed Act).
- **Treated** seed in transit must be bagged or bulk loads tarped to prevent spillage.

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Seed treatment fungicide group classification by mode of action					
Chemical family	**Active ingredients**	**Found in**			
Group 1	**Inhibition of tublin formation.**				
Benzimidazole	thiabendazole	Apron Advance	Mertect SC		
	thiophanate-methyl	Senator PSPT			
Group 3	**Demethylation inhibitors.**				
Triazoles	difenoconazole	Dividend Extreme Cruiser Maxx Potato Extreme*	Cruiser Vibrance Quattro* Helix Vibrance*	Interest Forte Maxim D	Vibrance Quattro Vibrance Ultra Potato
(includes conazoles)	ipconazole	Cover 2	Rancona Trio	Rancona VRS	
	tebuconazole	Raxil Pro	Raxil Pro Shield*	Sharda Meteb	
	triticonazole	Insure Cereal FX4	Teraxxa F4*		
	metconazole	METLOCK CT	NipsIt SUITE Cereals OF Seed Protectant*		
	prothioconazole	Emesto Silver	EverGol Energy	Raxil Pro	Raxil Pro Shield
Group 4	**Phenylamides. Affects RNA synthesis.**				
Acylamides	metalaxyl	Allegiance FL Belmont 2.7 FS Cruiser Vibrance Quattro* Cover 2	Dividend Extreme EverGol Energy Insure Pulse METLOCK CT Rancona Trio	NipsIt SUITE Cereals OF Seed Protectant* Prosper EverGol* Raxil MD	Teraxxa F4* Trilex EverGol SHIELD Trilex EverGol Vibrance Quattro Zeltera Pulse
	metalaxyl-M	Apron Advance Apron Maxx RTA Cruiser Maxx	Vibrance Beans* Dividend XL RTA Helix Vibrance*	Insure Cereal FX4 Interest Forte Orondis Gold Potato	Sharda Meteb Vibrance Maxx
Group 7	**Succinate dehydrogenase. Inhibits mitochondrial function.**				
Carboxamides	carbathiin	Loveland Vitaflo Rancona VRS	Rancona Trio	Vitaflo 280	Vitaflo SP
	penflufen	Emesto Silver EverGol Energy	Prosper EverGol*	Trilex EverGol	Trilex EverGol SHIELD
	sedaxane	Cruiser Maxx Vibrance Beans*	Cruiser Vibrance Quattro*	Helix Vibrance* Vibrance Quattro	Vibrance Ultra Potato Vibrance Maxx
	fluxapyroxad	Insure Cereal FX4	Insure Pulse	Teraxxa F4*	
	inpyrfluxam	Zeltera Pulse			
Group 11	**Strobilurin type action and resistance. Inhibit mitochondrial respiration.**				
Strobilurin	trifloxystrobin	Prosper EverGol*	Trilex EverGol	Trilex EverGol SHIELD	
	pyraclostrobin	Insure Cereal FX4	Insure Pulse	Teraxxa F4*	
	mandestrobin	Zeltera Pulse			
Group 12	**Phenylpyrroles.**				
Phenylpyrroles	fludioxonil	Apron Advance Apron Maxx RTA Cruiser Maxx Potato Extreme*	Cruiser Maxx Vibrance Beans*	Cruiser Vibrance Quattro* Helix Vibrance* Maxim D	Maxim MZ PSP Vibrance Quattro Vibrance Maxx
Group 22					
Thiiazole carboxamide	ethaboxam	INTEGO Solo	Zeltera Pulse		
Group 40					
Amide fungicide	mandipropamid	Vibrance Ultra Potato			
Group M	**Multi-site activity.**				
Dithiocarbamates	mancozeb	MancoPlus PSPT Maxim MZ PSP	Potato ST 16 Solan MZ	Tuberseal PSPT	PSPT 16%
	thiram	Loveland Vitaflo	Thiram 75WP	Vitaflo 280	Vitaflo SP

*Contains fungicide and insecticide combination. Information on insecticide mode of action can be found in the insecticide section.

Allegiance™ FL Fungicide Seed Treatment/Belmont 2.7 FS

Fungicide Group 4

Formulation

Product	Company	Active ingredient	Formulation	Container size
Allegiance™ FL (PCP# 26674)	Bayer	Metalaxyl: 317 g/L	Liquid suspension	3.79 L
Belmont 2.7 FS (PCP# 30246)	UPL AgroSolutions Canada			500 mL, 10 L, 200 L

Crops, diseases controlled and rates

Crops	Diseases	Rate per 100 kg seed	Water	Total volume
Cereals (wheat, barley, oat, rye, triticale)	Seed rot and seedling blight	6.3 - 12.6 mL	493.7 - 487.4 mL	500 mL
Chickpea, dry pea	Seed rot and seedling blight	16 - 110 mL	484 - 390 mL	500 mL
Canola, rapeseed, pea (processing)	Seed rot and seedling blight	32 - 110 mL	468 - 390 mL	500 mL
Alfalfa, bean, bird's-foot trefoil, clover, vetch, sainfoin	Seed rot and seedling blight	46 - 110 mL	454 - 390 mL	500 mL
Grasses (forage)	Seed rot and seedling blight	46 - 93 mL	454 - 407 mL	500 mL
Sunflower	Seed rot and seedling blight, downy mildew	110 - 189* mL	390 - 311 mL	500 mL
Lentil (low tannin)**	Pythium seed rot	16 mL	484 mL	500 mL
Soybean	Seed rots and seedling blights, early season Phytophthora	46 - 93 mL	454 - 407 mL	500 mL
Corn (field, sweet)	Seed rots and seedling blights	46 - 110 mL	454 - 390 mL	500 mL

*Higher rate needed for downy mildew. **For use on low tannin lentil destined for export or seed production only.

Registered tank mixes

None registered.

Application information

Mix with water to form a slurry seed treatment. A suitable seed colourant must be added to the slurry prior to application on seed. See instructions supplied with the applicable seed treater system for information on proper application techniques.

Crops intended for export

If the crop is intended for export, consult with the importer to establish what rates of metalaxyl are used on the crop in their country for controlling specific diseases.

Application tips

Use only the recommended rates.

How it works

Metalaxyl is a systemic fungicide that is absorbed into the germinating seed and is transported through the growing seedling, providing control of seed and seedling diseases.

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Restrictions

Grazing: Do not graze or feed livestock on treated areas for 4 weeks after planting. Treated seed must not be used for food, feed or oil processing.

Environmental precautions

Treated seed may be toxic to birds and other wildlife. Clean up any spilled seed. Ensure that treated seed is properly incorporated at planting. Do not apply this product directly to freshwater habitats, estuaries or marine habitats. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Toxicity

Oral LD_{50} (rats) = 2,900 mg/kg. Dermal LD_{50} (rabbit) = 2,000 mg/kg.

Storage

Store product in original container away from other pesticides, fertilizer, food or feed. Do not store product in direct sunlight. Do not store Allegiance FL above 35°C or below 0°C.

Apron Advance

Fungicide Group 1, 4, 12

Formulation

Product	Company	Active ingredient	Formulation	Container size
Apron Advance (PCP# 30627)	Syngenta	Thiabendazole: 150 g/L Fludioxonil: 25 g/L Metalaxyl-M: 20 g/L	Liquid suspension	10 L

Crops, diseases controlled and rates

Crops	Diseases	Rate per 100 kg seed
Chickpea	Seed-borne Ascochyta blight caused by *Ascochyta rabiei* Seed rot, pre-emergence and post-emergence damping-off caused by *Fusarium* spp., *Rhizoctonia* spp. and *Pythium* spp. Seed rot and seedling blight caused by seed-borne *Botrytis* spp. Seedling blight caused by *Fusarium* spp. and *Pyhthium* spp.	100 mL
Lentil	Seed-borne Ascochyta blight caused by *Ascochyta lentis* Seed rot, pre-emergence and post-emergence damping-off caused by *Fusarium* spp., *Rhizoctonia* spp. and *Pythium* spp. Seed rot and seedling blight caused by seed-borne *Botrytis* spp. Seedling root rot caused by *Fusarium* spp.	

Registered tank mixes

Apron Advance can be tank mixed with Cruiser 5FS for wireworm protection.

Application information

Apply 100 mL of Apron Advance seed treatment per 100 kg of seed as a water-based slurry utilizing standard slurry seed treatment equipment that provides uniform seed coverage. **To achieve an accurate slurry, fill each jug with water and shake well prior to application.** Uneven or incomplete seed coverage may not give the desired level of disease control. Thoroughly mix the recommended amount of Apron Advance seed treatment into the required amount of water for the slurry treater and dilution rate to be used. Slurry volumes will vary depending on seed size.

Seed treatment and inoculants: Apron Advance can be used with most Rhizobium-based inoculants. Contact inoculant manufacturer for proper recommendations. Treated seed may not flow at the same rates through seeding equipment as untreated seed. Mixing with inoculants may increase drying time. With rough-coated seed, the addition of water to Apron Advance will increase coverage; contact Syngenta for more information.

Apron Advance (cont'd)

How it works
Fludioxonil is a phenylpyrrole fungicide with contact activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against certain fungal diseases. Thiabendazole is a systemic benzimidazole fungicide with activity against certain fungal diseases.

Restrictions
Grazing: Do not graze or feed livestock on treated areas for 4 weeks after planting. **Re-cropping:** Do not plant any crop other than soybean, bean, chickpea, lentil, lupin, faba bean and pea within 30 days to fields in which treated seeds were planted.

Environmental precautions
Apron Advance is toxic to fish and other aquatic organisms. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. Any spilled or exposed seeds must be incorporated into the soil or cleaned up.

Toxicity
Oral LD_{50} (rats) = > 5,000 mg/kg. Dermal LD_{50} (rats) = > 5,050 mg/kg.

Storage
Heated storage required. Do not store above 30°C. Store product in original container.

Apron Maxx RTA

Fungicide Group 4, 12

Formulation

Product	Company	Active ingredient	Formulation	Container size
Apron Maxx RTA (PCP# 27577)	Syngenta	Fludioxonil: 0.73% Metalaxyl-M: 1.1%	Liquid suspension	450 L

Crops, diseases controlled and rates

Crops	Diseases	Rate per 100 kg seed
Chickpea	Seed rot, pre-emergence and post-emergence damping-off caused by *Fusarium* spp., *Rhizoctonia* spp. *and Pythium* spp.	325 mL
	Seed rot and seedling blight caused by seed-borne *Botrytis* spp.	
	Seedling blight caused by *Fusarium* spp. and *Pyhthium spp*	
	Seed-borne ascochyta blight caused by *Ascochyta rabiei*	
Dry bean	Damping-off caused by *Fusarium* spp., *Rhizoctonia* spp. and *Pythium* spp.	
	Seeedling blight caused by *Pythium* spp.	
	Anthracnose caused by seed-borne *Colletotrichum* spp.	
Lentil	Seed rot, pre-emergence and post-emergence damping-off caused by *Fusarium* spp., *Rhizoctonia* spp. *and Pythium* spp.	
	Seed rot and seedling blight caused by seed-borne *Botrytis* spp.	
	Seedling root rot caused by *Fusarium* spp.	
	Seed-borne ascochyta blight caused by *Ascochyta lentis*	

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Crops	Diseases	Rate per 100 kg seed
Pea (field and succulent)[1]	Seed rot, seedling blight, pre-emergence and post-emergence damping-off caused by *Fusarium* spp., *Rhizoctonia* spp. and *Pythium* spp. Seed-borne Aschochyta blight and foot rot caused by *Ascochyta pinodes*	325 mL
	Seed-borne Ascochyta blight and foot rot caused by *Asychota pinodes*	
Soybean[2]	Damping-off and seed rots caused by *Pythium* spp., *Fusarium* spp. and *Rhizoctonia* spp.	
	Seedling blight caused by *Fusarium* spp. and *Pythium* spp.	
	Seedling root rot caused by *Fusarium* spp.	
	Seed rot and seedling blight caused by seed-borne *Phomopsis* spp.	
	Early season root rot caused by *Phytophthora megasperma* var. *sojae*.[3]	
Faba bean[1]	Seed rot/pre-emergence damping-off, post-emergence damping-off and seedling blight caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp.	

[1] Registered under User Requested Minor Use Label Expansion program. [2] Based on 6,660 soybean seeds per bushel. [3] Apron Maxx RTA provides early season protection against Phytophtora root rot for tolerant varieties of soybean. If target fields have a history of high Phytophtora pressure, or susceptible varieties are to be treated then tank mix 325 mL of Apron Maxx RTA with 31 mL of Apron XL LS fungicide per 100 kg of seed.

Registered tank mixes

Apron Maxx RTA can be tank mixed with Cruiser 5FS to produce Cruiser Maxx Pulses.

Application information

Apron Maxx RTA is a ready-to-apply seed treatment for use in commercial seed treatment plants and for on-farm treatment. Apron Maxx RTA may also be used in treat-on-the-go air seeders. The equipment must provide uniform coverage on the seed. Allow the seed to dry before bagging, storing or seeding.

Seed treatment and inoculants

Apron Maxx RTA can be used with some Rhizobium-based inoculants. Contact inoculant manufacturer for proper recommendations. Treated seed may not flow at the same rates through seeding equipment as untreated seed. With rough coated seed, the addition of water to Apron Maxx will increase coverage; contact Syngenta for more information.

How it works

Fludioxonil is a phenylpyrrole fungicide with contact activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against certain fungal diseases.

Restrictions

Grazing: Do not graze or feed livestock on treated areas for 4 weeks after planting. **Re-cropping:** Do not plant any crop other than soybean, bean, chickpea, lentil, lupin, faba bean and pea within 30 days to fields in which treated seeds were planted.

Environmental precautions

Apron Maxx RTA is toxic to fish and other aquatic organisms. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. Any spilled or exposed seeds must be incorporated into the soil or cleaned up.

Toxicity

Oral LD_{50} (rats) = 5,050 mg/kg. Dermal: LD_{50} (rabbit) = 2,020 mg/kg.

Storage

Heated storage required. Do not store Apron Maxx RTA above 30°C. Store product in original container.

BUTEO™ start 480 FS

Group 4D

Formulation

Product	Company	Active ingredient	Formulation	Container size
BUTEO™ start 480 FS (PCP # 31451)	Bayer	Flupyradifurone: 480 g/L	Suspension	0.25 - 1000 L

Crops, diseases controlled and rates

Crops	Insects controlled	Rate per 100 kg seed	Specific comments
Canola	Flea beetle	625 mL	Do not apply any subsequent application of a Group 4D insecticide (in-furrow, soil or foliar application) following planting of BUTEO start 480 FS treated seeds.

Application information

BUTEO start is for use in commercially available equipment designed for seed treatment only.

How it works

BUTEO start 480 FS is a systemic seed treatment insecticide that provides protection of canola from damage caused by listed chewing and sucking insects though contact and systemic activity.

Restrictions

Re-cropping: Immediate plant back for cereal grains (except rice), soybean, oilseeds. A 6-month plant-back interval applies to sugar beet.

Environmental precautions

Follow best management practices to help minimize dust exposure to pollinators during planting of treated seed; refer to the complete guidance "Pollinator Protection: reducing risk from treated seed" on the Health Canada website (*www.healthcanada.gc.ca/pollinators*).

Toxic to aquatic organisms. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. Toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface. Left over treated seed should be double-sown around the headland, or buried away from water sources.

Toxicity

Oral LD_{50} (rats) = 1,030 mg/kg. Dermal LD_{50} (rats) = > 5000 mg/kg.

Storage

Store product in original container Store in a cool, dry area. Do not store in direct sunlight. Do not store above 35ºC. Do not allow to freeze

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Cover 2

Fungicide Group 3, 4

Formulation

Product	Company	Active ingredient	Formulation	Container size
Cover 2 Fungicide (PCP# 32950)	Loveland Products	Ipconazole: 4.61 g/L Metalaxyl: 6.15 g/L	Solution	10 L, 115 L

Crops, diseases controlled and rates

Crops	Diseases controlled	Diseases suppressed	Rate per 100 kg of seed
Barley	General seed rots (*Penicillium* and *Aspergillus*), seed rot, damping off and seedling blight (seed- and soil-borne *Fusarium*, *Cochliobolus sativus, Rhizoctonia solani*) True loose smut (*Ustilago nuda*) Covered smut (*Ustilago hordei*) False loose smut (*Ustilago nigra*) Leaf stripe (*Pyrenophora graminea*)	Common root rot (*Cochliobolus sativus*) Crown and foot rot (*Fusarium* spp.)	325 mL
	True loose smut control. Use the higher rate for highly infected seed lots only		433 mL
Wheat (spring and winter)	General seed rots (*Penicillium* and *Aspergillus*), seed rot, damping off and seedling blight (seed- and soil-borne *Fusarium*, *Cochliobolus sativus, Rhizoctonia solani*) Loose smut (*Ustilago tritici*) Common bunt (*Tilletis caries, T. foetida*)	Common root rot (*Cochliobolus sativus*) Crown and foot rot (*Fusarium* spp.)	325 mL
Oats	General seed rots (*Penicillium* and *Aspergillus*), seed rot, damping off and seedling blight (seed- and soil-borne *Fusarium*, *Cochliobolus sativus, Rhizoctonia solani*) Loose smut (*Ustilago avenae*) Covered smut (*Ustilago kolleri*)	Common root rot (*Cochliobolus sativus*) Crown and foot rot (*Fusarium* spp.)	325 mL
Rye and triticale	General seed rots (*Penicillium* and *Aspergillus*), seed rot, damping off and seedling blight (seed- and soil-borne *Fusarium, Rhizoctonia solani*, *Cochliobolus sativus*)	Common root rot (*Cochliobolus sativus*) Crown and foot rot (*Fusarium* spp.)	325 mL

Registered tank mixes

For control of Pythium, Rancona Pinnacle Fungicide can be tank mixed with Apron XL LS for applications to wheat (spring or winter), barley, oats or rye. Apply Rancona Pinnacle at registered rates for these crops, and apply Apron XL LS at 2.7 mL/100 kg of seed.

Application information

Rancona Pinnacle is a ready to use formulation and should be applied utilizing mechanical, slurry or mist-type on-farm or commercial seed treating equipment.

How it works

Rancona Pinnacle is a broad-spectrum fungicide with systemic properties.

Restrictions

Grazing: Do not graze or feed livestock on treated areas for 30 days after planting. Do not use treated seed for food, feed or oil processing.

Environmental precautions

Treated seed is toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface. Do not contaminate irrigation water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Toxicity

Oral LD_{50} (rats) = > 5,000 mg/kg. Dermal LD_{50}(rabbit) = > 5,000 mg/kg.

Storage

Keep product stored away from food and feed. Store product at temperatures between 0°C and 35°C.

Cruiser 5FS

Insecticide Group 4

Formulation

Product	Company	Active ingredient	Formulation	Container size
Cruiser 5FS (PCP# 27045)	Syngenta	Thiamethoxam: 47.6%	Liquid suspension	56.78 L

Crops, insects controlled and rates

Crops	Insects	Rate per 100 kg of seed	Specific Comments
Wheat and barley	Wireworms	17 mL, 33 - 50 mL	Use the 17 mL/100 kg seed rate for wireworm suppression. For moderate or high wireworm pressure, treat crops at the 33 - 50 mL/100 kg seed. May be applied on-farm or by commercial treaters using closed transfer including closed mixing, loading, calibrating and closed treatment equipment.
	European chafer	50 mL	
Chickpea, lentil, dry pea, faba bean	Wireworms	17 mL, 33 - 50 mL	Use the 17 mL/100 kg seed rate for wireworm suppression. For moderate or high wireworm pressure, treat crops at the 33 - 50 mL/100 kg seed. May be applied on-farm or by commercial treaters using closed transfer including closed mixing, loading, calibrating and closed treatment equipment.
Dry pea (including field pea)	Pea leaf weevil	50 mL	

Registered tank mixes

Cruiser 5FS can be tank mixed with Apron Maxx RTA, Dividend XL RTA and Vibrance 500FS. Follow the more stringent precautionary measures for mixing, loading and applying as stated on both product labels.

Application information

Ensure product is thoroughly mixed prior to application. Apply Cruiser 5FS Seed Treatment utilizing closed system seed treatment equipment that provides uniform seed coverage. Thoroughly mix the recommended amount of Cruiser 5FS Seed Treatment into the required amount of water for the slurry rate to be used. Maintain constant agitation of the slurry. Allow the seed to dry before bagging or storing into bulk containers. Depending on planting equipment, seed treated with Cruiser 5FS Seed Treatment may not flow through planting equipment at the same rate as untreated seed. Recalibrate equipment before planting treated seed.

How it works

Cruiser 5FS Seed Treatment belongs to the neonicotinoid class of chemistry that controls listed chewing and sucking insects through contact and systemic activity. When seed is treated for post-planting protection against registered pests, Cruiser 5FS Seed Treatment will also provide protection during post-treatment storage of the seed against damage from many storage insect pests.

Seed treated with Cruiser 5FS Seed Treatment has been tested and found to be effective against rusty grain beetle, saw-toothed grain beetle, red flour beetle, rice weevil, lesser grain borer, European corn borer and Indian-meal moth.

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Restrictions
Treated seed must not be used for food, feed or oil processing. **Grazing:** Do not graze or feed livestock on seeded area for 45 days after planting.

Environmental precautions
Thiamethoxam is toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. Do not apply directly to water or to areas where surface water is present. Treated seed is toxic to birds and small wild mammals. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.

Toxicity
Oral LD_{50} (rats) = > 5,000 mg/kg. Dermal LD_{50} (rabbit) = > 5,050 mg/kg. Toxic to bees.

Storage
Heated storage required. Store product in original container, ideally at temperatures below 30°C.

Cruiser Maxx Potato Extreme

Insecticide Group 4 Fungicide Group 3, 12

Formulation

Product	Company	Active ingredient	Formulation	Container size
Cruiser Maxx Potato Extreme (PCP# 31024)	Syngenta	Thiamethoxam: 250 g/L Fludioxonil: 64.5 g/L Difenoconazole: 123 g/L	Liquid suspension	5.54 L

Crops, insects and diseases controlled, rates

Crops	Insects	Diseases	Rate per 100 kg of seed
Potato	Colorado potato beetle, aphids (including green peach, potato, buckthorn and foxglove aphid), potato leafhopper	Black scurf (suppression), stem and stolon canker (*Rhizoctonia solani*) Silver scurf (*Helminthosporium solani*) Fusarium dry rot (*Fusarium* spp.)	20 mL

Application information
Store cut seeds between 7°C. and 10°C. Apply only in areas with adequate ventilation or in areas that are equipped to remove mist or dust. Seed loading onto the belt should be uniform. If the treated seed is to be stored for several days, ensure there is adequate cool air movement through the pile of cut seed potato at a relative humidity of 85 to 90%. An inert dust may be used to help suberization. Cut and treated seed should not be piled above 1.8 metres in height. Optimal results are obtained if potatoes are planted immediately after being treated. Do not apply more than 190 mL/acre (rate required for seeding rate of 21 cwt/acre). For seeding rates higher than 21 cwt/acre, use Maxim D plus Actara (consult labels for rates).

How to apply
Apply as a water-based slurry utilizing standard slurry seed treatment equipment that provides uniform seed coverage. Thoroughly mix the recommended amount of Cruiser Maxx Potato Extreme into the required amount of water or tank mix partner for the slurry treater and dilution rate to be used. Maintain constant agitation of the slurry during treatment.

How it works
Cruiser Maxx Potato Extreme is active against black scurf, stem and stolon canker, silver scurf and fludioxonil resistant Fusarium dry rot and contains thiamethoxam, a systemic neonicotinoid insecticide that controls listed sucking and chewing insects through contact and ingestion.

Cruiser Maxx Potato Extreme (cont'd)

Restrictions

Grazing: Do not graze or feed livestock on seeded area for 45 days after planting. Do not use treated seed for food, feed or oil processing. **Re-cropping:** Treated areas may be replanted immediately following harvest or as soon as practical following the last application with any crop listed on the label or to sorghum, wheat, barley and canola. Any cover crop planted for erosion control or soil improvement may be planted as soon as practical following the last application. The cover crop may not be grazed or harvested for food or feed. For all other crops, a 120-day plant-back interval is required.

Environmental precautions

This product is toxic to fish and aquatic invertebrates. Do not apply this product directly to water or to areas where surface water is present. Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. Treated seed is toxic to birds and small wild animals. Any spilled or exposed seed must be incorporated into the soil or collected and disposed of in a safe manner.

Toxicity

Oral LD_{50} > 5,050 mg/kg. Dermal LD_{50} > 5,000 mg/kg.

Storage

Heated storage required. Store product in original container, ideally at temperatures below 30°C.

Cruiser Maxx Vibrance Beans

Insecticide Group 4 Fungicide Group 4, 7, 12

Formulation

Product	Company	Active ingredient	Formulation	Container size
Cruiser Maxx Beans (PCP# 28821)	Syngenta	Thiamethoxam: 22.6% Metalaxyl-M: 1.70% Fludioxinil: 1.12%	Liquid suspension	56.78 L (Cruiser Maxx Beans) + 1.45 L (Vibrance)
Vibrance 500FS (PCP# 30438)		Sedaxane: 500 g/L		

Crops, insects and diseases controlled, rates

Crop	Insects	Diseases	Rate per 100 kg of seed
Soybean[1]	Wireworm Seed corn maggot European chafer Bean leaf beetle Soybean aphid*	Control of seed rot/pre-emergence damping-off and post-emergence damping-off caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp. Control of seedling blight caused by *Fusarium* spp. and *Pythium* spp. Control of seedling root rot caused by *Fusarium* spp. Seed rot and seedling blight caused by seed-borne *Phomopsis* spp. Early season root rot caused by *Phytophthora megasperma* var. sojae.[2] Seed decay, seedling blight and damping-off caused by *Rhizoctonia solani*	195 mL Cruiser Maxx Beans + 10 mL Vibrance
Dry bean	Wireworm Seed corn maggot Potato leafhopper**	Control of seed rot/pre-emergence damping-off, and post-emergence damping-off caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp. Control of seedling blight caused by *Pythium* spp. Anthracnose caused by seed-borne *Colletotrichum* spp. Seed decay, seedling blight and damping off caused by *Rhizoctonia solani*	195 mL Cruiser Maxx Beans + 10 mL Vibrance

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Note

*Early season protection. **Replaces one (1) application of a foliar insecticide spray.

[1] Based on 6,600 soybean seeds per kg, Cruiser Maxx Beans Seed Treatment delivers 85 μg of active ingredient (76 μg of thiamethoxam, 5.7 μg of metalaxyl-M and 3.8 μg of fludioxonil) per seed. [2] Cruiser Maxx Beans Seed Treatment provides early season protection against Phytophthora root rot for tolerant varieties of soybean. If target fields have a history of high Phytophthora pressure or susceptible varieties are to be treated, then tank mix 195 mL of Cruiser Maxx Beans Seed Treatment with 31 mL of APRON XL® LS Fungicide per 100 kg of seed.

Registered tank mixes

Apron XL LS at 31 mL/100 kg seed.

Application information

For use in a closed application system; no open transfer of product is permitted. Apply Cruiser Maxx Vibrance Beans utilizing seed treatment equipment that provides uniform seed coverage. Seed treated with Cruiser Maxx Vibrance Beans Seed Treatment or a combination of Cruiser Maxx Vibrance Beans Seed Treatment and seed inoculants may not flow through planting equipment at the same rate as untreated seed. Recalibrate equipment before planting treated seed. Mixing with inoculants may increase drying time.

Seed treatment and inoculants: Cruiser Maxx Vibrance Beans is compatible with Rhizobium-based inoculants. Check with inoculant manufacturer for application details prior to use.

How it works

Cruiser Maxx Vibrance Beans controls wireworms and other listed insects through contact and systemic activity of thiamethoxam. Fludioxonil is a phenylpyrrole fungicide with contact activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against certain fungal diseases.

Restrictions

Grazing: Do not graze or feed livestock on treated areas for 45 days after planting. Treated seed must not be used for food, feed or oil processing. **Re-cropping:** Do not plant any crop other than those on the label within 60 days of seeding.

Environmental precautions

This product is toxic to fish and aquatic invertebrates. Do not apply this product directly to water or to areas where surface water is present. Toxic to bees. Bees can be exposed to product residues, flowers, leaves, pollen and /or nectar resulting from seed treatment applications. Treated seed is toxic to birds and small wild animals. Any spilled or exposed seed must be incorporated into the soil or cleaned up.

Toxicity

Oral LD_{50} (rats) = > 5,000 mg/kg. Dermal LD_{50} (rabbit) = > 5,000 mg/kg.

Storage

Heated storage required. Store product in original container, ideally at temperatures below 30°C.

Cruiser Vibrance Quattro

Insecticide Group 4 fungicide Group 3, 4, 7, 12

Formulation

Product	Company	Active ingredient	Formulation	Container size
Cruiser Vibrance Quattro (PCP# 31453)	Syngenta	Thiamethoxam: 61.5 g/L Difenoconazole: 36.9 g/L Sedaxane: 15.4 g/L Metalaxyl: 9.2 g/L Fludioxonil: 7.7 g/L	Liquid suspension	10 L, 115 L, 450 L

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