2026 GUIDE TO CROP PROTECTION

For the chemical management of weeds, plant diseases and insects

This publication is only a guide intended for the use of Saskatchewan growers. Always refer to the product label for application details and precautions. If information in this publication conflicts with the label, use the label directions.

saskatchewan.ca/agriculture

Saskatchewan

Seed Treatment Tables

*** All seed treatment tables should be used only in consultation with the product labels. In case of any conflict, instructions on the label prevail.**

Table 1. Seed Treatment Products for Barley, Oats, and Wheat

PRODUCTS	Page	BARLEY DISEASES											BARLEY INSECTS			
		Alternaria alternata (seed-borne)	*Aspergillus* spp., *Penicillium* spp.	*Cochliobolus sativus* (seed rot, damping-off)	Common root rot (*Cochliobolus sativus*)	*Fusarium* spp.	*Pythium* spp.	Leaf stripe (*Pyrenophora graminea*)	*Rhizoctonia* spp.	*Septoria* spp. (seed-borne)	Smuts (*Ustilago hordei, U. nigra, U. nuda*)	Take-all (*Gaeumannomyces graminis*)	Armyworm	Cutworm	Wireworms	Grasshoppers
Allegiance FL	661						•									
Avoda PRO	670		•[3]	•	•[1]	•	•	•	•[1]		•					
Belmont 2.7 FS	661						•									
Cover 2	654		•	•	•[1]	•	•	•	•		•					
Cruiser 5FS	629														•	
Cruiser Vibrance Quattro	633	•	•	•[1]	•[1]	•	•		•		•	•[1]			•	
Fortenza	635													•	•	
Insure Cereal FX4	647			•	•[1]	•	•		•		•					
INTEGO Solo Fungicide	650						•									
Interest Forte	652		•		•[1]	•[6]	•			•	•	•[1]				
Lixar PRO	670		•[3]	•	•[1]	•	•	•	•[1]		•					
Lumivia CPL	658												•	•	•	•
NipsIt INSIDE 600 Insecticide	628															
Rancona Trio	667		•	•	•[1]	•	•	•	•		•					
Raxil PRO	670		•[3]	•	•[1]	•	•	•	•[1]		•					
Raxil Rise	672		•[1,8]	•	•[6]	•[6]	•	•	•[9]		•					
Raxil PRO SHIELD	671		•[3]	•	•[1]	•	•	•	•[1]		•				•	
SHARDA METEB 11ST	675			•[1]	•[1]	•[6]	•				•					
Sombrero 600 FS	645														•	
Straxan	677		•	•[1]	•[1]	•	•				•					
Stress Shield 600	645														•	
Tarian MD	680			•[1]	•[1]	•[6]	•				•					
Telex Fungicide	661						•									
Teraxxa F4	681			•	•[1]	•	•		•		•				•	
Vibrance Quattro	691	•	•	•[1]	•[1]	•	•		•		•	•[1]				
Vitaflo Brands	693		•[4]	•	•[1]	•	•	•[5]			•					
Zeltera Cereals Seed Treatment Fungicide	695				•	•	•		•		•					

PRODUCTS	OATS DISEASES								OATS INSECTS			
	Alternaria alternata (seed-borne)	*Aspergillus* spp., *Penicillium* spp.	*Cochliobolus sativus* (seed rot, damping-off)	Common root rot (*Cochliobolus sativus*)	*Fusarium* spp.	*Pythium* spp.	*Rhizoctonia* spp.	Smuts (*Ustilago hordei, U. avenae, U. kolleri*)	Armyworm	Cutworm	Wireworms	Grasshoppers
Allegiance FL						•						
Avoda PRO		•[3]	•	•[1]	•	•	•[1]	•				
Belmont 2.7 FS						•						
Cover 2		•	•	•[1]	•	•	•	•				
Cruiser 5FS												
Cruiser Vibrance Quattro	•	•	•[1]	•[1]	•	•	•	•			•	
Fortenza										•	•	
Insure Cereal FX4			•	•[1]	•	•	•	•				
INTEGO Solo Fungicide						•						
Interest Forte		•		•[1]	•	•		•				
Lixar PRO		•[3]	•	•[1]	•	•	•[1]	•				
Lumivia CPL									•	•	•	•
NipsIt INSIDE 600 Insecticide												
Rancona Trio		•	•	•[1]	•	•	•	•				
Raxil PRO		•[3]	•	•[1]	•	•	•[1]	•				
Raxil Rise		•[1,8]	•	•[6]	•[6]	•	•[9]	•[11]				
Raxil PRO SHIELD		•[3]	•	•[1]	•	•	•[1]	•			•	
SHARDA METEB 11ST			•[1]	•[1]	•[6]	•		•				
Sombrero 600 FS											•	
Straxan		•	•[1]	•[1]	•	•		•				
Stress Shield 600											•	
Tarian MD			•[1]	•[1]	•[6]	•		•				
Telex Fungicide						•						
Teraxxa F4			•	•[1]	•	•	•	•			•	
Vibrance Quattro	•	•	•[1]	•[1]	•	•	•	•				
Vitaflo Brands		•[4]		•[1]	•	•		•				
Zeltera Cereals Seed Treatment Fungicide				•	•	•	•	•				

PRODUCTS	WHEAT DISEASES											WHEAT INSECTS			
	Alternaria alternata (seed-borne)	*Aspergillus* spp., *Penicillium* spp.	Bunts (*Tilletia tritici, T. laevis, T. controversa*[2])	*Cochliobolus sativus* (seed rot, damping-off)	Common root rot (*Cochliobolus sativus*)	*Fusarium* spp.	*Pythium* spp.	*Rhizoctonia* spp.	*Septoria* spp. (seed-borne)	Smut (*Ustilago tritici*)	Take-all (*Gaeumannomyces graminis*)	Armyworm	Cutworm	Wireworms	Grasshoppers
Allegiance FL							•								
Avoda PRO		•[3]	•	•	•[1]	•	•	•[1]		•					
Belmont 2.7 FS							•								
Cover 2		•	•	•	•[1]	•	•	•		•					
Cruiser 5FS				•[1]										•	
Cruiser Vibrance Quattro	•	•	•	•[1]	•[1]	•	•	•		•	•[1]			•	
Fortenza													•	•	
Insure Cereal FX4			•	•	•[1]	•	•	•		•					
INTEGO Solo Fungicide							•								
Interest Forte		•	•		•[1]	•[6]	•		•	•	•[1]				
Lixar PRO		•[3]	•	•	•[1]	•	•	•[1]		•					
Lumivia CPL												•	•	•	•
NipsIt INSIDE 600 Insecticide														•[1]	
Rancona Trio		•	•	•	•[1]	•	•	•		•					
Raxil PRO		•[3]	•	•	•[1]	•	•	•[1]		•					
Raxil Rise		•[1,8]		•	•[6]	•[6]	•	•[9]		•					
Raxil PRO SHIELD		•[3]	•	•	•[1]	•	•	•[1]		•				•	
SHARDA METEB 11ST			•[7]	•[1]	•[1]	•[6]	•		•	•					
Sombrero 600 FS														•	
Straxan		•	•	•[1]	•[1]	•	•			•	•[1]				
Stress Shield 600														•	
Tarian MD			•	•[1]	•[1]	•[6]	•		•	•					
Telex Fungicide							•								
Teraxxa F4				•	•[1]	•	•	•		•				•	
Vibrance Quattro	•	•	•	•[1]	•[1]	•	•	•		•	•[1]				
Vitaflo Brands		•[4]	•	•	•[1]	•	•		•	•					
Zeltera Cereals Seed Treatment Fungicide				•	•	•	•	•	•	•					

1. Suppression only.
2. Winter wheat only.
3. Control of seed-borne *Aspergillus* spp. and suppression of seed-borne *Penicillium* spp.
4. And *Alternaria* spp.
5. And suppression of net blotch (*Pyrenophora teres*).
6. Refer to label for expectations for control vs suppression.
7. Refer to the label for details.
8. Penicillium only.
9. Control of *Rhizoctonia solani*.
10. Control of *Rhizoctonia solani* and common bunt (*Tilletia caries, T. laevis*).
11. Control of loose smut (Ustilago tritici, U. avenae) and covered smut (Ustilago kolleri).

Table 2. Seed Treatment Products for Buckwheat, Grasses, Millet, Rye, Sorghum, and Triticale

PRODUCTS	Page	CANARYSEED		BUCKWHEAT			GRASSES	MILLET			RYE																SORGHUM			TRITICALE										
		DISEASES		DISEASES		INSECTS	DISEASES	DISEASES		INSECTS	DISEASES									INSECTS					DISEASES		INSECTS	DISEASES										INSECTS
		Fusarium spp., *Pythium* spp., *Rhizoctonia* spp.	*Cochliobolus sativus* (seed rot, damping-off)	*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.	Common root rot (*Cochliobolus sativus*)	Wireworms	Seed decay, seedling blight, damping-off	*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.	Common root rot (*Cochliobolus sativus*)	Wireworms	*Alternaria alternata* (seed-borne)	*Aspergillus* spp., *Penicillium* spp.	Bunts (*Tilletia tritici, T. controversa, T. laevis*)	*Cochliobolus sativus* (seed rot, damping-off)	Common root rot (*Cochliobolus sativus*)	*Fusarium* spp.	*Pythium* spp.	*Rhizoctonia* spp.	*Septoria* spp. (seed-borne)	Smut (*Ustilago tritici*)	Stem smut (*Urocystis occulta*)	Take-all (*Gaeumannomyces graminis*)	Armyworm	Cutworm	Wireworms	Grasshoppers	*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.	Downy Mildew (*Peronosclerospora sorghi*)	Wireworms	*Alternaria alternata* (seed-borne)	*Aspergillus* spp., *Penicillium* spp.	Bunts (*Tilletia tritici, T. laevis*)	*Cochliobolus sativus* (seed rot, damping-off)	Common root rot (*Cochliobolus sativus*)	*Fusarium* spp.	*Pythim* spp.	*Rhizoctonia* spp.	Smut (*Ustilago tritici*)	Take-all (*Gaeumannomyces graminis*)	Wireworms
Allegiance FL	661						•[2]										•										•[2,7]	•[7]										
Belmont 2.7 FS	661						•[2]										•										•[2,7]	•[7]						•				
Cover 2	654											•		•	•[1]	•	•	•													•	•[1]	•	•	•			
Cruiser 5FS	629					•				•														•					•									•
Cruiser Vibrance Quattro	633										•	•	•	•[1]	•[1]	•	•	•				•[1]			•					•	•		•	•[1]	•	•	•	•	•[1]	•
Fortenza	635																							•	•														•
Insure Cereal FX4	647	•	•										•	•	•[1]	•	•	•			•										•	•[1]	•	•	•	•		
INTEGO Solo Fungicide	650			•[2]				•[2]									•																•					
Interest Forte	652			•[8]				•[8]				•	•		•[1]	•	•		•			•[1]					•[8]				•			•[1]	•	•		•	•[1]	
Lumivia CPL	658																							•	•	•	•												
Rancona Trio	667											•		•	•[1]	•	•	•													•		•	•[1]	•	•	•		
Raxil PRO	670											•[7]	•	•		•	•			•											•[7]	•	•		•	•		•		
Raxil Rise	672											•[1,6]	•	•	•[1]	•[10]	•	•													•[1,6]	•	•	•[1]	•[10]	•	•			
Sharda METEB 11ST	675												•[9]	•[1]	•[1]	•[10]	•		•	•												•	•	•[1]	•[10]	•		•		
Straxan	677											•	•	•[1]	•[1]	•	•			•		•[1]									•		•[1]	•[1]	•	•		•	•[1]	
Tarian MD	680												•	•[1]	•[1]	•[10]	•		•	•													•	•[1]	•[1]	•[10]	•[11]		•		
Telex Fungicide	661						•[2]										•											•[7]											
Teraxxa F4	681	•	•										•							•					•								•					•
Vibrance Quattro	691										•	•	•	•[1]	•[1]	•	•	•				•[1]								•	•		•[1]	•[1]	•	•	•	•	•[1]	
Vitaflo Brands	693											•[5]		•	•[1]	•	•				•										•[6]		•		•	•			
Zeltera Cereals Seed Treatment Fungicide	695			•	•			•	•				•			•	•	•	•													•		•	•	•			

1. Suppression only.
2. *Pythium* only.
3. *Fusarium* and *Rhizoctonia* only.
4. Product does not specify causal pathogen.
5. And *Alternaria* spp.
6. *Penicillium* only.
7. For export only.
8. Product does not specify *Rhizoctonia*.
9. Refer to the label for details.
10. Refer to label for expectations for control vs. suppression.
11. And seed-borne *Septoria nodorum*.

Table 3. Seed Treatment Products for Oilseed Crops

PRODUCTS	Page	CANOLA								MUSTARD[1]								FLAX			SUNFLOWERS		SAFFLOWER
		DISEASES						INSECTS		DISEASES						INSECTS		DISEASES			DISEASES		DISEASES
		Alternaria spp.	Blackleg (seed-borne) (*Leptosphaeria maculans*)	Blackleg (air-borne) (*Leptosphaeria maculans*)	*Fusarium* spp.	*Pythium* spp.	*Rhizoctonia* spp.	Cutworm	Flea beetles	*Alternaria* spp.	Blackleg (seed-borne) (*Leptosphaeria maculans*)	*Fusarium* spp.	*Pythium* spp.	*Rhizoctonia* spp.	Seed decay, seedling blight, damping off	Cutworm	Flea beetles	*Fusarium* spp.	*Pythium* spp.	*Rhizoctonia solani*	Downy mildew (*Plasmopora halstedii*)	*Pythium* spp.	Seed decay, seedling blight, damping off
Allegiance FL	661					•															•	•	
Belmont 2.7 FS	661					•															•	•	
BUTEO start 480 FS	627								•								•						
Cruiser 5FS	629								•								•						
Fortenza	635							•	•							•	•						
Fortenza Advanced	641							•	•							•	•						
Helix Vibrance	644	•	•		•	•	•		•	•	•	•	•	•			•						•
Insure Pulse	648									•	•	•	•	•				•		•			
INTEGO Solo Fungicide	650					•							•						•		•	•	•[3]
Lumiderm	635							•	•							•	•						
Lumiderm ONIQ								•	•							•	•						
Lumisena	655																				•		
Modalex 600									•														
NipsIt INSIDE 600 Insecticide	628								•								•						
Poncho 600 FS	628								•														
Prosper EverGol	666	•	•		•	•	•		•	•	•	•	•	•			•						
Rancona V RS	669		•		•		•				•	•		•									
Sombrero 600 FS	645								•								•						
Telex Fungicide	661					•															•	•	
Vitaflo Brands	693																	•		•			

1. Refer to product pages and labels for specific information on mustard type.
2. Product does not specify causal pathogen.
3. *Pythium* spp. only.
4. Suppression when used with resistant varieties.

Table 4. Seed Treatment Products for Dry Bean, Field Pea, and Lentil

PRODUCTS	Page	DRY BEAN																FIELD PEA																LENTIL															
		DISEASES										INSECTS						DISEASES									INSECTS						DISEASES									INSECTS					
		General seed rot/root rot/damping-off/seedling blight	Anthracnose (seed-borne) (*Colletotrichum* spp.)	Aphanomyces root rot (early-season (*Aphanomyces euteiches*)	Ascochyta blight (*Ascochyta* spp.)	*Botrytis* spp. (seed-borne)	*Fusarium* spp. (seed- and/or soil-borne)	*Pythium* spp. (soil-borne)	*Rhizoctonia* spp. (soil-borne)	*Sclerotinia sclerotiorum* (seed-borne)	White mould (*Sclerotinia sclerotiorum*)	Armyworm	Cutworm	Pea leaf weevil	Seedcorn maggot	Wireworms	General seed rot/root rot/damping-off/seedling blight	Anthracnose (seed-borne) (*Colletotrichum* spp.)	Ascochyta blight (*Ascochyta pinodes*)	Aphanomyces root rot (early-season) (*Aphanomyces euteiches*)	*Botrytis* spp. (seed-borne)	Downy mildew (*Peronospora viciae*)	*Fusarium* spp. (seed- and/or soil-borne)	*Pythium* spp. (soil-borne)	*Rhizoctonia* spp. (soil-borne)	*Sclerotinia sclerotiorum* (seed-borne)	Armyworm	Cutworm	Pea leaf weevil	Wireworms	General seed rot/root rot/damping-off/seedling blight	Anthracnose (seed-borne) (*Colletotrichum* spp.)	Aphanomyces root rot (early-season (*Aphanomyces euteiches*)	Ascochyta blight (*Ascochyta lentis*)	*Botrytis* spp. (seed-borne)	*Fusarium* spp. (seed- and/or soil-borne)	*Pythium* spp. (soil-borne)	*Rhizoctonia* spp. (soil-borne)	*Sclerotinia sclerotiorum* (seed-borne)	Armyworm	Cutworm	Pea leaf weevil	Wireworms
Allegiance FL	661							•															•																							
Apron Advance	662		•				•	•	•											•				•																						
Apron Maxx	625		•				•	•	•											•			•	•																						
Belmont 2.7 FS	661							•															•																							
Cruiser 5FS	629														•	•														•	•															•
EverGol Energy	639					•	•	•	•											•			•	•																						
Evergol RISE	640				•[2]	•	•	•	•											•[4]			•	•																						
Heads Up Plant Protectant	643								•[2]		•[2]																																			
Insure Pulse	648		•[2]		•	•[2]	•	•	•									•[2]	•		•[2]		•	•									•[2]		•	•[2]	•	•	•							
INTEGO Solo Fungicide	650			•[2]				•												•[2]				•									•[2]				•								
Lumivia CPL	658											•	•	•													•	•	•											•	•	•	
Minuet	544						•	•	•														•	•	•										•	•	•						
Obex	682	•					•	•	•								•		•[1]				•	•	•						•			•[1]	•	•	•	•						
Rancona Trio	667	•		•		•	•	•									•			•											•			•										
Stress Shield 600	645														•															•	•															•
Telex Fungicide	661							•															•		•																				
Trilex EverGol	683				•[2]	•	•	•	•										•[2]		•		•	•	•									•[2]	•	•	•	•						
Trilex EverGol SHIELD	684				•[2]	•	•	•	•						•				•[2]		•		•	•	•									•[2]	•	•	•	•						•
Vibrance Maxx RFC	686		•				•	•	•	•									•				•	•	•	•								•	•	•	•	•	•					
Vibrance Maxx RFC with INTEGO	688		•	•[2]			•	•	•	•									•	•[2]			•	•	•	•								•[2]	•	•	•	•	•					
Vibrance Maxx RTA	686		•				•	•	•	•									•				•	•	•									•	•	•	•	•						
Vibrance Total	689	•	•				•	•	•	•							•		•				•	•	•	•					•			•	•	•	•	•	•					
VIKING Grimstad	682	•					•	•	•								•		•[1]				•	•	•						•			•[1]	•	•	•	•						
Vitaflo Brands	693		•						•										•				•	•	•										•	•	•	•						

1. **Product does not specify causal pathogen.**
2. **Suppression.**
3. **Low tannin lentils destined for export or seed production only.**
4. **Refer to label for expectations for control vs. suppression.**

Table 5. Seed Treatment Products for Chickpea and Faba Bean

PRODUCTS	Page	CHICKPEA												FABA BEAN											
		DISEASES								INSECTS					DISEASES							INSECTS			
		General seed rot/root rot/damping-off/seedling blight	Anthracnose (seed-borne) (*Colletotrichum* spp.)	Ascochyta blight (*Ascochyta rabiei*)	*Botrytis* spp. (seed-borne)	*Fusarium* spp. (seed- and/or soil-borne)	*Pythium* spp. (soil-borne)	*Rhizoctonia* spp. (soil-borne)	*Sclerotinia sclerotiorum* (seed-borne)	Armyworm	Cutworm	Pea leaf weevil	Wireworms	General seed rot/root rot/damping-off/seedling blight	Anthracnose (seed-borne) (*Colletotrichum* spp.)	Aphanomyces root rot (early-season (*Aphanomyces euteiches*)	Ascochyta blight (*Ascochyta* spp.)	*Botrytis* spp. (seed-borne)	*Fusarium* spp. (seed- and/or soil-borne)	*Pythium* spp. (soil-borne)	*Rhizoctonia* spp. (soil-borne)	Armyworm	Cutworm	Pea leaf weevil	Wireworms
Allegiance FL	661						•																		
Apron Advance	624			•	•	•	•	•							•					•	•	•				
Apron Maxx (Co-pack)	625			•	•	•	•	•												•	•	•				
Belmont 2.7 FS	661						•																			
Cruiser 5FS	629												•											•	•
EverGol Energy	639				•	•	•	•																	
Evergol RISE	640			•[4]	•	•	•	•									•[2]	•	•	•	•				
Insure Pulse	648		•[2]	•	•[2]	•	•	•							•[2]		•	•[2]	•	•	•				
INTEGO Solo Fungicide	650						•									•[2]					•				
Lumivia CPL	658									•	•	•										•	•	•	
Minuet	544					•	•	•																	
Obex	682	•		•[1]		•		•																	
Rancona Trio	667	•		•		•	•	•																	
Stress Shield 600	645												•											•	•
Telex Fungicide	661						•																		
Trilex EverGol	683			•[2]	•	•	•	•									•[2]	•	•	•	•				
Trilex EverGol SHIELD	684			•[2]	•	•	•	•					•				•[2]	•	•	•	•			•	•
Vibrance Maxx RFC	686			•	•	•	•	•	•										•	•	•				
Vibrance Maxx RFC with INTEGO Solo	688			•	•	•	•	•	•							•[2]			•	•	•				
Vibrance Maxx RTA	686			•	•	•	•	•											•	•	•				
Vibrance Total	689	•		•	•	•	•	•	•					•					•	•	•				
VIKING Grimstad	682	•		•[1]		•		•																	

1. Product does not specify causal pathogen.
2. Suppression.
3. Refer to label for expectations for control vs. suppression.

Table 6. Seed Treatment Products for Legumes

PRODUCTS	Page	ALFALFA	BIRDS-FOOT TREFOIL	CLOVER	LUPIN		SAINFOIN	VETCH
		DISEASES	DISEASES	DISEASES	DISEASES	INSECTS	DISEASES	DISEASES
		Pythium spp. (soil-borne)	*Pythium* spp. (soil-borne)	*Pythium* spp. (soil-borne)	General seed rot/root rot/damping-off/seedling blight	Wireworms	*Pythium* spp. (soil-borne)	*Pythium* spp. (soil-borne)
Allegiance FL	661	•	•	•			•	•
Belmont 2.7 FS	661	•	•	•			•	•
Cruiser 5FS	629					•		
Telex Fungicide	661	•	•	•			•	•
Vibrance Total	689				•			

Table 7. Seed Treatment Products for Soybean

PRODUCTS	Page	DISEASES: General Seed/Root/Seedling Rots/Blights	Ascochyta blight (*Ascochyta* spp.)	*Botrytis* spp. (seed- and/or soil-borne)	*Fusarium* spp. (seed- and/or soil-borne)	*Phomopsis* spp. (seed- or soil-borne)	*Phytophthora* spp. (soil-borne)	*Pythium* spp. (soil-borne)	*Rhizoctonia solani* (soil-borne)	Sudden Death Syndrome (SDS) (*Fusarium virguliforme*)	White mould (*Sclerotinia sclerotiorum*)	INSECTS: Seedcorn maggot	Wireworms	Soybean aphid	Cutworm
Allegiance FL	661						•	•							
Belmont 2.7 FS	661						•	•							
Cruiser 5FS	629											•	•		
EverGol Energy	639			•	•	•		•	•						
Evergol RISE	640			•	•	•[4]		•	•						
Fortenza	635											•	•		•
Heads Up Plant Protectant	643								•[2]	•[2]	•[2]				
Insure Pulse	648		•	•[2]	•			•	•						
INTEGO Solo Fungicide	650						•[2]	•							
Lumiderm	635											•	•	•	•
Lumisena	655						•								
Obex	682				•	•		•	•						
Rancona Trio	667	•			•			•	•	•[2]					
Sombrero 600 FS	645											•	•	•	
Stress Shield 600	645											•	•	•	
Telex Fungicide	661						•	•							
Vayantis IV	685	•			•	•	•	•	•						
Vibrance Maxx RFC	686		•	•	•	•	•								
Vibrance Maxx RFC with INTEGO Seed Treatment	688				•	•	•	•	•		•				
Vibrance Maxx RTA	686				•	•	•	•	•						
VIKING Grimstad	682				•	•		•	•						
Vitaflo Brands	693				•	•			•						

1. Product does not specify causal pathogen.
2. Suppression only.
3. Refer to label for expectations for control vs. suppression.
4. Control of *Phomopsis* spp. (seed- or soil-borne), and suppression of *Penicillium* spp.

Table 8. Seed Treatment Products for Corn

PRODUCTS	Page	DISEASES: General Seed/Root/Seedling Rots/Blights	*Aspergillus* spp., *Penicillium* spp.	Downy mildew (*Sclerophthora macrospora*)	*Fusarium* spp. (seed- and/or soil-borne)	Head smut (seed-borne) (*Sporisorium holci-sorghi*)	*Pythium* spp. (soil-borne)	*Rhizoctonia* spp.	INSECTS: Cutworm	Seedcorn maggot	Wireworms
Allegiance FL	661			•[4]			•				
Belmont 2.7 FS	661			•[4]			•				
Cruiser 5FS	629									•	•
Fortenza	635								•		•
INTEGO Solo Fungicide	650						•				
Interest Forte	652	•[5]	•		•		•				
Lumivia	656								•	•[6]	•
Maxim Quattro	659		•		•		•	•			
Minuet	544				•		•	•			
NipsIt INSIDE 600 Insecticide	628									•	•
Poncho 600 FS	628									•	•
Sombrero 600 FS	645										•
Telex Fungicide	661			•[4]			•				
Vayantis IV	685						•				
Vitaflo Brands	693	•[3]			•	•	•				

1. Product does not specify causal pathogen.
2. Some products include black cutworm and white grubs.
3. *Penicillium* only.
4. For crops intended for export.
5. Refer to label for details.
6. Suppression only.

Table 9. Seed Treatment Products for Potato

PRODUCTS	Page	DISEASES							INSECTS				
		Blackleg	*Fusarium* spp.[1]	Late blight (seed-borne) (*Phytophthora infestans*)	Pink rot (*Phytophthora erythroseptica*)	*Rhizoctonia solani*[2]	Silver Scurf (*Helminthosporium solani*)	Verticillium Wilt	Aphids	Colorado Potato Beetle	Potato Flea Beetle	Potato Leafhopper	Wireworms
Actara	626								•	•		•	
AZteroid FC	632					•[3]	•						
Cruiser Maxx Potato Extreme	632		•			•	•		•	•		•	
Emesto Compete	637		•			•	•		•	•	•	•	
Emesto Silver	638		•			•	•						
Fortenza	635									•			
Heads Up Plant Protectant	643					•							
Minuet	544		•		•								
NipsIt INSIDE 600 Insecticide	643								•	•	•	•	•
Reason 500SC	673			•									
Revus	674			•	•								
Titan	628								•	•	•	•	•
Vibrance Ultra Potato	692		•	•	•	•	•						

Refer to product pages and labels for specific information on pathogens and insects listed as well as expectations for control vs. suppression.
Before using any pesticide on potatoes, consult the list of Agricultural Pesticide Approved for Use from Simplot Canada and McCain Foods (Canada)

1. **May include seed piece decay and/or dry rot.**
2. **May include black scurf and/or stem and stolon canker.**

Table 10. Seed Treatment Products for Potato Post-harvest Diseases

PRODUCTS	Page	DISEASES						
		Silver Scurf (*Helminthosporium solani*)	*Fusarium* spp.[2]	*Rhizoctonia* spp.	Other Storage Rots (Phoma, Oospora)	Bacterial Soft Rot	Bacterial Ring Rot	*Phytophthora* spp.[3]
Confine Extra	665	•						•
General Storage Disinfectant[1]	642						•	
Mertect SC	660	•	•	•	•			
Rampart	665							•
Serenade OPTI[4]	596	•						
Stadium	676	•	•					
StorOx	679	•	•			•		
Tibet 50 SC	660	•	•	•	•			

Refer to product pages and labels for specific information on pathogens and insects listed as well as expectations for control vs suppression.
Before using any pesticide on potatoes, consult the list of Agricultural Pesticide Approved for Use from Simplot Canada and McCain Foods (Canada)

1. **Not for use on potatoes. Use for disinfecting potato storages and equipment.**
2. **May include storage rot, tuber rot, and/or dry rot (refer to product page/label).**
3. **May include *Phytophthora infestans* (late blight) and/or *Phytophthora erythroseptica* (pink rot).**
4. ***Serenade OPTI* users please refer to page 596 for more information on this product as it has been removed from the Seed Treatment section of the guide.**

Apron Advance

Fungicide Group
1, 4, 12

Company:
Syngenta (PCP#30627)

Formulation: Apron Advance is formulated as a suspension.

Active ingredient	
Fludioxonil	25 g/L
Metalaxyl-M and S-isomer	20 g/L
Thiabendazole	150 g/L-

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Chickpea	Seed-borne ascochyta blight (*Ascochyta rabiei*); seed rot/pre-emergence damping-off and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Fusarium* spp., *Pythium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	100 mL
Dry bean	Seed rot/pre-emergence damping-off, and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Pythium* spp.); anthracnose (*Colletotrichum* spp.)	100 mL
Faba bean	Seed rot/premergence damping-off and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Pythium* spp.); anthracnose (*Colletotrichum* spp.)	100 mL
Field pea	Seed-borne ascochyta blight and foot rot (*Ascochyta pinodes*); seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.)	100 mL
Lentil	Seed-borne ascochyta blight (*Ascochyta lentis*); seed rot/pre-emergence damping-off, postemergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling root rot (*Fusarium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	100 mL

Application Information:
Apron Advance is a seed treatment formulation for use in commercial seed treatment plants, and for on-farm treatment using auger treating only; DO NOT use in hopper box or seed drill.

How it Works:
Fludioxonil is a phenylpyrrole fungicide with contact activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes, including Pythium damping-off. Thiabendazole is a benzimidazole fungicide with both contact and systemic activity.
For more information refer to "Fungicide Modes of Action" in the Plant Disease Control section.

Tank Mixes:
None listed.

Restrictions:
- **Labelling:** All seed treated with Apron Advance must be labelled "This seed has been treated with thiabendazole, fludioxonil and metalaxyl-M and S-isomer fungicides.
- **Re-cropping:** DO NOT plant any crop other than soybean, dry bean, chickpea, lentil or dry pea within 30 days to fields in which treated seed was planted.
- **Storage:** Store away from feeds and feedstuffs. Store between 0 and 30°C. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up.
- **Environmental Restrictions:** This product is toxic to fish and other aquatic organisms. DO NOT apply directly to aquatic habitats; do not contaminate water by cleaning of equipment or disposal of wastes. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up.

- **Compatibility with Rhizobia-based inoculants:** This product is compatible with Rhizobia-based inoculants. Check with inoculant manufacturer for details and refer to product labels prior to use. Mixing with inoculants may increase drying time while treating. Recalibrate the seed drill before planting treated seed.

Hazard Rating:
None listed.

Apron Maxx (Co-pack)

Fungicide Group 4, 7, 12

Apron Maxx *is only available as a co-pack* of *Vibrance 500FS* (sedaxane fungicide) and *Vibrance Maxx RTA* (fludioxonil, metalaxyl-M and S-isomer).

Company:
Syngenta Canada Inc. (*Apron Maxx RTA* – PCP#27577), (*Vibrance 500FS* – PCP#30438)

Formulation:

Active ingredient		
	Apron Maxx RTA	*Vibrance 500FS*
Fludioxonil	0.73%	
Metalaxyl-M and S-isomer	1.10%	
Sedaxane	-	500 g/L
Rates:	325 mL/100 kg of seed	10 mL/100 kg of seed

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Chickpea	Seed-borne ascochyta blight *(Ascochyta rabiei)*; seed rot/pre-emergence damping-off and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Fusarium* spp., *Pythium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	325 mL + 10 mL
Dry bean	Seed rot/pre-emergence damping-off, and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Pythium* spp.); anthracnose (*Colletotrichum* spp.)	325 mL + 10 mL
Faba bean	Seed rot/pre-emergence damping-off, post-emergence damping-off, seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.)	325 mL + 10 mL
Field pea	Seed-borne ascochyta blight and foot rot (*Ascochyta pinodes*); seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.)	325 mL + 10 mL
Lentil	Seed-borne ascochyta blight *(Ascochyta lentis)*; seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling root rot (*Fusarium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	325 mL + 10 mL
Soybean	Seed rot/pre-emergence damping-off, and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Fusarium* spp., *Pythium* spp.); seedling root rot (*Fusarium* spp.); seed rot and seedling blight (*Phomopsis* spp.); early season root rot (*Phytophthora megasperma* var. *sojae*)	325 mL + 10 mL

Application Information:
Apron Maxx is a ready-to-apply seed treatment formulation for use in commercial seed treatment plants and for on-farm treatment using standard gravity flow or mist type seed treatment equipment. Also used in treat-on-the-go air seeders.

This products contains a pigment which will colour the treated seed. However, users are responsible for ensuring that the treated seed, when dried and ready for bagging, storage or seeding has an unnatural colour. If the pigment contained in the formulation does not colour the seed adequately, additional colourant must be added to the mixture while treating the seed. Ensure uniform coverage of the seed, as uneven seed coverage may not give the desired level of disease control. Treatment of highly damaged seed or seed known to be of low vigour and poor quality may result in reduced germination and/or reduction of seed and seedling vigour. Allow the seed to dry before bagging, storing or seeding.

How it Works:
Fludioxonil is a phenylpyrrole fungicide with contact activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes, including Pythium damping-off. Sedaxane is a succinate dehydrogenase inhibitor fungicide with preventative and systemic activity that inhibits fungal metabolism by binding to the succinate dehydrogenase enzyme to disrupt cellular respiration and energy generation. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. Experience has shown that strains of fungus resistant to metalaxyl-M may develop. Failure to control the disease will likely result in crop damage and/or yield losses. If disease appears in a treated field, consult the government extension specialist immediately.
- **Labelling:** All seed treated with *Apron Maxx* must be labelled "This seed has been treated with fludioxonil metalaxyl-M and sedaxane fungicides. DO NOT use for food, feed or oil purposes". DO NOT use for food, feed or oil purposes".
- **Grazing:** No restrictions listed.
- **Re-cropping:** DO NOT plant any crop other than soybean, dry bean, chickpea, lentil or dry pea within 30 days to fields in which treated seed was planted.
- **Storage:** Store away from feeds and feedstuffs. Store between 0 and 30°C. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up.
- **Environment:** This product is toxic to fish and other aquatic organisms. DO NOT apply directly to aquatic habitats; do not contaminate water by cleaning of equipment or disposal of wastes. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up.
- **Compatibility with *Rhizobia*-based inoculants:** These products are compatible with *Rhizobia*-based inoculants. Check with inoculant manufacturer for details and refer to product labels prior to use. Mixing with inoculants may increase drying time while treating. Recalibrate the seed drill before planting treated seed.

Hazard Rating:
None listed.

AZteroid FC

Fungicide Group 11

Company:
Vive Crop Protection, distributed by UAP (PCP#34742)

Formulation: AZteroid FC is formulated as a suspension concentrate.

Active ingredient	
Azoxystrobin	390 g/L
Container size:	4 x 3.78L case

Crops, Diseases and Rates:

Crop	Diseases Controlled	*Diseases Suppressed*	Rate
Potato	Silver Scurf (*Helminthosporium*)	Rhizoctonia stem rot, stolon canker, black scurf (*Rhizoctonia solani*)	2.56 – 3.85 mL per 100 m of row

Application Information:
Minimum water volume (ground): 20 to 56 L/acre water

How it Works:
The active ingredient azoxystrobin is a methoxyacrylate compound (strobilurin) with broad spectrum contact and systemic activity to be used as a preventative and curative fungicide application.
Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
Liquid Fertilizer.

Restrictions:

- **Labelling:** All labelled crops are registered for commercial application facilities and mobile treaters. For all labelled seeds, commercial seed treatment (facilities and mobile treaters with closed transfer, including closed mixing, loading, calibrating, and closed treatment equipment only) is permitted. All labelled crops for on-farm treatment (open transfer, including open mixing, loading, calibrating, and open treatment equipment) is permitted.
- **Maximum number of applications:** DO NOT exceed one application of this product per season.
- **Re-entry interval:** 12 hours
- **Storage:** DO NOT store below zero degrees Celsius.

Hazard Rating:

None listed.

BUTEO start 480 FS Seed Treatment

Insecticide Group 4D

Company:

Bayer (PCP#31451)

Formulation:

480 g/L flupyradifurone formulated as a suspension.

Crops, Insects and Rates:

Crop	Insects Controlled	Rate (per 100 kg of seed)
Canola*, mustard*	Flea beetles	625 to 1042 mL

***DO NOT apply any subsequent application of a Group 4D Insecticide (for example, in-furrow, soil or foliar application) following planting of *BUTEO start 480 FS* treated seeds.**

Application Information:

Prior to and during application, *BUTEO start 480 FS* must be thoroughly agitated to ensure uniform mixing of the product. Keep above 10°C prior to and during application. DO NOT apply direct heat to container.

How it Works:

Flupyradifurone is a butenolide insecticide with systemic activity. For more information refer to "Insecticide Groups Based" on Modes of Action in the Insect Control section.

Tank Mixes:

None listed.

Restrictions:

Regardless of type of application (seed treatment or foliar), DO NOT apply more than 400 g of active ingredient flupyradifurone per hectare per season.

Hazard Rating:

Caution – Poison

Refer to the Introduction for an explanation of the symbols.

Clothianidin

Insecticide Group 4A

NipsIt INSIDE 600 Insecticide/Poncho 600 FS/Titan Poncho 600 FS *is available to commercial seed treaters only.* NipsIt INSIDE 600 Insecticide *is available for on-farm seed treatment for wheat and potato only.* Titan *is available for on-farm seed treatment.*

Company:

Valent Canada Inc. distributed by Nufarm Agriculture (*NipsIt INSIDE 600 Insecticide* – PCP#28975)
BASF Canada (*Poncho 600 FS* – PCP#27453, *Titan* – PCP#27449)

Formulation:

600 g per L clothianidin formulated as a suspension.

- *NipsIt INSIDE 600 Insecticide* container size - 3.78 L
- *Poncho 600 FS* container sizes - 56.8 L, 100 L, 113 L, 200 L, 1000 L
- *Titan* container sizes - 1 L, 3.8 L, 10 L, 200 L, 1000 L

Crops, Insects and Rates:

Product	Crop	Insects Controlled	Rate (per 100 kg of seed)
NipsIt INSIDE 600 Insecticide *Poncho 600 FS*	Canola, rapeseed	Flea beetles	250, 333 or 666 mL[1]
	Corn	Wireworms, seedcorn maggot, black cutworm[3]	33.3 to 66.6 mL/ 80,000 units of seed
NipsIt INSIDE 600 Insecticide *Titan*	Potato	Wireworms	20.8 mL
		Aphid (potato, green peach, foxglove and buckthorn aphids), Colorado potato beetle, potato leafhopper, potato flea beetle (overwintered adults and suppression of second generation)	10.4 to 20.8 mL
NipsIt INSIDE 600 Insecticide	Wheat	Wireworms	17 to 100 mL[2]

[1] **Increasing rates for low, moderate and severe flea beetle pressure.**
[2] **Rate of 17 mL per 100 kg of seed provides wireworm suppression only. Use higher rates of 33 to 100 mL per 100 kg of seed on wheat seed to be planted into fields known to have a history of severe wireworm infestations.**
[3] ***NipsIt INSIDE 600*** **insecticide and** ***Poncho 600FS*** **only.**

Application Information:

Poncho 600 FS is for use in commercial seed treatment facilities with closed transfer systems only. *Poncho 600 FS* DOES NOT contain a colourant. An appropriate colour must be added when this product is applied. Seed treatment must be thoroughly agitated to ensure uniform mixing of product prior to and during application. Treatment of highly mechanically scarred or damaged seed or seed known to be of low vigour and poor quality may result in reduced germination and/or reduction of seed and seedling vigour.

Titan is a seed piece treatment. Apply specified rate as a diluted spray onto seed pieces using a well contained, shielded spray system to prevent the loss of any liquid. Apply only in areas with adequate ventilation or in areas equipped to remove spray mist or dust. Agitate or stir spray solution as needed. For optimal insect control good coverage of seed pieces is required. DO NOT dilute with any more than 6 parts water to 1 part *Titan*. Plant seed pieces as soon as possible after cutting and treating.

In canola, rapeseed, Ethiopian mustard *(Brassica carinata)* and corn *NipsIt INSIDE 600 Insecticide* is for use with commercial seed treaters (facilities and mobile treaters) with closed transfer including closed mixing, loading, calibrating and closed treatment equipment only. No open transfer of *NipsIt INSIDE 600 Insecticide*.

In wheat, *NipsIt INSIDE 600 Insecticide* is for use in commercial seed treatment facilities (with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only) and for use on-farm (open transfer including open mixing, loading, calibrating, and open treatment equipment is allowed).

NipsIt INSIDE 600 Insecticide contains no colourant. An appropriate colourant must be added when this product is applied.

How it Works:

Clothianidin is a chloronicotinyl insecticide with systemic activity. For more information refer to "Insecticide Groups Based" on Modes of Action in the Insect Control section.

Tank Mixes:

Off-label tank mixes, as previously permitted under the Pest Management Regulatory Agency (PMRA) Off-label Tank Mix Policy memo of 2009 are no longer allowed under new guidance from PMRA. As of December 20, 2022 only products specifically indicated on product labels may be mixed, or when the labels of two or more products to be mixed include the statement quoted in the Introduction.

Restrictions:

NOTE: When using a seed flow lubricant for planting corn and soybean seed treated with neonicotinoid insecticides (containing the active ingredients clothianidin, imidacloprid or thiamethoxam), use only a dust-reducing fluency agent. Talc and graphite are not permitted.

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. DO NOT make any subsequent application of a group 4 insecticide (in-furrow or foliar application) following treatment with any of these products.
- **Labelling:** Treated seed must be labelled as follows: "This seed has been treated with clothianidin. DO NOT use for food, feed or oil processing. Store away from feeds and other foodstuffs."
- **Grazing:** None listed.
- **Re-cropping:**
  - For ***Poncho 600 FS***, corn and canola may be replanted at any time.
  - For ***Titan***, corn, and canola and potatoes may be replanted at any time.
  - For all products, a one year plant back interval is required for leafy, root and tuber vegetables.
  - A 30 day plant back is required for cereals, grasses, nongrass animal feeds, soybeans and dry beans.
  - For ***NipsIt INSIDE 600 Insecticide*** registered crops may be replanted at any time. A 30 day plant-back interval is required on cereals (except wheat), grasses, non-grass animal feeds, soybeans and dry beans.
- **Storage:** Protect products from freezing. DO NOT contaminate water, food or feed by storage, disposal or by cleaning of equipment. Store in a cool place. DO NOT store in direct sunlight. Store away from food or feed. DO NOT store treated seed above 25°C or in direct sunlight. Treated seed stored for periods in excess of 9 months should be tested for germination before planting.
- **Environment:** These products are toxic to aquatic invertebrates. DO NOT apply directly to water or to areas where surface water is present. DO NOT contaminate water when disposing of equipment wash waters. These products are toxic to birds and mammals. Any spilled or exposed seeds should be incorporated into the soil or otherwise cleaned up from the soil surface.

Hazard Rating:

Warning – Poison

Refer to the Introduction for an explanation of the symbols.

Cruiser 5FS

Insecticide Group 4A

Contains insecticide only. On-farm use for cereals and pulses up to a maximum application rate of 30 g per 100 kg seed. Higher application rates for commercial seed treaters only.

Company:

Syngenta Canada Inc. (PCP#27045)

Formulation:

47.6% thiamethoxam formulated as a suspension.

- Container sizes - 23.4 L, 56.78 L

Crops, Insects and Rates:

Crop	Insects Controlled	Rate[1] (per 100 kg of seed)
Wheat, barley	Wireworm (suppression)[1]	17 mL
	Wireworm (control)[1]	33 to 50 mL
Canola, rapeseed, mustard	Flea beetles	320 to 640 mL
Corn	Seedcorn maggot	83 to 166 mL
	Wireworm	83 mL
Soybean	Seedcorn maggot	50 mL
	Soybean aphid (early season protection)	50 mL
Dry bean	Seedcorn maggot	50 mL
	Wireworm	83 mL
Chickpea, lentil, lupins	Wireworm (suppression)[1]	17 mL
	Wireworm (control)[1]	33 to 50 mL

Crop	Insects Controlled	Rate[1] (per 100 kg of seed)
Faba bean	Wireworm (suppression)[1]	17 mL
	Wireworm (control)[1]	33 to 50 mL
	Pea leaf weevil	50 mL
Field pea	Wireworm (suppression)[1]	17 mL
	Wireworm (control)[1]	33 to 50 mL
	Pea leaf weevil	50 to 83 mL[2]
Rye, millet, sorghum, triticale, buckwheat	Wireworm (suppression)[1]	17 mL
	Wireworm (control)[1]	33 to 50 mL

[1] **Use lower rate for early season suppression of wireworm. For control and/or moderate to high pressure, treat crops at higher rate.**
[2] **The higher rate must be applied by commercial treaters using closed transfer**

Application Information:

For small-grain cereals (except oats) and pulse crops, *Cruiser 5FS* may be applied on-farm or by commercial seed treaters. For all other crops, application must be performed in commercial seed treatment facilities. A red colourant MUST be added when *Cruiser 5FS* is applied to grain. Allow the seed to dry before bagging or storing in bulk containers.

How it Works:

Thiamethoxam is a seed treatment insecticide in the neonicotinoid class of chemistry that controls listed chewing and sucking insects through contact and systemic activity. Refer to "Insecticide Groups Based on Modes of Action"in the Insect Control section for more information.

Tank Mixes:

For control of seed and soil-borne diseases, *Cruiser 5FS* can be mixed with fungicide seed treatments in a closed transfer system. Refer to label for details. Follow the label directions for each product and use the most restrictive precautions and limitations.

Restrictions:

NOTE: When using a seed flow lubricant for planting corn and soybean seed treated with neonicotinoid insecticides (containing the active ingredients clothianidin, imidacloprid or thiamethoxam), use only a dust-reducing fluency agent.
Talc and graphite are not permitted.

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** All seed must be labelled "Seed treated with thiamethoxam insecticide. DO NOT use for food, feed or oil processing." Consult label for additional labelling requirements.
- **Grazing:** DO NOT graze or feed livestock on treated areas for 45 days after planting.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store away from food and feed. Ideal storage temperature is above freezing and below 30°C. If product should freeze, bring to room temperature, then ensure the contents are mixed well prior to application.
- **Environment:** Products are toxic to aquatic invertebrates and fish. DO NOT apply directly to water or areas where surface water is present. DO NOT contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds. If treated seed is accessible to birds or spilled outdoors, promptly clean up or bury to prevent ingestion.

Hazard Rating:

 Caution – Poison

Refer to the Introduction for an explanation of the symbols.

Cruiser Maxx Corn

Insecticide Group 4A
Fungicide Group 1, 4, 11, 12

Available to commercial seed treaters only.
Cruiser Maxx Corn *is a co-pack containing* Maxim Quattro *(thiabendazole, azoxystrobin, metalaxyl-M and S-isomer and fludioxonil fungicides) and* Cruiser 5FS *(thiamethoxam insecticide). For more detailed information on component products, consult product pages listed above.*

Company:

Syngenta Canada Inc. (*Maxim Quattro* – PCP#29871, *Cruiser 5FS* – PCP#27045)

Formulations:

Maxim Quattro: 26.5% thiabendazole, 3.32% fludioxonil, 2.65% metalaxyl-M and S-isomer, and 1.33% azoxystrobin formulated as a liquid suspension treatment.

- Container sizes - 5 L to bulk

Cruiser 5FS: 47.6% thiamethoxam formulated as a suspension.

- Container sizes - 23.4 L, 56.78 L

Crops, Diseases, Insects and Rates:

Crop	Diseases Controlled	Insects Controlled	Rate (per 100 kg of seed)	
			Maxim Quattro	*Cruiser 5FS*
Corn	Seed- and soil-borne *Pythium, Rhizoctonia, Fusarium* (including *F. graminearum* and *F. verticillioides*); seed rot/pre-emergence damping-off, post-emergence damping-off, seedling blight (weakly pathogenic *Aspergillus* and *Penicillium*)	Seedcorn maggot, wireworm	67 mL	83 mL

Hazard Rating:

Maxim Quattro: Caution – Potential Skin Sensitizer
Cruiser 5FS: Caution – Poison
Refer to the Introduction for an explanation of the symbols.

Cruiser Maxx Potato Extreme

Insecticide Group 4A
Fungicide Group 3, 12

Company:
Syngenta Canada Inc. (PCP#31024)

Formulation:
250 g/L of thiamethoxam, 62.5 g/L of fludioxonil, and 123 g/L of difenoconazole formulated as a suspension.
- Container sizes - 2 x 9.6 L

Crops, Diseases, Insects and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Insects Controlled	Rate (per 100 kg of seed)
Potato	Stem and stolon canker *(Rhizoctonia solani)*, fusarium dry rot (*Fusarium* spp.), silver scurf *(Helminthosporium solani)*	Black scurf *(Rhizoctonia solani)*	Colorado potato beetle, aphids, and potato leafhopper	20 mL

Application Information:
Apply as a water-based slurry utilizing standard slurry seed treatment equipment. Thoroughly mix the specified amount of product into the required amount of water or tank mix partner for slurry treater and dilution rate to be used. Apply only in areas with adequate ventilation or in areas that are equipped to remove mist or dust.

How it Works:
Thiamethoxam is a systemic chloronicotinyl insecticide, fludioxonil is a phenylpyrrole fungicide with contact activity, and difenoconazole is a triazole fungicide with broad-spectrum systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** Treated areas may be replanted immediately following harvest or as soon as practical following the last application with any crop listed on this label or to sorghum, wheat, barley, canola and pome fruit. Any cover crop planted for erosion control or soil improvement may be planted as soon as practical following the last application. However, the cover crop may not be grazed or harvested for food or feed. For all other crops, a 120 day plant-back interval must be observed.
- **Storage:** If soil conditions are ideal, plant potatoes immediately after application; however, if soil is predicted to be cold and wet for 3 days following application, either a) wait to cut, treat, plant until conditions are favorable or b) cut, treat and store. If cutting, treating and storing, potatoes can be treated with an inert dust to improve suberization. Store properly until conditions improve by making sure that there is adequate cool air (7 to 10°C) movement through the pile of cut seed potatoes and a relative humidity of 85 to 90 percent. Temperatures above 10°C promote soft rot in seed. Cut and treated seed should not be piled above 1.8 metres in height. Avoid storing treated potatoes for over 2 weeks. When transporting cut and treated seed make sure the seed is covered.
- **Environment:** DO NOT apply any subsequent application of thiamethoxam in-furrow or foliar application or other Group 4 insecticide following seed piece treatment with *Cruiser Maxx Potato Extreme*. DO NOT plant more than 128,700 kg of treated potato seed pieces per day. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Hazard Rating:
None listed.

Cruiser Vibrance Quattro

Insecticide Group
4A
Fungicide Group
3, 4, 7, 12

Company:
Syngenta Canada Inc. (PCP#31453)

Formulation:
61.5 g/L thiamethoxam, 36.9 g/L difenoconazole, 15.4 g/L sedaxane, 9.2 g/L metalaxyl-M (and S-isomer), and 7.7 g/L fludioxonil formulated as a suspension.

- Container sizes - 1 to 1050 L

Crops, Diseases, Insects and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Insects Controlled	Rate (per 100 kg of seed)
Barley	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.); seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); covered smut *(Ustilago hordei)*; false loose smut *(U. nigra)*; true loose smut *(U. nuda)*	Common root rot *(Cochliobolus sativus)*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	Wireworms	325 mL
Oats	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.); seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); covered smut *(Ustilago hordei)*; loose smut *(U. avenae)*	Common root rot *(Cochliobolus sativus)*	Wireworms	325 mL
Rye	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.); seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); common bunt *(Tilletia tritici)*; dwarf bunt *(T. controversa)*	Common root rot *(Cochliobolus sativus)*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	Wireworms	325 mL
Triticale	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.); seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); loose smut *(Ustilago tritici)*	Common root rot *(Cochliobolus sativus)*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	Wireworms	325 mL
Spring wheat	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.); seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); common bunt *(Tilletia tritici)*; loose smut *(Ustilago tritici)*	Common root rot *(Cochliobolus sativus)*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	Wireworms	325 mL
Winter wheat	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.); seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); common bunt *(Tilletia tritici)*; dwarf bunt *(T. controversa)*; loose smut *(Ustilago tritici)*	Common root rot *(Cochliobolus sativus)*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	Wireworms	325 mL

Application Information:
Cruiser Vibrance Quattro is for use on-farm. This product can also be applied by commercial seed treaters using closed system transfer. Treat seed in a well-ventilated area. When treating seeds, all workers must wear coveralls over a long sleeved shirt, long pants, chemical-resistant gloves, work boots, sock and a NIOSH-approved dust mask.

How it Works:
Thiamethoxam is a seed treatment insecticide in the neonicotinoid class of chemistry that controls listed chewing and sucking insects through contact and systemic activity. For more information refer to "Insecticide Groups Based" on Modes of Action in the Insect Control section. The active ingredient difenoconazole is a triazole fungicide with broad-spectrum, systemic activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes, including pythium damping-off. Sedaxane is a succinate dehydrogenase inhibitor fungicide with systemic activity that inhibits fungal metabolism by binding to the succinate dehydrogenase enzyme to disrupt cellular respiration and energy generation. Fludioxonil is phenylpyrrole fungicide with contact activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management**: Pathogen "Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled (listing only the applicable active ingredients) as follows: "This seed has been treated with the insecticide, thiamethoxam and the fungicides, difenoconazole, metalaxyl-M (and S-isomer), sedaxane and fludioxonil. Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, work boots, socks and NIOSH-approved dust mask when handling treated seed, and during planting (including loading, sowing, maintenance, and clean-up). When using closed-cab planting equipment, chemical-resistant gloves and NIOSH-approved dust mask are not required inside cab. DO NOT graze or feed livestock on seeded area for 45 days after planting. DO NOT use for food, feed or oil processing. Store away from food and feed. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface." Store away from food and feed."
- **Grazing:** DO NOT graze or feed livestock on treated areas for 45 days after planting.
- **Re-cropping:** DO NOT plant any crop other than cereals, corn, soybeans, members of Crop Subgroup 6C (dried, shelled peas and beans), members of Crop Subgroup 20A (canola and rapeseed subgroup) or potatoes within 60 days to fields in which treated seed were planted.
- **Storage:** Store away from food and feed. Ideal storage temperature is above freezing and below 30°C. If product should freeze, bring to room temperature, and then ensure the contents are mixed well prior to application.
- **Environment:** Toxic to 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 otherwise cleaned-up from the soil surface. Toxic to bees. Bees can be exposed to product residues in flower, leaves, pollen and/or nectar resulting from seed treatment applications.

Hazard Rating:
 Warning – Contains the Allergen Soy

Refer to the Introduction for an explanation of the symbols.

Cyantraniliprole

Insecticide Group 28

Fortenza/Lumiderm

Company:

Corteva Agriscience (*Lumiderm* – PCP#30894)
Syngenta Canada Inc. (*Fortenza* – PCP#30899)
Corteva Agriscience (*Lumiderm ONIQ* – PCP#35535)

Formulations:

Fortenza: 600 g/L cyantraniliprole formulated as a suspension.
- Container sizes - 1 to 1050 L

Lumiderm: 625 g/L cyantraniliprole formulated as a suspension.
- Container sizes - 100 L, 1000 L, bulk

Lumiderm ONIQ: 625 g/L cyantraniliprole formulated as a suspension.
- Container sizes - 1L, Bulk

Crops, Insects and Rates:

Product	Crop	Insects	Rate (per 100 kg of seed)
Fortenza	Potato	Colorado potato beetle[1]	10 to 22.5 mL
	Corn (field, pop and sweet)	Cutworm	83 to 167 mL
		Wireworms	167 mL
	Canola, rapeseed, mustard (oilseed and condiment mustard including *Brassica carinata*)	Cutworm	500 mL
		Flea beetles	1333 mL
	Cereals (barley, oats, rye, triticale and wheat all types)	Wireworms	17ml/100kg seed (10g ai/100kg seed)
		Cutworm as pests	33-50ml/100kg seed (20-30 ai/100kg seed)
	Soybean	Seedcorn maggot	41.5 to 83 mL
		Black cutworm	41.5 to 83 mL[3]
		Wireworms	83 mL
	Sunflower	Cutworm	164 to 323 mL (based on an average of 9920 seed/kg)
Lumiderm	Canola, rapeseed, oilseed mustard	Cutworm[2]	480 to 960 mL[4]
		Flea beetle	960 to 1600 mL[4, 5]
	Soybean	Cutworm, seedcorn maggot, Wireworms	74 to 197 mL[4]
		Soybean aphid	37 to 123 mL[4]
Lumiderm ONIQ	Canola, rapeseed, oilseed mustard	Cutworm[2]	480 to 960 mL[4]
		Flea beetle	960 to 1600 mL[4, 5]

[1] Protection provided during early to mid-season growth and development of potatoes only.
[2] The *Lumiderm* application rate for cutworm will also provide some early season protection from flea beetle damage.
[3] Use higher rates for higher pest pressure.
[4] Use the higher rates in areas with high pest pressure, or where extended early season control is required.
[5] The application rates for flea beetles will also provide early season protection from cutworm feeding damage.

Application Information:

For corn and registered oilseed crops *Fortenza* and *Lumiderm* must be applied in a commercial seed treatment facility using closed transfer equipment. These products contain no colourant. An appropriate seed colourant must be added when this product is applied. *Fortenza* is designed for on-farm treating for potato seed pieces only using a closed-treatment system.

How it Works:

The active ingredient cyantraniliprole is a systemic insecticide from the diamides chemical class. For more information refer to "Insecticide Groups Based on Modes of Action" in the Insect Control section.

Tank Mixes:

Lumiderm: registered oilseed crops – *Prosper EverGol, Helix Vibrance*
Lumiderm ONIQ: registered oilseed crops – *Prosper EverGol, Helix Vibrance*
Fortenza: registered oilseed crops – *Vibrance 500 FS*; Corn – *Cruiser 5FS, Maxim Quattro and/or Vibrance 500 FS*
Follow the label directions for each product and use the most restrictive precautions and limitations.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. DO NOT apply any subsequent application of a Group 28 insecticide (in-furrow, soil or foliar) within 60 days of treatment with any of these products.
- **Labelling:** Seed treated with *Lumiderm* must be labeled "This seed has been treated with *Lumiderm Insecticide Seed Treatment* which contain cyantraniliprole. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs. Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. This product is toxic to aquatic organisms. Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. Cover or incorporate spilled treated seeds."
    - Seed treated with *Lumiderm ONIQ* must be labeled "This seed has been treated with *Lumiderm ONIQ* Insecticide Seed Treatment which contain cyantraniliprole. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs. Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. This product is toxic to aquatic organisms. Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. Cover or incorporate spilled treated seeds."
    - Seed treated with *Fortenza* must be labeled "These seeds have been treated with the insecticide cyantraniliprole. When handling and planting treated seed, workers must wear a long sleeved shirt and long pants, chemical-resistant gloves, and work boots. For good hygiene practice, it is also recommended that a NIOSH-approved dust mask be worn during all job activities. Plant treated seed only with closed cab planting equipment. DO NOT use for food, feed or oil processing. Toxic to bees. 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 of planting treated seed" on the Health Canada website."
- **Grazing:** No restrictions listed.
- **Re-cropping:** Registered crops, as well as flax, sunflower, and safflower, may be replanted at any time. For all other crops, do not plant-back within 30 days of seeding with cyantraniliprole treated seed.
- **Storage:** Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed. To prevent contamination store this product away from food or feed.
    - *Fortenza:* Ideal storage temperature for the products is above freezing and below 30°C. Repeated freeze-thawing of *Fortenza* will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.
- **Environment:** Toxic to aquatic organisms and bees. When this product is applied and used according to label directions, risk to bees is expected to be negligible. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. The use of this chemical may results in contamination of groundwater particularly in areas where soils are permeable and/or the depth to the water table is shallow.

Hazard Rating:

 Caution – Eye Irritant

Refer to the Introduction for an explanation of the symbols.

Emesto Complete

Fungicide Group
3, 7
Insecticide Group
4A

Company:
Bayer Crop Science (PCP#30362, 33593)

Formulation:
Emesto Complete is a co-pack seed-piece treatment containing Emesto Quantum and Emesto Pro, both formulated as suspensions.

Active Ingredients:

Product Component	Active Ingredient	Guarantee
Emesto Quantum	Penflufen	66.5 g/L
	Clothianidin	207 g/L
Emesto Pro	Prothioconazole	100 g/L

- Container sizes - 105 L to bulk

Crops, Diseases, Insects and Rates:

Crop	Diseases and Insects Controlled	Application Timing and Comments	Rate
Potato	*Fusarium* tuber rot (including resistant strains); seed-borne *Rhizoctonia solani* (black scurf, stem and stolon canker); silver scurf; Colorado potato beetle; aphids; leafhopper; potato flea beetle	Seed-piece treatment. Apply specified dosage as a diluted spray using equipment that ensures uniform coverage of each seed piece. Treat seed pieces immediately after cutting.	**Emesto Pro:** 3.6 mL/100 kg seed pieces (1.6 mL/cwt) **Emesto Quantum:** 30 mL/100 kg seed pieces (13.6 mL/cwt)

Application Information:
Apply as a seed-piece treatment only. Apply no more than 150 mL of slurry per 100 kg of seed pieces. Maintain agitation or stirring of the slurry solution as required to ensure uniform application.
DO NOT apply by air.

How it Works:
Emesto Complete is an all-in-one fungicide and insecticide seed-piece treatment. Penflufen and prothioconazole provide protection against key seed-borne and soil-borne diseases, including *Fusarium* and *Rhizoctonia*. Clothianidin provides early-season control of listed insect pests. The combined formulation delivers disease and insect protection in a single application.

Tank Mixes:
Emesto Complete may be tank mixed with registered pest control products whose labels also allow tank mixing. Follow all Directions for Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones for each product. Where label requirements differ, the most restrictive label must be followed.

Restrictions:
- **Maximum number of applications:** Seed-piece treatment only.
- **Grazing:** DO NOT use treated seed pieces for food, feed or fodder.
- **Re-cropping**: Corn, canola, mustard and potatoes may be replanted at any time. A one-year plant-back interval is required for leafy, root and tuber vegetables (except potatoes). A 30-day plant-back interval is required for all other crops.
- **Storage:** Store away from food or feed. Store in a cool, dry area. DO NOT store in direct sunlight. Avoid prolonged storage at temperatures above 40°C or below –10°C.
- **Environmental Restrictions:** Treated seed is toxic to birds and small wild mammals. Any spilled or exposed treated seed must be incorporated into the soil or otherwise removed from the soil surface. This product is toxic to bees. Bees may be exposed to residues in pollen, nectar, leaves, or flowers resulting from seed treatment; when used according to label directions, minimal exposure is expected. This product is toxic to aquatic organisms. DO NOT discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other aquatic habitats. The use of this product may result in groundwater contamination, particularly in permeable soils or areas with shallow water tables.

Hazard Rating:
Warning

Emesto Silver Fungicide Seed Treatment

Fungicide Group 3, 7

Company:
Bayer (PCP#30361)

Formulation:
100 g/L penflufen, 18 g/L prothioconazole formulated as a suspension.
- Container sizes - 1 L to 200 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Potato	Seed-borne black scurf and stem and stolon canker *(Rhizoctonia solani)*, silver scurf *(Helminthosporium solani)*, fusarium tuber rot (*Fusarium* spp.)	20 mL

Application Information:
Emesto Silver is designed to be applied as a diluted spray using equipment that ensures uniform coverage of each seed piece. Apply no more than 150 mL of slurry per 100 kg of seed pieces. Agitate or stir the slurry solution as needed. Apply only in areas with adequate ventilation or in areas that are equipped to remove spray mist or dust. Seed pieces should be treated immediately after cutting. Plant seed-pieces as soon as possible after cutting and treating.

How it Works:
The active ingredient penflufen is a carboxamide (SDHI) fungicide with systemic activity. The active ingredient prothioconazole is a demethylation inhibitor with broad-spectrum systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
See label for tank-mix options.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** Potatoes, corn, cereals, legumes, soybean, canola, mustard, rapeseed, borage, flax and crambe may be replanted at any time. For all other crops, DO NOT plant back within 30 days of planting with *Emesto Silver*-treated seed pieces.
- **Storage:** If cut seed needs to be stored or held for a few days, make sure that there is adequate cool air movement through the pile of cut seed potatoes at relative humidity of 85 to 90 percent. Store cut seed at or below 7°C. Temperatures above 10°C promote soft rot in seed. Cut and treated seed should be piled above 1.8 metres in height.
- **Environment:** DO NOT apply this product or treated seed pieces 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.

Hazard Rating:
None listed.

EverGol Energy Fungicide Seed Treatment

Fungicide Group 3, 4, 7

Company:
Bayer (PCP#30364)

Formulation:
38.4 g/L penflufen, 76.8 g/L prothioconazole, 61.4 g/L metalaxyl formulated as a suspension.
- Container size – 33.75 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Soybean, Chickpea, Peas, Lentils, Dry Beans	Seed rot/pre-emergence damping off (*Rhizoctonia solani, Fusarium* spp., *Pythium* spp., *Phomopsis longicolla*); post-emergence damping off (*R. solani, Fusarium* spp., *Pythium* spp.); early-season root rot and seedling blight (*R. solani, Fusarium* spp.); seedling blight (seed-borne *Botrytis cinerea*)	65 mL

Application Information:
EverGol Energy is designed for commercial seed treating equipment which can accurately control application rates and provide a good distribution of the chemical into the seed in the mixing chamber. Uniform application to seed is necessary to ensure optimum product performance. This product contains no dye and an appropriate seed colourant must be applied.

How it Works:
The active ingredient penflufen is a carboxamide (SDHI) fungicide with systemic activity. The active ingredient prothioconazole is a demethylation inhibitor with broad-spectrum systemic activity. The active ingredient metalaxyl is an acylalanine fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
Insecticide Seed Treatments: *Stress Shield 600*
Fungicide Seed Treatment: *Allegiance FL* for control of early-season Phytophthora in soybean.
Follow the label directions for each product and use the most restrictive precautions and limitations for either product.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labeled "This seed has been treated with *EverGol Energy*, which contains penflufen, prothioconazole and metalaxyl. When handling treated seed wear a long-sleeved shirt, long pants and chemical-resistant gloves. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs."
- **Grazing:** No restrictions listed.
- **Re-cropping:** Registered crops for *EverGol Energy*, as well as canola, mustard, rapeseed, borage, flax, crambe and potato, may be replanted at any time. For all other crops, do not plant-back within 30 days of seeding with *EverGol Energy*-treated seed.
- **Storage:** To prevent contamination store this product away from food or feed. Store in cool, dry area. DO NOT store in direct sunlight. DO NOT allow prolonged storage in temperatures that exceed 40°C or go below -10°C.
- **Environment:** Toxic to aquatic organisms and non-target terrestrial plants. DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other water. Dispose of all excess treated seed. Left over seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. DO NOT leave exposed treated seed on soil surface. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or depth to the water is shallow.

Hazard Rating:
None listed.

Evergol RISE

Fungicide Group
3, 4, 7, 11

Company:
Bayer (PCP# 30408)

Formulation:
50g/L Prothioconazole, 50 g/L Metalaxyl, 50 g/L Penflufen and 50 g/L Trifloxystrobin formulated as a suspension.
- Container size(s) – 9L, 27L

Crops. Diseases, Rates and Timing:

Crop	Disease Control	Disease Suppression	Rate (per 100 kg of seed)
Chickpea, Dry Bean, Fava Bean, Field Pea, Lentil	Seed decay/pre-emergence Damping-off and post-emergence Damping-off caused by *Rhizoctonia solani*, *Fusarium spp.* and *Pythium spp*. Seed decay/pre-emergence Damping-off, post-emergence Damping-off and Seedling blight caused by seed-borne *Botrytis cinerea* Seed rot and pre-emergence Damping-off caused by *Ascochyta spp*. on Lentil, Field pea and Chickpea only	Seed-borne Ascochyta blight caused by *Ascochyta spp*.	100 mL
Soybean	Seed rot/pre-emergence Damping-off and post-emergence Damping-off caused by *Rhizoctonia solani*, *Fusarium spp.*, and *Pythium spp*. Early-season Root rot and seedling blight caused by *Rhizoctonia solani* and *Fusarium spp*. Seedling blight caused by Seed-borne *Botrytis cinerea*. Seed rot/pre-emergence Damping-off of Soybean caused by *Phomopsis longicolla*	Seed infection caused by *Penicillium spp*.	

Application Information:
EverGol Rise is a Semi-concentrated formulation designed for commercial or on-farm treating with conventional seed treating equipment. Uniform application to seed is necessary to ensure optimum product performance. 100 ml of water to 100 ml of EverGol RISE is recommended to use to enhance coverage of most crops. Chickpeas it is recommended to go to a high water rate

Tank Mixes:
EverGol RISE may be combined with Stress Shield 600 for control of certain insect pests in Pea (field); Chickpea; Lentil; Bean (dry). EverGol RISE may be combined with Stress Shield 600, ALLEGIANCE® FL or ACCELERON® D-309, ACCELERON® I-425, ACCELERON® I-374 for control of certain insect pests in Soybean.

Restrictions:
- **Labelling:** Treated seed must not be used for food, feed or oil processing. All containers or packages containing treated seed for sale or use in Canada must be labelled or tagged as follows: "This seed has been treated with EVERGOL Rise Seed Treatment Fungicide, which contains penflufen, prothioconazole, metalaxyl and trifloxystrobin. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface. Dispose of all excess treated seed.
- **Grazing:** Do not graze or feed livestock on treated areas for four weeks after planting.
- **Re-cropping:** Registered crops for EVERGOL Rise Seed Treatment Fungicide, as well as Canola, Mustard, Rapeseed, Soybean, Alfalfa, Corn and Cereal grains, may be replanted at any time. For all other crops, do not plant-back within 30 days of seeding with EVERGOL Rise Seed Treatment Fungicide treated seed.
- Storage: Store this product away from food or feed. Store in a cool, dry area. Do not store in direct sunlight. Do not allow prolonged storage in temperatures that exceed 40°C or go below -10°C.
- **Environmental Restrictions:** EverGol RISE is toxic to aquatic organisms. Dispose of all excess treated seed. Leftover treated seed may be double sown around the headland or buried away from water sources in accordance with local requirements.
- **Leaching:** The use of this product may result in contamination of groundwater, particularly in areas where soil is permeable (e.g., sandy soil) and/or depth to the water table is shallow.

Hazard Rating:
Caution – Skin & Eye Irritant. Harmful if swallowed, inhaled or absorbed through the skin.

Fortenza Advanced

Insecticide Group 4C, 28

Available to commercial seed treaters only. Fortenza Advanced *is a co-pack containing* Rascendo *(sulfoxaflor insecticide, available only as part of this co-pack) and* Fortenza *(600 g/L cyantraniliprole insecticide). For other detailed information on Fortenza see the product page listed above.*

Company:

Syngenta Canada Inc. (*Fortenza* – PCP#30899, *Rascendo* – PCP#32250)

Formulation:

Rascendo: 500 g/L sulfoxaflor formulated as a suspension.

- Container size - 1 to 1050 L

Fortenza: 600 g/L cyantraniliprole.

- Container size - 1 to 1050 L

Crops, Diseases and Rates:

Crop	Insects Controlled	Rate (per 100 kg of seed)	
		Fortenza	*Rascendo*
Canola, rapeseed and mustard	Flea beetles (early season)	-	400 mL
	Cutworm	500 mL	-
	Flea beetles	1300 mL	-

Application Information:

For use only in commercial seed treatment facilities with closed transfer systems. This product contains no colourant. An appropriate colourant must be added when this product is applied. Regulations pertaining to the *Seeds Act* must be strictly adhered to when using this product. Seed must be conspicuously coloured at the time of treatment.

How it Works:

Cyantraniliprole is an insecticide belonging to the chemical class of diamides. Sulfoxaflor belongs to Group 4C insecticides. For more information, please consult with the product label.

Tank Mixes:

Please refer to the product label.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. DO NOT make any subsequent application of a Group 4 insecticide (e.g. in-furrow or foliar application) following treatment with *Rascendo*.
- **Labelling:** Treated seed must be labelled "This seed has been treated with sulfoxaflor and cyantraniliprole insecticides. DO NOT use for food, feed or oil purposes. Store away from feeds and foodstuffs. When handling treated seed, including planting, wear a long-sleeved shirt, long pants, chemical-resistant gloves, work boots and socks, and use closed-cab planting equipment. Chemical-resistance gloves are not required inside cab. For good hygiene practice, it is also recommended to wear a suitable dust mask during all job activities."
- **Grazing:** No restrictions listed.
- **Re-cropping:** DO NOT plant any crop other than barley, wheat or members of Crop Group 1 (root and tuber vegetables), Crop Group 5 (Brassica leafy vegetables) or Crop Subgroup 20A (canola/rapeseed subgroup) within 30 days to fields in which treated seeds were planted.
- **Storage:** Store in a well-ventilated, secure area. Avoid contamination of feed and foodstuffs. Ideal storage temperature is above freezing and below 30°C. Repeated freeze-thawing will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.
- **Environment:** DO NOT apply this product directly to freshwater habitats, estuaries or marine habitats. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable and/or the depth of the water table is shallow. DO NOT contaminate irrigation or drinking water supplied or aquatic habitats by cleaning or equipment or disposal of wastes. Toxic to bees exposed to direct treatment, when used as a seed treatment according to label directions risk is not of concern. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

Hazard Rating:

Rascendo:

None listed.

Fortenza:

Caution – Eye Irritant

Refer to the introduction for an explanation of the symbols.

General Storage Disinfectant

Company:
Ag-Services Inc. (PCP#14957)
Distributed by JEM Holdings Inc. in Saskatchewan and by White Potato Services Ltd. in Manitoba

Formulation:
10% n-Alkyl (40% C12, 50% C14, 10% C16) dimethyl benzyl ammonium chloride, formulated as a liquid.
- Container sizes - 4 to 200 L

Crops:
Use for disinfecting potato storages and other storage areas and equipment. Not for direct use on potatoes.

Diseases:
Control of bacterial ring rot in potato storage.

Rate:
60 mL per 10 L water.

Application Information:
Apply only when storage areas are empty. To disinfect hard non-porous walls and floors of potato storages, clean surfaces thoroughly with a broom or vacuum to remove all dirt and debris. Clean thoroughly with solution containing 60 mL in 10 L of water. Ensure surfaces and material are thoroughly saturated and remain wet for 10 minutes.

A solution of the same strength (60 mL in 10 L of water) can be used to disinfect used bags, potato planters and other machinery after all dirt has been removed. Ensure surfaces and material are thoroughly soaked and remain wet for 20 minutes.

Equipment: All handling and planting equipment should be cleaned and treated on a regular basis (daily when preparing seed and seed pieces). Treat equipment by mopping and brushing methods. Use 60 mL of disinfectant diluted in 10 L of water or 600 mL to 100 L drum. Ensure hard, non-porous surfaces are thoroughly saturated and remain wet for 10 minutes and all other items for 20 minutes.

Storage walls and ceilings: Use 600 mL of disinfectant in 100 L of water. Spray areas using a high pressure jet (up to 4250 kPa pressure) to penetrate cracks, etc. in floors. Spray A frames and other storage air ducts with a solution of 1.2 L per 100 L of water. Sub-surface air ducts, flumes and plenums should be thoroughly cleaned prior to disinfection. Use 60 mL of disinfectant diluted in 10 L of water or 600 mL to 100 L drum. Ensure hard, non-porous surfaces are thoroughly saturated and remain wet for 10 minutes and all other items for 20 minutes.

Tank Mixes:
DO NOT mix with soaps, detergents, foaming agents or surfactants.

Hazard Rating:
Caution – Corrosive

Other precaution: Corrosive, causes severe eye and skin damage. DO NOT get in eyes, on skin or on clothing. Avoid contamination of food. DO NOT breathe mist of diluted chemical created from pressure washer applications. Wear suitable protective clothing (gloves, goggles, rubber boots, wet suit, mist respirator) when using pressure washer system. Wear chemical-resistant gloves, long pants, a long-sleeved shirt and shoes when handling this concentrate.

Refer to the Introduction for an explanation of the symbols.

Heads Up Plant Protectant

Fungicide Group
NC

Company:
Heads Up Plant Protectants, Inc. (PCP#29827)

Formulation:
63.02% saponins of *Chenopodium quinoa* formulated as a soluble powder.
- Container size - 50 g pouches

Crops and Diseases:

Crop	Diseases Suppressed
Potato (cut or whole tubers)	Rhizoctonia canker and black scurf *(Rhizoctonia solani)*
Soybean	Root rot and post-emergence damping-off *(Rhizoctonia solani)*, white mould *(Sclerotinia sclerotiorum)*, sudden death syndrome *(SDS) (Fusarium virguliforme)*
Dry bean	White mould *(Sclerotinia sclerotiorum)*, root rot and post-emergence damping-off *(Rhizoctonia solani)*

Rate Information:
Mix 1 gram of product per 1 L of water. Apply 1 L of solution for every 100 to 264 kg of potato seed. For soybeans and dry beans mix 50 g package to 3 L of water. Each 37 mL of solution treats 100 kg of seed.

Application Information:
Treat soybean or dry bean seed by dipping, spraying or dribbling the solution into a rotation auger conveyor or some other approved seed treatment device. Spray application to seeds within an enclosed spray device to ensure thorough coverage.

For seed potatoes, product must be applied to germination seed potatoes, as indicated by obvious sprouting activity coming from potato eyes. This sprouting activity can be from peeking to full sprout length, but before green leaves appear.

How it Works:
The active ingredient saponins of *Chenopodium quinoa* is made from plant sources. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store this product away from food or feed. Store above -12°C.
- **Environment:** DO NOT contaminate irrigation or drinking water supplies or aquatic habitats. This product is toxic to aquatic organisms.

Hazard Rating:
 Caution – Poison
Refer to the Introduction for an explanation of the symbols.

Helix Vibrance

Available to commercial seed treaters only.

Fungicide Group
3, 4, 12, 7
Insecticide Group
4A

Company:
Syngenta Canada Inc. (PCP#31454)

Formulation:
269 g/L thiamethoxam, 16 g/L difenoconazole, 5 g/L metalaxyl-M and S isomer, 1.7 g/L fludioxonil, and 3.4 g/L sedaxane formulated as a suspension.

- Container sizes - 105 L to bulk

Crops, Diseases, Insects and Rates:

Crop	Diseases Controlled	Insects Controlled	Rate (per 100 kg of seed)
Canola, rapeseed, and mustard (both oilseed and condiment types, including *Brassica carinata*)	Seed-borne blackleg *(Leptosphaeria maculans)*, seed-borne Alternaria (*Alternaria* spp.), seedling disease complex (damping-off, seedling blight, seed rot, root rot) (*Pythium* spp., *Fusarium* spp., *Rhizoctonia* spp.)	Flea beetles (early-season)	1500 mL

Application Information:
For use only in commercial seed treatment facilities with closed transfer systems. *Helix Vibrance* is a premix formulation that includes a pigment. However, users are responsible for ensuring that the treated seed, when dried and ready for bagging, has an unnatural colour. If the pigment contained in the formulation does not colour the seed adequately, or to optimize seed coverage, water, additional colourant and polymers can be added to facilitate application. Use standard commercial seed treatment equipment that provides uniform seed coverage to ensure desired level of insect or disease control. Maintain constant product agitation during the seed treatment process. Allow the seed to dry before bagging. Treatment of highly mechanically scarred or damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or reduction of seed and seedling vigour.

How it Works:
The active ingredient thiamethoxam is a systemic insecticide from the neonicotinoid chemical class. For more information refer to "Insecticide Groups Based" on Modes of Action in the Insect Control section. The active ingredient difenoconazole is a triazole fungicide with broad-spectrum systemic activity. The active ingredient metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes class, including Pythium damping off. The active ingredient fludioxonil is a phenylpyrrole chemistry and has contact activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:

- **Resistance management:** Refer to Pathogen Resistance in the Plant Disease Control section for more information.. DO NOT make any subsequent application of a Group 4 insecticide (e.g. in-furrow or foliar application) following treatment with *Helix Vibrance*.
- **Labelling:** Treated seed must be labelled "This seed has been treated with *Helix Vibrance* which contains insecticide (thiamethoxam) and fungicides (difenoconazole, metalaxyl-M and S-isomer, fludioxonil, and sedaxane). Wear long- sleeve shirt, long pants, and chemical-resistant gloves when handling treated seed. DO NOT use for food, feed or oil processing. Store away from food and feed.
- **Grazing:** DO NOT graze or feed livestock on treated areas.
- **Re-cropping:** DO NOT plant any crop other than those on the *Helix Vibrance* or *Vibrance 500FS* labels within 60 days to fields in which seed treated with *Helix Vibrance* were planted.
- **Storage:** Store in a well-ventilated, secure area. Store away from food and feed. Ideal storage temperature is above freezing and below 30°C. Repeated freeze-thawing will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application. Lab and field studies have shown that *Helix Vibrance* treated canola and mustard can be safely stored for 18 months without loss in germination or insect and disease performance. However, due to seed quality and seed storage conditions beyond the control of Syngenta Canada Inc., no claims are made to guarantee the germination of carry-over seed or propagating materials for all crop seed.

- **Environment:** TOXIC to bees, aquatic organisms, birds, and small mammals. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. Any spilled or exposed seeds must be incorporated into the soil or cleaned up. DO NOT apply directly to water, or to areas where surface water is present. In cleaning of equipment or disposing of wastes, DO NOT contaminate water used for human or animal consumption or by wildlife and aquatic life or for irrigation purposes. If treated seed is spilled outdoors, promptly clean up.

Hazard Rating:

 Caution – Poison

Refer to the Introduction for an explanation of the symbols.

Imidacloprid

Insecticide Group 4A

Sombrero 600 FS/Stress Shield 600

Company:

Bayer (*Stress Shield 600 Seed Treatment* – PCP#30668)
ADAMA Canada (*Sombrero 600FS* – PCP#30505)

Formulations:

Sombrero 600 FS and *Stress Shield 600*: 600 g/L imidacloprid. Contains insecticide only.

Crops, Insects and Rates:

Product	Crop	Insects Controlled	Rate
Sombrero 600 FS[1] *Stress shield 600*[1]	Wheat, barley, oat[2]	Wireworms	17 to 50 mL/100 kg of seed
	Soybean[3]	Seedcorn maggot, wireworms, soybean aphid	104 to 208 mL/100 kg seed
Sombrero 600 FS[1]	Canola, mustard (condiment-type only) and rapeseed	Flea beetles	667 to 1333 mL/100 kg seed
	Corn	Wireworms	21.3 mL product/80,000 seeds
Stress shield 600[1]	Dry bean	Wireworms	104 mL/100 kg seed
	Field pea	Wireworms	104 mL/100 kg seed
		Pea leaf weevil	104 to 208 mL/100 kg seed
	Faba bean	Pea leaf weevil, wireworms	104 mL/100 kg seed
	Chickpea, lentil	Wireworms	104 mL/100 kg seed

[1] DO NOT apply any subsequent applications of Group 4 Insecticide (e.g. in-furrow or foliar application) following treatment with *Sombrero 600 FS* or *Stress Shield 600*.

[2] For fields with a history of moderate to high wireworm pressure, treat crops 34 to 50 mL per 100 kg seed. Use the higher rate when infestation pressures are expected to be heavy.

[3] Use the higher rate for earlier seeding or when insect populations are expected to be high in soybean and peas and for extended control period for aphids in soybean.

Application Information:

May be applied when potato pieces are being cut. Apply specified dosage as a diluted spray onto seed-pieces using a shielded spray system that is well contained and will prevent the loss of any liquid. DO NOT dilute *Sombrero 600 FS* beyond 6 percent. Agitate or stir spray solution as needed. Complete coverage of the seed piece is required for optimal insect control. As part of the seed cutting and treating process, application of a fungicide registered for potato seed treatment or an inert absorbent ingredient is recommended. Apply *Stress Shield 600* through a slurry applicator seed treater for uniform seed coverage. Allow seeds to dry before bagging or storing in bulk containers.

NOTE: A colourant must be added to *Sombrero 600 FS* and *Stress Shield 600* to colour seed in accordance with the *Pest Control Products Act* and the *Seeds Act Regulations*. A blue colourant must be added when this product is applied to an oilseed.

How it Works:

Imidacloprid is a chloronicotinyl insecticide with systemic activity. Refer to "Insecticide Groups Based on Modes of Action"in the Insect Control section for more information.

Tank Mixes:

Stress Shield 600 is registered for tank mix with the fungicide seed treatments *Raxil PRO*, or *EverGol Energy* in cereals. *Stress Shield 600* is registered for tank mix with fungicide seed treatments *Allegiance, EverGol Energy*, or *Apron Maxx RTA* in pulses.

Off-label tank mixes, as previously permitted under the Pest Management Regulatory Agency (PMRA) Off-label Tank Mix Policy memo of 2009 are no longer allowed under new guidance from PMRA. As of December 20, 2022 only products specifically indicated on product labels may be mixed, or when the labels of two or more products to be mixed include the statement quoted in the Introduction.

Follow the label directions for each product and use the most restrictive precautions and limitations for either product.

Restrictions:

NOTE: When using a seed flow lubricant for planting corn and soybean seed treated with neonicotinoid insecticides (containing the active ingredients clothianidin, imidacloprid or thiamethoxam), use only a dust-reducing fluency agent. Talc and graphite are not permitted.

- **Labelling:** All bags containing *Sombrero 600 FS/Stress Shield 600*-treated seed must be labeled or tagged as followed: "This seed has been treated with *Sombrero 600 FS/Stress Shield 600*, which contains imidacloprid. DO NOT use for feed, food, or oil processing. Store away from feeds and other foodstuffs"".
- **Grazing:** Cover crops that are used as a rotational crop without a plant-back interval following treatment should not be grazed or harvested for food or feed. DO NOT graze or feed livestock on areas treated with *Sombrero 600 FS* and *Stress Shield 600* for four weeks after planting. Mustard greens grown or harvested from *Sombrero 600 FS*-treated seed must not be used for human consumption.
- **Re-cropping:** Use a minimum plant-back interval of 30 days for cereals, 9 months for peas and beans, and 12 months for all other food and feed crops. Green manure and other cover crops not intended for human or animal consumption do not require a plant-back interval following treatment. DO NOT graze or harvest cover crops for food or feed. It is not recommended that this product be used in fields treated with imidacloprid during the previous season.
- **Storage:** Store product in cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of reach of children. Carry-over of *Sombrero 600 FS*-treated seed is not recommended (treated canola, rapeseed or mustard (condiment-type only) seed stored for periods in excess of 6 months may decrease at a faster rate than untreated seed). Test seed germination if stored for more than 6 months. DO NOT store *Sombrero 600 FS*-treated seed above 25°C or in direct sunlight. DO NOT store *Stress Shield 600* in direct sunlight or above 35°C.
- **Environment:** DO NOT plant treated seed pieces when rainfall is forecast for the next 48 hours. DO NOT plant treated seed pieces within 15 metres of well-head or aquatic systems, including marshes, ponds, ditches, streams, lakes, etc. This product is toxic to wildlife. Keep out of lakes, streams, ponds, or other aquatic systems. DO NOT contaminate water when disposing of equipment wash waters. Leftover treated seed should be double sown around the headland, or buried away from water sources such as lakes, streams, ponds or other aquatic systems. *Stress Shield 600* spillage and exposed treated seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

Hazard Rating:

 Caution – Poison

Refer to the Introduction for an explanation of the symbols.

Insure Cereal FX4

Fungicide Group
3, 4, 7, 11

Company:
BASF Canada (PCP#33210)

Formulation:
16.7 g/L pyraclostrobin, 8.35 g/L fluxapyroxad, 16.7 g/L triticonazole, 10 g/L metalaxyl formulated as a liquid suspension.
- Container sizes - 2 x 9.8 L jug, 120 L drum, 450 L tote

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate per 100 kg of seed
Barley	Seed rots and pre-emergence damping-off (*Fusarium* spp., R*hizoctonia solani, Cochliobolus sativus, Pythium* spp.); post-emergence damping-off (*Fusarium* spp, *Rhizoctonia solani, Pythium* spp.); seedling blight and root rot (*Fusarium* spp., *Rhizoctonia solani, Pythium* spp.), true loose smut (*Ustilago nuda*); covered smut (*Ustilago hordei*), false loose smut (*Ustilago nigra*)	Seedling blight and root rot (*Cochliobolus sativus*): fusarium crown and root rot (*Fusarium* spp.)	300 mL
Canaryseed, annual canarygrass grown for human consumption	Seed rots and pre-emergence damping-off (*Fusarium* spp., *Rhizoctonia solani, Cochliobolus sativus, Pythium* spp.); post-emergence damping-off (*Fusarium* spp., *Rhizoctonia solani, Pythium* spp.); seedling blight and root rot (*Fusarium* spp., *Rhizoctonia solani, Pythium* spp.)		
Oats	Seed rots and pre-emergence damping-off (*Fusarium* spp., *Rhizoctonia solani*, *Cochliobolus sativus, Pythium* spp.); post-emergence damping-off (*Pythium* spp.); seedling blight and root rot (*Fusarium* spp., *Rhizoctonia solani*, *Pythium* spp.); loose smut (*Ustilago avenae*); covered smut (*U. kolleri*)		
Wheat, rye, triticale	Seed rots and pre-emergence damping-off (*Fusarium* spp., *Rhizoctonia solani*, *Cochliobolus sativus, Pythium* spp.); post-emergence damping-off (*Pythium* spp.); seedling blight and root rot (*Fusarium* spp., *Rhizoctonia solani*, *Pythium* spp.); loose smut (*Ustilago tritici*); common bunt (*Tilletia, tritici, T. laevis*)		

Application Information:
Insure Cereal FX4 is a ready-to-use broad spectrum fungicide seed treatment in a waterbased formulation that provides preventive seed and seedling protection. For use on farm and on closed transfer commercial seed treatment facilities. Closed transfer includes closed mixing, loading, calibrating and closed treatment equipment.

Apply *Insure Cereal FX4* using standard slurry, gravity flow or mist-type seed treatment application equipment. Agitate or shake well prior to use. Thorough seed coverage will offer the best protection of the seed from seed-, soil-borne, and seedling diseases. When used at the recommended rate of 300 mL per 100 kg seed, no additional dyes or dilutions with water are needed unless recommended by the manufacturer of the seed treatment application equipment/machines. If so, increase the use rate proportionally to the dilution rate (e.g. add 100 mL of water to 300 mL of *Insure Cereal FX4*, then apply at 400 mL per 100 kg seed). Please consult the seed treatment application equipment manufacturer in question for further directions.

How it Works:
Pyraclostrobin is a strobilurin fungicide with systemic broad spectrum activity against seed and soil borne diseases. It inhibits fungal metabolism by blocking mitochondrial respiration. Fluxapyroxad is a carboximide fungicide that provides systemic broad-spectrum protection against seed- and soil-borne diseases. Triticonazole is a triazole based fungicide that provides systemic broad spectrum protection against seed and soil borne diseases. Metalaxyl is an acylanine fungicide with systemic activity against diseases caused by Oomycete fungi, most commonly known as *Pythium*.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled as follows "This seed has been treated with *Insure Cereal FX4* containing fungicides pyraclostrobin, fluxapyroxad, triticonazole and metalaxyl. Workers handling or planting treated seed must wear long-sleeved shirt, long pants, chemical-resistant gloves, shoes and socks. Workers handling treated seed should wear suitable dust mask. DO NOT use for food, feed or oil processing. Store away from feed and food stuff. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface."

- **Grazing:** No restrictions listed.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store in original tightly closed container and the ideal storage temperature is above freezing and below 30°C. If *Insure Cereal FX4* freezes, bring to room temperature and agitate prior to use. To prevent contamination, store this product away from food and feed. Store in cool, dry, locked, well-ventilated area without floor drain.
- **Environment:** Ensure proper soil incorporation of the seeds. DO NOT feed treated seed to, or otherwise expose, wildlife or domestic birds. If treated seed is spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion. Ensure proper disposal of any surplus treated seed not intended for later planting. DO NOT contaminate domestic or irrigation water supplies, lakes, streams, ponds or any body of water with the chemical, used containers, treated seed or bags, which have held treated seed. DO NOT contaminate water by cleaning of equipment or disposal of wastes. Unused or leftover treated seed should not be stored where there is a chance of it becoming mixed with untreated seed.

  Toxic to aquatic organisms. The use of this product may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) or the water table is shallow. To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. compacted or fine-textured soils such as clay). Avoid application of this product when heavy rain is forecast.

Hazard Rating:

Caution – Poison

Caution – Eye Irritant and Potential Skin Sensitizer

Warning – Contains the Allergen Soy

Refer to the Introduction for an explanation of the symbols.

Insure Pulse

Fungicide Group 4, 7, 11

Company:

BASF Canada (PCP#32011)

Formulation:

16.7 g/L pyraclostrobin, 16.7 g/L fluxapyroxad and 13.3 g/L metalaxyl formulated as a liquid flowable.

- Container sizes - 9.8 L, 120 L drum, 450 L tote

Crops, Diseases and Rates:

Crops	Diseases controlled	Diseases suppressed	Rates per 100 kg of seed
Chickpea, dry bean, faba bean, field pea, lentil, soybean	Seed rot and seedling blight (soil-borne *Fusarium* spp.); seed rot, seedling blight and root rot (soil-borne *Rhizoctonia solani*); seed rot and seedling blight (soil-borne *Pythium* spp.); seedling blight (seed-borne *Ascochyta* spp.)	Anthracnose seedling blight (seed-borne *Colletotrichum lindemuthianum*); root rot (soil-borne *Fusarium* spp.); seed rot and seedling blight (seed-borne *Botrytis cinerea*)	300 mL
Flax	Seed rot, seedling blight and root rot (soil-borne *Fusarium* spp.; soil-borne *Rhizoctonia solani*)	-	300 to 600* mL
Mustard	Seed rot, seedling blight and root rot (soil-borne *Fusarium* spp.; soil-borne *Rhizoctonia solani,* soil-borne *Leptosphaeria maculans***); seed rot and seedling blight (soil-borne *Pythium* spp.); seedling blight and root rot (*Alternaria brassicae***)	-	600 mL

***Use the lower rate under normal field conditions. Use the higher rate if there is a history of high disease pressures in the field OR where field conditions favour seed and soil-borne pathogens.**

****For control on crops that are members of the Brassicaceae family only (e.g. *Brassica* sp.).**

Application Information:
A ready-to-use seed treatment formulation for use in commercial seed treatment plants and for use in on-farm standard gravity flow or mist type treatment machines. Can also be used in "On the Go" air seeder treatment systems. When used at the recommended rate of 300 mL per 100 kg seed, no additional dyes or dilutions with water are needed unless recommended by the manufacturer of the seed treatment application equipment.
NOTE: If using the 600 mL per 100 kg rate (flax), it is highly recommended that the seed be treated into a bin or truck box to allow the treated seed to dry prior to placing into the seeder hopper. This will prevent clumping and bridging in the seeder.

How it Works:
The active ingredient pyraclostrobin is a strobilurin fungicide with broad spectrum contact and systemic activity. Fluxapyroxad is a carboximide fungicide that provides systemic broad spectrum protection. Metalaxyl is an acylalanines fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labeled "This seed has been treated with *Insure Pulse* containing pyraclostrobin, fluxapyroxad and metalaxyl. DO NOT use for food, feed or oil processing."
- **Grazing:** DO NOT graze or feed livestock on treated areas for 4 weeks after planting.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store treated seed in cool, dry, locked, well-ventilated area without a floor drain. Store in original tightly closed container and prevent freezing.
- **Environment:** Toxic to birds and wildlife. Ensure proper soil incorporation of the seeds. If treated seed is spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion. Ensure proper disposal of any surplus treated seed not intended for later planting. DO NOT contaminate domestic or irrigation water supplies, lakes, streams, ponds or any body of water with the chemical, used containers, treated seed or bags that have held treated seed. DO NOT contaminate water by cleaning of equipment or disposal of wastes. The use of this chemical may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Hazard Rating:
Warning – Contains the Allergen Soy


Caution – Skin Irritant

Refer to the Introduction for an explanation of the symbols.

Intego Suite Cereals OF

Fungicide Group 7

Company:
Valent Canada distributed by Nufarm Agriculture (PCP#34326)

Formulation:
10L, 110L drum. Formulated as a suspension.

Active Ingredient(s)	Guarantee	Resistance Group
Metalaxyl	8.82 g/L	4
Ethaboxam	14.7 g/L	22
Metconazole	4.41 g/L	3
Clothianidin	29.5 g/L	4

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Insects Suppressed	Rate (per 100 kg of seed)
Wheat	Early season seed rot/pre-emergence damping-off caused by *Fusarium spp*. and *Rhizoctonia solani* Early season seed rot/pre-emergence damping-off, post-emergence damping-off, seedling blight and seedling root rot caused by *Pythium spp*. Common bunt (*Tilletia laevis*) Loose smut (*Ustilago tritici*)	Common root rot (*Cochliobolus sativus*)	Wireworms*	339 ml

Application Information:
For use with closed transfer commercial seed treaters (facilities and mobile treaters). Closed transfer includes closed mixing, loading, calibrating, and closed treatment equipment. Also, for use in on-farm treatment of wheat with open or closed transfer equipment.

Tank Mixes:
For control of wireworm, apply NipsIt INSIDE 600 Insecticide at 17-83 mL/100 kg seed.

Restrictions:
- Labelling: Treated seed must be labeled "This seed has been treated with a product containing the active ingredient clothianidin, ethaboxam, metalaxyl, and metconazole. DO NOT use treated seed for feed, food or oil processing. Store away from feeds and other foodstuffs. Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. This product is toxic to aquatic invertebrates, oysters and shrimp. Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. Cover or incorporate spilled treated seeds."
- Grazing: Do not graze or feed livestock on treated areas for 4 weeks after planting.
- Re-cropping: Corn, canola, rapeseed and wheat may be replanted at any time.
- Storage: Store in a cool place, out of direct sunlight. Protect from freezing temperatures.
- Environmental Restrictions: Toxic to aquatic organisms and bees.

Hazard Rating:
Warning – Poison

INTEGO Solo Fungicide

Fungicide Group 22

Company:
Valent Canada Inc. distributed by Nufarm Agriculture (PCP#31324)

Formulation:
383 g/L ethaboxam formulated as a suspension.
- Container size - 3.78 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed):
Barley, oats, rye, triticale, wheat, buckwheat, millet (pearl, proso)	Seed rot/pre-emergence damping-off (*Pythium* spp.)	-	13 to 17 mL
Corn (sweet, field, popcorn)	Seed rot/pre-emergence damping-off (*Pythium* spp.)	-	13 to 19.6 mL
Chickpea	Seed rot/pre-emergence damping-off (*Pythium* spp.)	-	19.6 to 39.1 mL
Dry bean, faba bean, lentil, field pea	Seed rot/pre-emergence damping-off (*Pythium* spp.)	Early-season root rot *(Aphanomyces euteiches)*	19.6 to 39.1 mL
Soybean	Seed rot/pre-emergence damping-off (*Pythium* spp.), early-season root rot *(Phytophthora sojae)*	-	19.6 to 39.1 mL

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed):
Canola, rapeseed, Ethiopian mustard *(Brassica carinata)*, flax, mustard (all types), camelina, borage	Seed rot/pre-emergence damping-off (*Pythium* spp.)	-	13 to 19.6 mL
Sunflower	Seed rot/pre-emergence damping-off (*Pythium* spp.), seed-borne downy mildew *(Plasmopara halstedii)*	-	402 to 603 mL
Safflower	Seed rot/pre-emergence damping-off (*Pythium* spp.)	-	402 to 603 mL

Application Information:
For use with closed transfer commercial seed treaters (facilities and mobile treaters). Closed transfer includes closed mixing, loading, calibrating, and closed treatment equipment. Also for use in on-farm treatment of cereal grains (except corn) and pulse crops only with open or closed transfer equipment. This product contains no colourant. An appropriate colourant must be added when the product is applied to the seed.

How it Works:
The active ingredient ethaboxam is a benzamide fungicide with activity against diseases caused by oomycetes. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
Off-label tank mixes, as previously permitted under the Pest Management Regulatory Agency (PMRA) Off-label Tank Mix Policy memo of 2009 are no longer allowed under new guidance from PMRA. As of December 20, 2022 only products specifically indicated on product labels may be mixed, or when the labels of two or more products to be mixed include the statement quoted in the Introduction.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labeled "This seed has been treated with a product containing the active ingredient ethaboxam. DO NOT use treated seed for feed, food or oil processing. Store away from feeds and other foodstuffs. Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. This product is toxic to aquatic invertebrates, oysters and shrimp. Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. Cover or incorporate spilled treated seeds."
- **Grazing:** DO NOT graze field pea grown from treated seeds, or feed field pea forage or hay from such fields to livestock.
- **Re-cropping:** No restrictions listed.
- **Storage:** To prevent contamination store this product away from food or feed. Store in a cool place. DO NOT store in direct sunlight. Protect from freezing temperatures.
- **Environment:** Toxic to aquatic organisms.

Hazard Rating:
None listed.

Interest Forte

Fungicide Group
3, 4

Company:
Sharda Crop Chem distributed by UAP Canada (PCP#34196)

Formulation:
3.37% difenoconazole and 0.27% metalaxyl-M and s-isomer as a suspension.
- Container sizes - 10 L, 200 L, 500 L, 1000 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed):
Barley	Seed rots caused by saprophytic organisms *Fusarium* spp., *Pythium* spp., *Penicillium* spp. and *Aspergillus* spp. Common root rot, damping-off and seedling blight caused by seed- and soil-borne *Fusarium* spp. Pythium root rot, damping-off and seedling blight caused by soil-borne *Pythium* spp. Septoria leaf blotch caused by seed-borne *Septoria passerinni*[1], covered smut (*Ustilago hordei*), false loose smut (*Ustilago avenae*)	Common root rot caused by *Cochliobolus sativus,* fusarium crown and foot rot (*Fusarium* spp.), take-all (*Gaeumannomyces graminis* var. *tritici*[2])	325 to 650 mL
Corn, buckwheat, millet (pearl and proso), sorghum	Seed rots caused by saprophytic organisms *Fusarium* spp., *Pythium* spp., *Penicillium* spp. and *Aspergillus* spp. Fusarium root rot, damping-off and seedling blight caused by seed- and soil-borne *Fusarium* spp. Pythium root rot, damping-off and seedling blight caused by soil-borne *Pythium* spp.	-	
Sweet corn, corn seed	Penicillium three-leaf dieback (*Penicillium* spp.)	-	325 mL
Oats	Seed rots caused by saprophytic organisms *Fusarium* spp., *Pythium* spp., *Penicillium* spp. and *Aspergillus* spp. Fusarium root rot, damping-off and seedling blight caused by seed- and soil-borne *Fusarium* spp. Pythium root rot, damping-off and seedling blight caused by soil-borne *Pythium* spp., covered smut (*Ustilago kolleri*), loose smut (*Ustilago avenae*)	Common root rot caused by *Cochliobolus sativus*[2]	325 to 650 mL
Rye	Seed rots caused by saprophytic organisms *Fusarium* spp., *Pythium* spp., *Penicillium* spp. and *Aspergillus* spp. Common root rot, damping-off and seedling blight caused by seed- and soil-borne *Fusarium* spp. Pythium root rot, damping-off and seedling blight caused by soil-borne *Pythium* spp., septoria leaf blotch caused by seed-borne *Septoria secalis*[1], common and dwarf bunt caused by seed- and soil-borne *Tilletia* spp.	Common root rot caused by *Cochliobolus* spp., fusarium crown and foot rot (*Fusarium* spp.), take-all (*Gaeumannomyces graminis* var. *tritici*[2])	325 to 650 mL
Triticale	Seed rots caused by saprophytic organisms *Fusarium* spp., *Pythium* spp., *Penicillium* spp. and A*spergillus* spp. Common root rot, damping-off and seedling blight caused by seed- and soil-borne F*usarium* spp. Pythium root rot, damping-off and seedling blight caused by soil-borne *Pythium* spp., loose smut (*Ustilago tritici*)		

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed):
Winter wheat	Seed rots caused by saprophytic organisms *Fusarium* spp., *Pythium* spp., *Penicillium* spp. and *Aspergillus* spp. Common root rot, damping-off and seedling blight caused by seed- and soil-borne *Fusarium* spp. Pythium root rot, damping-off and seedling blight caused by soil-borne *Pythium* spp. Septoria leaf blotch caused by seed-borne *Septoria tritici*[1], septoria leaf blotch (*Septoria tritici*)[1,3], common and dwarf bunt caused by seed- and soil-borne *Tilletia* spp., loose smut (*Ustilago tritici*)	Common root rot caused by *Cochliobolus* spp., fusarium crown and foot rot (*Fusarium* spp.), take-all (*Gaeumannomyces graminis* var. *tritici*[2])	325 to 650 mL
Spring wheat	Seed rots caused by saprophytic organisms *Fusarium* spp., *Pythium* spp. *Penicillium* spp. and *Aspergillus* spp. Common root rot, damping-off and seedling blight caused by seed- and soil-borne *Fusarium* spp. Pythium root rot, damping-off and seedling blight caused by soil-borne *Pythium* spp., septoria leaf blotch caused by seed-borne *Septoria tritici*[1], common bunt caused by seed-borne *Tilletia* spp.[1], loose smut (*Ustilago tritici*)		

[1] **Use the 650 mL rate for control of these diseases.**
[2] **Suppression means consistent control at a level which is not optimal but is still of commercial benefit.**
[3] **Early season foliar disease control for first 4 weeks after planting. For full season control, apply a foliar fungicide according to label directions.**

Application Information:

Interest Forte is a ready-to-use water-based formulation for use in commercial seed treatment plants, and for on-farm treatment using standard gravity flow or mist type seed treatment equipment which accurately meters and mixes a flowable seed treatment. *Interest Forte* may also be used in a treat-on-the-go air seeder. The equipment must provide uniform coverage of *Interest Forte* on the seed.

How it Works:

Difenoconazole is a triazole fungicide with broad-spectrum systemic activity. Metalaxyl is an acylalanine fungicide with systemic activity against diseases caused by the oomycetes, including pythium damping-off. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

For the control of true loose smut (*Ustilago nuda*) in barley, mix *Interest Forte* with either *Charter*, *Raxil 250FL* or *Baytan 30*. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** ALL SEED TREATED WITH THIS PRODUCT MUST BE CONSPICUOUSLY COLOURED. All containers or packages containing treated seed for sale or use in Canada must be labeled or tagged as follows: "This seed has been treated with *Interest Forte* which contains the fungicides difenoconazole and metalaxyl-M and S-isomer. DO NOT use for food, feed or oil purposes. Store away from feeds and foodstuffs. Wear long-sleeve shirt, long pants, and chemical-resistant gloves when handling treated seed. DO NOT graze, feed green forage or cut for hay within 35 days of planting of cereals. DO NOT plant any crop other than cereals within 30 days to fields in which treated seeds were planted."
- **Grazing:** DO NOT graze, feed green forage or cut for hay within 35 days of planting treated cereal grain seeds.
- **Re-cropping:** 30 days
- **Storage:** Store this product away from food or feed.
- **Environment:** Toxic to aquatic organisms. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

Hazard Rating:

None listed.

Ipconazole + Metalaxyl

Cover2

Fungicide Group
3, 4

Company:

Loveland Products Canada Inc. (*Cover 2* – PCP#32950)

Formulation:

4.61 g/L ipconazole and 6.15 g/L metalaxyl formulated as a suspension.

- Container size - 2 x 10 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed):
Wheat	General seed rots (including those caused by saprophytic organisms such as *Penicillium* spp. and *Aspergillus* spp.); seed rot, damping off and seedling blight (*Fusarium* spp., *Rhizoctonia* spp., seed- and soil-borne *Cochliobolus sativus*); seed rot, pre-emergence damping off and seedling blight (*Pythium* spp.); loose smut (*Ustilago tritici*); common bunt (*Tilletia tritici, T. laevis*)	Common root rot (*Cochliobolus sativus*); crown and foot rot (*Fusarium* spp.)	325 mL
Barley	General seed rots (including those caused by saprophytic organisms such as *Penicillium* spp. and *Aspergillus* spp.); seed rot, damping off and seedling blight (*Fusarium* spp., *Rhizoctonia* spp., seed- and soil-borne *Cochliobolus sativus*); seed rot, pre-emergence damping off and seedling blight (*Pythium* spp.); covered smut (*Ustilago hordei*); false loose smut (*U. nigra*); leaf stripe (*Pyrenophora graminea*)		
	True loose smut (*Ustilago nuda*)		325 to 433 mL*
Oats	Loose smut (*Ustilago avenae*); covered smut (*U. kolleri*); seed rot and seedling blight (*Fusarium* spp., *Cochliobolus sativus, Aspergillus* spp., *Penicillium* spp., *Rhizoctonia* spp.); seed rot, pre-emergence damping off and seedling blight (*Pythium* spp.).	Common root rot (*Cochliobolus sativus*); crown and foot rot (*Fusarium* spp.)	325 mL
Rye Triticale	Seed rot and seedling blight (*Fusarium* spp., *Cochliobolus sativus, Aspergillus* spp., *Penicillium* spp., *Rhizoctonia* spp.); seed rot, pre-emergence damping off and seedling blight (*Pythium* spp.).		

***Use the higher rate for highly infected seed lots only.**

Application Information:

Cover 2 is for both commercial and for on farm application. Products may be applied utilizing mechanical, slurry or mist-type seed treating equipment provided that the equipment can be calibrated to accurately and uniformly apply the product to seed. Uniform application to seed is necessary to assure best disease protection and optimum performance.

Closed mix/load equipment must be used in commercial seed treatment facilities. In most cases, *Cover 2* is ready to use and can be applied undiluted. However, dilution with water or container rinsate may be appropriate for some types of treaters and/or treating under dry and/or hot conditions to achieve more uniform product to seed coverage. Contact your local representative or supplier for specific recommendations.

How it Works:

The active ingredient ipconazole is a demethylation inhibitor with systemic and contact activity and metalaxyl is an acylaline fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

None listed.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** All bags containing treated seed for sale or use in Canada must be labeled as follows: "This package or bag contains seed treated with ipconazole and metalaxyl. DO NOT use treated seed for food, feed or oil processing. Store away from food and feed. Handlers of treated seed must wear long sleeved coveralls over normal work clothing, chemical resistant gloves, and shoes plus socks. Treated seed is toxic to birds and small wild mammals. Any spilled or exposed seed must be incorporated into the soil or otherwise cleaned up from the soil surface."

- **Grazing:** DO NOT graze or feed livestock on treated areas for 30 days after planting.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store in original container only, away from other pesticides, fertilizer, food or feed. Store in a secure place that is temperate, dry and out of direct sunlight. Avoid excess heat. DO NOT freeze.
- **Environment:** DO NOT contaminate water used for human or animal consumption or by wildlife and aquatic life or for irrigation purposes.

Hazard Rating:
None listed.

Lumisena

Fungicide Group 49

Company:
Corteva Agriscience (PCP#33001)

Formulation:
200 g/L of oxathiapiprolin formulated as a flowable suspension.
- Container sizes - 52 L, 2 x 5.4 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Soybean	Control of phytophthora seed rot/pre-emergence damping off and post emergence damping off (*Phytophthora sojae*)	37 mL
Sunflower	Control of systemic downy mildew (*Plasmopara halstedii*)	67 mL

***Use the higher rates in areas with high disease pressure, or where extended earl season control is required.**

Application Information:
Lumisena is for use in commercial seed treatment facilities only. It is not for use in on-farm treating systems such as hopper-box or slurry-box applications just prior to planting. Closed transfer includes closed mixing, loading, calibrating, and closed treatment equipment. No open transfer of *Lumisena* is permitted.

This product contains no colourant. An appropriate colourant must be added when this product is applied. Regulations pertaining to *The Seeds Act* must be strictly adhered to when using this product. Treatment of damaged seed, or seed known to be of low vigour and poor quality, may result in poor germination and/or seed and seedling vigour. In cases where seed quality is unknown, treat a small portion of the seed with *Lumisena* and confirm acceptable germination, prior to treating the entire seed lot.

Mixing instructions: Before transferring *Lumisena* from its container, thoroughly mix the contents to insure the product is homogenous. Dilute in a sufficient volume to obtain through, uniform coverage. Polymers, colourants, and other additives should be tested for compatibility and seed prior to use in combination with *Lumisena*.

How it Works:
The active ingredient oxathiapiprolin is an oxysterol binding protein homologue inhibitor with activity against diseases caused by oomycete fungi including phytophthora seed rot and downy mildew.

Tank Mixes:
None registered.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** All bags containing treated seed must be labelled or tagged as follows: This seed has been treated with *Lumisena* which contains oxathiapiprolin.
- **Re-cropping:** Crops and crop groups that are on this label may be planted immediately after harvest. For all legume crops except succulent peas and soybeans, a plant back interval of 180 days is required. All other crops may be planted immediately following the planting of seed treated with *Lumisena*. Seed treated with *Lumisena* may be replanted if an emergency replanting is required due to an early season crop failure.

- **Storage:** Storage product in original container away from fertilizer, food or feed. Field and laboratory tests have demonstrated that application of *Lumisena* to soybean and sunflower will not negatively affect germination. However, due to seed quality and seed storage conditions beyond the control of Corteva Agriscience, no claims are made to guarantee the germination of carry-over seed.
- **Environment:** DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of waste. Dispose of all access treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance local requirements. DO NOT contaminate water bodies when disposing of plant equipment washwaters. Cover or incorporate spilled treated seed.

Hazard Rating:
None listed.

Lumivia

Insecticide Group 28

Company:
Corteva Agriscience (PCP#32154)

Formulation:
625 g/L of chlorantraniliprole formulated as a suspension.
- Container sizes - 1 L to Bulk

Crops, Diseases and Rates:

Crop	Insects Controlled	Insects Suppressed	Rate
Corn (field, sweet, pop)	Cutworms, armyworm (*Mythimna unipuncta*), wireworms, larvae of May/June beetles (junebugs)	Seedcorn maggot	64 mL/unit (80,000 seed unit)

Application Information:
Lumivia Insecticide Seed Treatment is an insecticide seed treatment for use in commercial seed treatment (facilities and mobile treaters) with closed transfer only. No open transfer is permitted. It is not for use in on farm treating systems such as hopper-box or slurry-box applications just prior to planting.

This product contains no colourant. An appropriate colourant must be added when this product is applied. Regulations pertaining to the *Seeds Act* must be strictly adhered to when using this product. Seed must be conspicuously coloured at the time of treatment.

Treatment of damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or seed and seedling vigour. In cases where seed quality is unknown, treat a small portion of the seed with *Lumivia* and confirm acceptable germination, prior to treating the entire seed lot.

Dilute in a sufficient volume to obtain thorough, uniform coverage. Polymers, colourants, and other additives should be tested for compatibility and seed safety prior to use in combination with *Lumivia*.

Apply only in areas with adequate ventilation or in areas that are equipped to remove mist or dust.

DO NOT make a subsequent foliar application of any Group 28 insecticide for a minimum of 60 days after planting seed treated with *Lumivia*. If a foliar spray is required during this window, it must be made with an insecticide other than Group 28.

How it Works:
Chlorantraniliprole disrupts muscle activity in the insects, resulting in paralysis. Treated pests stop feeding quickly after initial ingestion, become lethargic and lose mobility. Refer to "Insecticide Groups Based on Modes of Action"in the Insect Control section for more information.

Tank Mixes:
Refer to the product label.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. For resistance management, please note that *Lumivia* contains a Group 28 insecticide. Any insect population may contain individuals naturally resistant to *Lumivia* and other Group 28 insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.
    - ***To delay insecticide resistance:*** Where possible, rotate the use of *Lumivia* or other Group 28 insecticides with different groups that control the same pests in a field. Use tank mixtures with insecticides from a different group when such use is permitted. Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices. Monitor treated pest populations for resistance development. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area. For further information or to report suspected resistance contact Production Agriscience Canada Company at 1-800-667-3852.
- **Labelling:** All bags containing treated seed must be labelled or tagged as follows: "This seed has been treated with *Lumivia Insecticide Seed Treatment* which contains chlorantraniliprole. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs. Wear long-sleeved shirt, long pants, chemical-resistant gloves and shoes plus socks when handling treated seed. This product is toxic to aquatic organisms. Dispose of all excess treated seed. Leftover treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. Cover or incorporate spilled treated seeds. Toxic to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface."
- **Grazing:** None listed.
- **Re-cropping:** None listed.
- **Storage:** Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed. To prevent contamination, store this product away from food or feed. Field and laboratory tests have demonstrated that application of *Lumivia* to corn seed will not negatively affect germination. However, due to seed quality and seed storage conditions beyond the control of Corteva Agriscience, no claims are made to guarantee the germination of carry-over seed.
- **Environment:** This product is toxic to aquatic organisms. Residues of chlorantraniliprole are persistent and may carryover. It is recommended that any products containing chlorantraniliprole not be used in areas treated with this product during the previous season. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth of the water table is shallow. Dispose of all excess treated seed. Leftover treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. Cover or incorporate spilled treated seeds. Treated seed is toxic to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Hazard Rating:

None listed.

Lumivia CPL

Insecticide Group 28

Company:
Corteva Agriscience (PCP#33335)

Formulation:
625 g/L chlorantraniliprole formulated as a suspension.
- Container sizes - 4 x 3.5 L jugs per case.

Crops, Insects and Rates:

Crop	Insects Controlled	Rate per 100 kg of seed[1]
Wheat, barley, oats, rye	Cutworm, armyworm	8 to 24 mL
	Wireworms	24 to 40 mL
	Grasshoppers (suppression only)	40 mL
Dry bean, chickpea, lentil, field pea, faba bean	Cutworm, armyworm	32 to 64 mL
	Pea leaf weevil larvae	64 to 96 mL

[1] **Use higher rates in areas with high pest pressure.**

Application Information:
For use in commercial and on-farm treating facilities. This product contains no colourant. An appropriate colourant must be applied when this product is applied. Polymers, colourants and other additives must be tested for compatibility and seed safety prior to use in combination with *Lumivia CPL*.

Apply only in areas with adequate ventilation or in areas that are equipped to remove mist or dust.

Dilute in a sufficient volume to obtain thorough, uniform coverage.

Treatment of damaged seed, or seed known to be of low vigor and poor quality may result in reduced germination and/or seed and seedling vigor. If seed lot quality is not known, treat a small portion of the seed with *Lumivia CPL* and confirm acceptable germination prior to treating the entire seed lot.

How it Works:
Chlorantraniliprole disrupts muscle activity in the insects, resulting in paralysis. Treated pests stop feeding quickly after ingestion, become lethargic and lose mobility. Refer to "Insecticide Groups Based on Modes of Action"in the Insect Control section for more information.

Tank Mixes:
Lumivia CPL should be applied as a tank mix with registered fungicide seed treatments containing colourant. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

When *Lumivia CPL* is applied without a fungicide seed treatment, a colourant must be added.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. DO NOT make any subsequent application of a Group 28 insecticide for a minimum of 60 days after planting seed treated with *Lumivia CPL*. If a foliar spray is required during this window, it must be made with an insecticide other than Group 28.
- **Labelling:** All bags containing treated seed must be labelled or tagged as follows: "This seed has been treated with *Lumivia CPL* which contains chlorantraniliprole. DO NOT use for feed, food or oil processing, Store away from feeds and other foodstuffs. Wear long-sleeved shirt, long pants, chemical resistant gloves and shoes plus socks when planting and handling treated seed. Gloves are not required when planting with a closed cab. This product is toxic to aquatic organisms. Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with the local requirements. Cover or incorporate spilled treated seeds. Toxic to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface."
- **Grazing:** None listed.
- **Re-cropping:** None listed

- **Storage:** Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in and around the home. Keep container closed. To prevent contamination, store this product away from food or feed. Field and laboratory tests have demonstrated that application of *Lumivia CPL* will not negatively affect germination. However, due to seed quality and seed storage conditions beyond the control of Corteva Agriscience, no claims are made to guarantee the germination of carry-over seed.
- **Environment:** This product is toxic to aquatic organisms. Residues of chlorantraniliprole cannot be used in areas treated with this product during the previous season. Use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soils) and/or the depth to the water table is shallow. Treated seeds is toxic to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface.

Hazard Rating:
None listed.

Maxim Quattro

Fungicide Group 1, 4, 11, 12

Available to commercial seed treaters only.

Company:
Syngenta Canada Inc. (PCP#29871)

Formulation:
26.5% thiabendazole, 3.32% fludioxonil, 2.65% metalaxyl-M and S-isomer, 1.33% azoxystrobin formulated as a liquid suspension seed treatment.

- Container sizes - 5 L to bulk

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Corn (field, pop, sweet)	Seed- and soil-borne *Pythium* spp.*, Rhizoctonia* spp.*, Fusarium* spp. (including *F. graminearum* and *F. verticillioides*); seed rot/pre-emergence damping-off, post-emergence damping-off, seedling blight (weakly pathogenic *Aspergillus* spp. and *Penicillium* spp.)	67 mL

Application Information:
For use by a commercial seed treater only. Mix with water to form a slurry seed treatment. Contains no colourant; an appropriate colourant must be added to slurry before treating seed. Maintain constant agitation of slurry. Allow seed to dry before bagging. Treatment of highly mechanically dam aged, poor quality or low vigour seed may result in reduced germination and/or reduced seed and seedling vigour. If seed lot quality is unknown conduct a germination test prior to treating.

How it Works:
The active ingredient thiabendazole is a benzimidazole fungicide with contact and systemic activity. The active ingredient fludioxonil is a phenylpyrrole fungicide with contact activity. The active ingredient metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes class, including pythium damping off. The active ingredient azoxystrobin is a methoxyacrylate (strobilurin) fungicide with broad spectrum activity to be used as a preventative and curative fungicide. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
Maxim Quattro may be tank-mixed with *Cruiser 5FS*.
Follow the label directions for each product and use the most restrictive precautions and limitations for either product.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled "This seed has been treated with thiabendazole, fludioxonil, metalaxyl-M and S-isomer, and azoxystrobin. Use chemical resistant-gloves when handling treated seed. DO NOT use for food, feed or oil processing. Store away from feed and foodstuffs. DO NOT graze corn or cut for forage within 30 days of planting."
- **Grazing:** DO NOT graze or feed livestock on treated areas within 30 days of planting.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store product between 0°C and 30°C. Repeated freeze-thawing of the product will not compromise its integrity. If the product should freeze, bring the product back to room temperature and ensure thorough mixing before use. Store away from food and feed. DO NOT carry over treated sweet corn to the following year.
- **Environment:** DO NOT apply directly to water, or to areas where surface water is present. In cleaning of equipment or disposing of wastes, DO NOT contaminate water used for human or animal consumption or by wildlife and aquatic life or for irrigation purposes. If treated seed is spilled outdoors, promptly clean up.

Hazard Rating:

 Caution – Potential Skin Sensitizer

Refer to the Introduction for an explanation of the symbols.

Mertect SC

Fungicide Group 1

Company:

Syngenta Canada Inc. (*Mertect SC* - PCP#13975); Sharda CropChem (*Tibet 50 SC* - PCP#34386)

Formulation:

500 g/L thiabendazole formulated as a water dispersible suspension.

- Container size - 4 x 5 L

Crops and Diseases:

Post-harvest control of storage rots caused by *Fusarium, Phoma, Helminthosporium, Oospora* and *Rhizoctonia* spp. on potato.

Rate and Water Volume:

7.5 L per 170 L of water. Spray 2 L of this suspension per 1 metric tonne of potatoes.

Application Information:

Post-harvest treatment. Shake well before using. DO NOT allow suspension to stand without continuous agitation. Potatoes must rotate along conveyor line to ensure complete coverage. Prior to treating potatoes destined for export, confirm with authorities that treated potatoes will be allowed to enter importing country.

How it Works:

The active ingredient thiabendazole is a benzimidazole fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

None listed.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** No restrictions listed.
- **Storage:** Minimum storage temperature 0°C.
- **Environment:** Toxic to aquatic organisms. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. DO NOT discharge effluent containing this product into sewer systems, lake, streams, ponds, estuaries, oceans, and other waters.

Hazard Rating:

None listed.

Metalaxyl

Fungicide Group 4

Allegiance FL Fungicide Seed Treatment/Belmont 2.7FS/Telex Fungicide

Company:

Bayer (*Allegiance FL*– PCP#26674)
UPL AgroSolutions Canada Inc. (*Belmont 2.7 FS* – PCP#30246); Sharda CropChem (*Telex Fungicide* - PCP#34273)

Formulation:

317 g/L metalaxyl formulated as a liquid seed treatment.

- *Allegiance FL* container size - 4 x 3.79 L
- *Belmont 2.7 FS* container size - 10 L, 115 L

Crops, Diseases and Rates (for crops processed in Canada):

Crop	Disease Controlled	Application Rates[1] (per 100 kg of seed)	Water Volume (required to make up a total volume of 500 mL)
Chickpea, field pea	Seed rots and seedling blights (*Pythium* spp.)	16 to 110 mL	484 to 390 mL
Canola (rapeseed)	Seed rots and seedling blights (*Pythium* spp.)	32 to 110 mL	468 to 390 mL
Alfalfa, dry bean, clover, corn, sainfoin, vetch	Seed rots and seedling blights (*Pythium* spp.)	46 to 110 mL	454 to 390 mL
Grasses (forage)	Seed rots and seedling blights (*Pythium* spp.)	46 to 93 mL	454 to 407 mL
Soybean	Seed rots and seedling blights (*Pythium* spp.), early season Phytophthora *(Phytophthora sojae)*	46 to 93 mL	454 to 407 mL
Sunflower	Seed rots and seedling blights (*Pythium* spp.), downy mildew *(Plasmopara halstedii)*	110 to 189 mL[2]	390 to 311 mL
Low tannin lentil[3]	Seed rots and seedling blights (*Pythium* spp.)	16 mL	484 mL

[1] Use the high rate if planting into cold, wet soils, if the seed is of poor quality, or if disease pressure is expected to be high.
[2] High rate is for downy mildew control.
[3] For use on low tannin lentils destined export or seed production only.

Crops, Diseases and Rates (for crops intended for export):

Crop	Disease Controlled	Application Rates[1] (per 100 kg of seed)	Water Volume (required to make up a total volume of 500 mL)
Corn	Seed rots and seedling blights (*Pythium* spp.), downy mildew *(Sclerophthora macrospora)*	189 to 620 mL	311 to 0 mL
Pea	Seed rots and seedling blights (*Pythium* spp.), downy mildew *(Peronospora viciae)*	146 mL	354 mL
Sunflower	Seed rots and seedling blights (*Pythium* spp.), downy mildew *(Plasmopara halstedii)*	620 mL	0 mL
Wheat, barley, oats, rye, triticale[2]	Seed rots and seedling blights (*Pythium* spp.)	46 to 110 mL	454 to 390 mL
Sorghum	Seed rots and seedling blights (*Pythium* spp.)	93 to 110 mL	407 to 390 mL
	Downy mildew *(Peronosclerospora sorghi)*	189 mL	311 mL
Bird's-foot trefoil	Seed rots and seedling blights (*Pythium* spp.)	46 to 110 mL	454 to 390 mL
Low-tannin lentil	Seed rots and seedling blights (*Pythium* spp.)	16 mL	484 mL

[1] Use the high rate if planting into cold, wet soils, if the seed is of poor quality, or if disease pressure is expected to be high.
[2] Triticale is a registered crop for treatment with *Belmont 2.7 FS* only and not on triticale intended for export.

Application Information:
Mix with water to form a slurry seed treatment. Contains no colourant; an appropriate colourant must be added to slurry before treating seed. Maintain constant agitation of slurry. Allow seed to dry before bagging. Treatment of highly mechanically damaged, poor quality or low vigour seed may result in reduced germination and/or reduced seed and seedling vigour. If seed lot quality is unknown conduct a germination test prior to treating.

How it Works:
The active ingredient metalaxyl is an acylalanine fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
For control of early season root rot (*Aphanomyces euteiches*) during plant emergence and early crop establishment in pea and lentil fields with low disease pressure *Belmont* can be mixed with *Rancona Trio* at a rate of 72 mL/100 kg of seed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled as follows; "This seed has been treated with *Allegiance FL* or *Belmont 2.7 FS* seed protectant which contains metalaxyl. DO NOT use for feed, food or oil processing." All bags containing seed for export must be labelled "FOR EXPORT ONLY." *Belmont 2.7 FS* cannot be used on triticale intended for export.
- **Grazing:** DO NOT graze or feed livestock on treated areas for 4 weeks after planting.
- **Re-cropping:** No restrictions listed.
- **Storage:** DO NOT store above 35°C or below 0°C. Store in original container, away from pesticides, food or feed.
- **Environment:** Treated seed may be toxic to birds and other wildlife. Clean up any spilled seeds and ensure seed is properly incorporated at planting.

Hazard Rating:
 Warning – Skin and Eye Irritant

Refer to the Introduction for an explanation of the symbols.

Minuet

Fungicide Group 2

Company:
Bayer

Formulation:

Product	Company	Active ingredient	Formulation	Container size
Minuet	Bayer CropScience	QST 713 strain of *Bacillus subtilis 2.7 x 1010 CFU/g*	Liquid	3.78 L

Crops, Diseases Controlled and Rates:

Crops	Diseases SUPRESSED	Rate per acre	Staging and specific comments
Corn	• Fusarium root rot • Rhizoctonia root rot, black scurf, stem canker • Pythium root rot and cavity spot • Pythium root rot and pink rot	• 0.5 - 2.8 L/hectare (0.2 -1.13 L/acre)	1. Soil surface applications 2. In-furrow applications 3. Shanked-In and Injected applications 4. Post planting applications at any crop stage
Root and Tuber vegetables (Crop Group 1) Garden Beet, Sugar Beet Carrot, Celeriac, Chervil, Chicory Ginseng, Horseradish, Parsley Parsip, **Potato**, Radish, Oriental Radish Rutabaga, Salsify, Sweet Potato,Turnip	• Fusarium root rot • Phytophthora root rot and pink rot • Pythium root rot and cavity spot • Soil-borne rhizoctonia, black scurf and stem canker	• 0.5 - 2.8 L/hectare (0.2 -1.13 L/acre)	1. Surface applications 2. Transplant drench 3. In-furrow applications 4. Shanked-In and Injected applications 5. Post planting applications at any crop stage

Crops	Diseases SUPRESSED	Rate per acre	Staging and specific comments
Legume Vegetables (Crop Group 6) Bean (Lupinus spp., Phaseolus spp., and Vigna spp.) Chickpea, Lentil, and Pea (all types)	• Fusarium root rot • Pythium root rot • Rhizoctonia root rot	• 0.5 - 2.8 L/hectare (0.2 -1.13 L/acre)	1. Surface applications 2. Transplant drench 3. In-furrow applications 4. Shanked-In and Injected applications 5. Post planting applications at any crop stage
Other horticulture crops, refer to label			

Tank Mixes:
This product may be tank mixed with a fertilizer, a supplement, or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed.

Application information:
MINUET can be applied in commonly used ground application equipment. Use the appropriate spray pressure, water volume per hectare, nozzles, nozzle spacing and ground speed. Consult spray nozzle and accessory catalogues for specific information on proper equipment calibration. Accurate equipment calibration is essential prior to use.
Be sure to maintain agitation during mixing and application to assure uniform product suspension.

Soil surface applications:
Broadcast or Band. Apply as a 15-cm band over the top of the seed row or as a broadcast spray after planting. Use higher rates for broadcast applications. Ensure incorporation into the seed zone within 24 hours of applications with rain or overhead irrigation.
Overhead irrigation. Apply with irrigation water, ensuring uniform coverage of the soil and incorporation of product into the seed zone.
Surface drip irrigation. Apply product with the first irrigation after planting. Instructions continued from above.

Transplant drench:
Apply finished spray mixture, at a rate to thoroughly soak the growing media through the root zone or as a drench or directed spray using sufficient water to soak the root zone.

In-Furrow Applications:
Apply as an in-furrow spray in the appropriate amount of water per hectare for the crop at planting. Mount the spray nozzle so the spray is directed in the furrow just before the seeds are covered.

Shanked-In and Injected Applications:
Product can be shanked-in or injected into the soil prior to-, at-, or post-planting/transplanting of crops.

Post planting applications at any crop stage:
Apply the finished spray mixture to the soil as a drench, spray, or drip irrigation, directing it towards the base of the plant to optimize efficacy. When applying as a spray (e.g., via hydraulic nozzles at low volumes), it is important to irrigate so as to move the product into the seed, root or transplant zone. Applications may be repeated at 21-28 day intervals to enhance preventive treatments. The shorter interval is recommended under moderate to high disease pressure.
After crop germination or transplanting, additional applications of MINUET may be made. Such applications may include drip irrigation (surface or subsurface), soil directed sprays or shanking in. DO NOT apply by air. DO NOT apply this product through any other type of irrigation system.

How it works:
MINUET® contains bacteria that, when applied to the soil, will germinate to colonize the developing root system and provide suppression of listed diseases on the label. It may be applied as a soil application by various methods either alone, or in an alternating program of applications with other registered crop protection products.

Restrictions:
- **Pre-harvest intervals:** MINUET has a 0-day PHI, and can be applied up to, and including, the day of harvest.
- **Re-entry interval:** If the product is soil-injected, soil-incorporated, or applied in-furrow, workers may enter the treated area without restrictions if there will be no contact with anything that has been treated.
- DO NOT enter or allow worker entry into treated areas for 4 hours or until sprays have settled unless wearing long-sleeved shirt, long pants, socks with shoes and waterproof gloves.

- **Environmental Precautions:**
  - To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.
  - Avoid application when heavy rain is forecast.
  - Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.
- **Toxicity:** Acute oral toxicity LD50 (Rat) > 5,000 mg/kg.
- **Storage:** Store this product away from food or feed. Store in a dry area inaccessible to children. Store in original container only. Keep container closed when not in use. This product should be used within 3 years from the date of manufacture when stored at room temperature.

Modalex® 600

Insecticide Group 4A

Company:
BASF Agricultural Solutions Canada Inc (PCP#31357)

Formulation:
600 g/L clothianidin formulated as a suspension.
- Container size – 984 L tote

Crops, Diseases and Rates:

Crop	Insects Controlled	Rate (per 100 kg of seed)
Canola, rapeseed	Flea beetles	250 mL, 333 mL or 666 mL

Application Information:
For use in commercially available equipment designed or seed treatment only.

Tank Mixes:
Refer to product label for information on tank mix options

Restrictions:
- **Labelling:** This seed has been treated with clothianidin. Do not use for feed, food or oil processing.
- **Grazing:** Rape greens and seed grown or harvested from Modalex 600-treated seed must not be used for feed or human consumption. Rapeseed grown and harvested from Modalex 600-treated seed is only for industrial uses and cannot be used for edible oil or any other human/feed consumption.
- **Re-cropping:** Corn, canola and rapeseed may be replanted at any time. A one-year plantback interval is required for leafy, root and tuber vegetables. A 30-day plantback interval on cereal grains, grasses, nongrass animal feeds and soybeans and dried beans is required.
- **Storage:** Store this product away from food or feed. Store in a cool place. Do not store in direct sunlight. Protect from freezing temperatures.
- **Environmental Restrictions:** Include toxicity information.
- **Toxicity Information:** No specific antidote is available. Treat the patient symptomatically. This product is toxic to aquatic invertebrates. Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.

Hazard Rating:
Assessment of acute toxicity: Of moderate toxicity after single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

NipsIt INSIDE 600 Insecticide

See clothianidin.

Phosphorous acid

Fungicide Group 33

Confine Extra/Rampart

Company:

WinField United Canada (*Confine Extra* – PCP#30648)
Loveland Products Canada (*Rampart* – PCP#30654)

Formulation:

53% mono and di-potassium salts of phosphorous acid.

- Container sizes - 9.46 to 946.35 L *(Confine Extra)*
- Container size - 9.46 L (*Rampart*)

Crops Diseases and Rates:

Confine Extra: Post-harvest treatment of potatoes for the suppression of late blight *(Phytophthora infestans)*, pink rot *(P. erythroseptica)*, and silver scurf *(Helminthosporium solani)* storage infection.

Rampart: Post-harvest treatment of potatoes for control of late blight *(Phytophthora infestans)* and pink rot *(P. erythroseptica)*.

Rate and Application Information:

For application prior to storage:

- Dilute *Confine Extra* at a 1 to 5.13 ratio with water (326 mL *Confine Extra* + 1674 mL water). Apply 2 L of solution as a spray to 1000 kg of potatoes.
- Dilute *Rampart* at a 1 to 5.26 ratio with water (190 mL *Rampart* + 1 L water). Apply 2 L of solution per 100 kg of harvested potatoes as a spray or rinse.

For application to stored potatoes (*Rampart* only):

- Dilute *Rampart* at a 1 to 5.26 ratio with water (190 mL *Rampart* + 1 L water). Apply 2 L of solution per 100 kg of stored potatoes into water used for post-harvest storage.

How it Works:

The active ingredient mono- and di-potassium salts of phosphorous acid is a phosphonate fungicide with systemic activity to suppress pathogen inoculum. To be used as a preventative fungicide application on harvested tubers.

Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

None listed.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store this product away from food or feed.
- **Environment:** DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of waste. DO NOT apply by air.

Hazard Rating:

None listed.

Prosper EverGol Seed Treatment

Available to commercial seed treaters only.

Fungicide Group 4, 7, 11
Insecticide Group 4A

Company:

Bayer (PCP#30363)

Formulation:

Active ingredient:	
Clothianidin	290 g/L
Penflufen	10.7 g/L
Trifloxystrobin	7.15 g/L
Metalaxyl	7.15 g/L
Container size:	3.8 L to 1000 L, bulk

Crops, Insects, Diseases and Rates:

Product	Crop	Diseases Controlled	Insects Controlled	Rate (per 100 kg of seed)
Prosper EverGol	Canola, rapeseed, mustard (oilseed and condiment)	Seed rot, damping off, seedling blight and early season root rot (*Pythium* spp., *Rhizoctonia* spp., *Fusarium* spp., seed-borne *Alternaria* spp.); seed-borne blackleg *(Leptosphaeria maculans)*	Flea beetles	1400 mL

Application Information:

Prosper EverGol is for use in commercial seed treatment facilities with closed transfer systems only. Seed treatment must be thoroughly agitated to ensure uniform mixing of product prior to and during application. Treatment of highly mechanically scarred or damaged seed or seed known to be of low vigour and poor quality may result in reduced germination and/or reduction of seed and seedling vigour.

How it Works:

Clothianidin is a chloronicotinyl insecticide with systemic activity. For more information refer to "Insecticide Groups Based" on Modes of Action in the Insect Control section. Carbathiin is a carboxamide fungicide with systemic activity; penflufen is a carboxamide (SDHI) fungicide with systemic activity; trifloxystrobin is a strobilurin fungicide with broad spectrum preventative activity; and metalaxyl is an acylalanine fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

None listed.

Restrictions:

NOTE: When using a seed flow lubricant for planting corn and soybean seed treated with neonicotinoid insecticides (containing the active ingredients clothianidin, imidacloprid or thiamethoxam), use only a dust-reducing fluency agent.
Talc and graphite are not permitted.

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. DO NOT make any subsequent application of a group 4 insecticide (in-furrow or foliar application) following treatment with any of these products.
- **Labelling:** Treated seed must be labelled as follows: "This seed has been treated with clothianidin and/or carbathiin, penflufen and metalaxyl. DO NOT use for food, feed or oil processing. Store away from feeds and other foodstuffs."
- **Grazing:** No restrictions listed.
- **Re-cropping:** For *Prosper EverGol*, corn and canola may be replanted at any time. A 1 year plant back interval is required for leafy, root and tuber vegetables. A 30 day plant back is required for cereals, grasses, nongrass animal feeds, soybeans and dry beans.
- **Storage:** Protect products from freezing. DO NOT contaminate water, food or feed by storage, disposal or by cleaning of equipment. Store in a cool place. DO NOT store in direct sunlight. Store away from food or feed. DO NOT store treated seed above 25°C or in direct sunlight. Treated seed stored for periods in excess of 9 months should be tested for germination before planting.
- **Environment:** These products are toxic to aquatic invertebrates. DO NOT apply directly to water or to areas where surface water is present. DO NOT contaminate water when disposing of equipment wash waters. These products are toxic to birds and mammals. Any spilled or exposed seeds should be incorporated into the soil or otherwise cleaned up from the soil surface.

Hazard Rating:

Warning – Poison
Refer to the Introduction for an explanation of the symbols.

Rancona Trio

Fungicide Group
3, 4, 7

Company:

UPL AgroSolutions Canada Inc. (PCP#32668)

Formulation:

5.0 g/L ipconazole, 133.33 g/L carbathiin, and 13.33 g/L metalaxyl formulated as a liquid suspension seed treatment.

- Container sizes - 10L, 115L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Barley	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani, Penicillium* spp., *Aspergillus* spp., *Cochliobolus sativus*); seedling blight, damping-off (*Fusarium* spp., *Pythium* spp., *R. solani, C. sativus*); true loose smut (*Ustilago nuda*); covered smut (*U. hordei*); false loose smut (*U. nigra*); leaf stripe (*Pyrenophora graminea*)	Common root rot (*Cochliobolus sativus*); Fusarium crown and foot rot (*Fusarium* spp.)	300 mL
Oats	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani, Penicillium* spp., *Aspergillus* spp., *Cochliobolus sativus*); seedling blight, damping-off (*Fusarium* spp., *Pythium* spp., *R. solani, C. sativus*); loose smut (*Ustilago avenae*); covered smut (*U. kolleri*)	Common root rot (*Cochliobolus sativus*); Fusarium crown and foot rot (*Fusarium* spp.)	300 mL
Rye, triticale	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani, Penicillium* spp., *Aspergillus* spp., *Cochliobolus sativus*); seedling blight, damping-off (*Fusarium* spp., *Pythium* spp., *R. solani, C. sativus*)	Common root rot (*Cochliobolus sativus*); Fusarium crown and foot rot (*Fusarium* spp.)	300 mL
Spring wheat, winter wheat	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani, Penicillium* spp., *Aspergillus* spp., *Cochliobolus sativus*); seedling blight, damping-off (*Fusarium* spp., *Pythium* spp., *R. solani, C. sativus*); loose smut (*Ustilago tritici*); common bunt (*Tilletia tritici*)	Common root rot (*Cochliobolus sativus*); Fusarium crown and foot rot (*Fusarium* spp.)	300 mL
Field pea	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani*, *Penicillium* spp., *Aspergillus* spp.); seedling blight, damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani*)	Seedling root rot (*Fusarium* spp.); early season root rot (*Aphanomyces euteiches*)	500 mL
Dry bean	General seed rots (*Fusarium* spp., *Rhizoctonia solani*, *Penicillium* spp., *Aspergillus* spp.); seedling blight, damping-off (*Fusarium* spp., *Rhizoctonia solani*)	Seedling root rot (*Fusarium* spp.)	500 mL
Lentil	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani, Penicillium* spp., *Aspergillus* spp.); seedling blight, damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani*); seed-borne Ascochyta blight (*Ascochyta lentis*)	Seedling root rot (*Fusarium* spp.)	500 mL
Chickpea	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani, Penicillium* spp., *Aspergillus* spp.); seedling blight, damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia solani*); seed-borne Ascochyta blight (*Ascochyta rabiei*)	Seedling root rot (*Fusarium* spp.)	500 mL

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Soybean	General seed rots (*Fusarium* spp., *Rhizoctonia solani*, *Penicillium* spp., *Aspergillus* spp.); seedling blight, damping-off (*Fusarium* spp., *Rhizoctonia solani*); seedling root rot (*Rhizoctonia solani*)	Seedling root rot (*Fusarium* spp.); Sudden Death Syndrome (SDS) (*Fusarium virguliforme*)	500 mL

Application Information:

Rancona Trio is ready to use and does not need dilution prior to application. The optimum treating process and slurry composition depends on the crop, the treating process and application conditions.

How it Works:

The active ingredient ipconazole is a demethylation inhibitor with systemic and contact activity, carbathiin is a carboximide fungicide with systemic activity, and metalaxyl is an acylalanine fungicide systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

In dry bean and soybean, *Rancona Trio* can be mixed with *Belmont 2.7 FS* at 24 to 89 mL per 100 kg of seed for control of seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight caused by *Pythium* spp. In soybean, *Rancona Trio* can be mixed with *Belmont 2.7 FS* at 24 to 72 mL per 100 kg of seed for control of early season root rot caused by *Phytophthora sojae*. For control of early season root rot caused by *Aphanomyces euteiches* in fields with low disease pressure, *Rancona Trio* can be tank mixed with *Intego Solo* at 20 mL/100 kg of seed in peas and lentils or with *Belmont* 2.7 FS at 72 mL/100 kg of seed in PEAS ONLY. In wheat, barley, and oats *Rancona Trio* can be tank-mixed with 17-50 mL of *Stress Shield* per 100 kg of seed for control of wireworms. In pea, *Rancona Trio* can be mixed with 104-208 mL of *Stress Shield* per 100 kg of seed for control of pea leaf weevil. In pea, dry bean, lentil, chickpea, soybean, and faba bean *Rancona Trio* can be mixed with 104 mL of *Stress Shiel*d per 100 kg of seed for control of wireworms. This tank-mix will also control potato leafhopper in dry and faba beans, pea leaf weevil in faba bean, and soybean aphid, seedcorn maggot. In wheat, barley, oat, and rye Rancona Trio can be mixed with 8-24 mL of *Lumivia CPL* for control of cutworms and armyworms and 24-40 mL of *Lumivia CPL* for control of wireworms. In pea, dry bean, lentil, chickpea, and faba bean *Rancona Trio* can be mixed with 32-64 mL of *Lumivia CPL* for control of cutworms and armyworms and 64-96 mL of *Lumivia CPL* for control of larvae of pea leaf weevil.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled as follows "This seed has been treated with *Rancona Trio Fungicide*, which contains ipconazole, carbathiin, and metalaxyl. DO NOT use for feed, food, or oil processing. Store away from feeds and other food stuffs. When planting or handling treated seeds, workers must wear a long-sleeved shirt, long pants, socks and shoes, and chemical-resistant gloves. Gloves are not required while driving the tractor. A closed-cab tractor is required when planting more than 2200 kg of treated seeds per day."
- **Grazing:** DO NOT graze or feed livestock on treated area for six weeks after planting barley, oats, or wheat. DO NOT graze or feed livestock on treated area for four weeks after planting all other crops.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store this product away from food or feed. Store in original container only, away from other pesticides, fertilizer, food, or feed. DO NOT freeze. DO NOT store treated seed above 25°C or in direct sunlight.
- **Environment:** DO NOT contaminate ponds, lakes or streams. 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.

Hazard Rating:

None listed.

Rancona V RS

Fungicide Group
3, 7

Company:
UPL AgroSolutions Canada Inc. (PCP#30217)

Formulation:
9.38 g/L ipconazole and 87.5 g/L carbathiin formulated as a liquid suspension seed treatment.
- Container sizes - 10 L, 200 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Canola, rapeseed, mustard	Seed rot, damping off, and seedling blight (*Rhizoctonia* spp., *Fusarium* spp.); seed-borne blackleg *(Leptosphaeria maculans)*	Root rot (*Rhizoctonia* spp., *Fusarium* spp.)	800 mL

Application Information:
Rancona V RS is ready to use and may be applied to seed as purchased. However, dilution with water may help to achieve more uniform seed coverage when using some types of treaters and/or when treating under dry and/or hot conditions.

How it Works:
The active ingredient ipconazole is a demethylation inhibitor with systemic and contact activity and carbathiin is a carboximide fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled as follows "This seed has been treated with carbathiin and ipconazole. DO NOT use treated seed for feed, food, or oil processing."
- **Grazing:** DO NOT graze or feed livestock on treated area for four weeks after planting.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store this product away from food or feed.
- **Environment:** DO NOT contaminate ponds, lakes or streams.

Hazard Rating:
None listed.

Raxil PRO Seed Treatment

Fungicide Group
3, 4

Company and Formulation:

Bayer (PCP#30102), Sharda (Lixar PRO - PCP#34270)
FMC (Avoda PRO – PCP#35594)

Formulation:

3.0 g/L tebuconazole, 15.4 g/L prothioconazole and 6.2 g/L metalaxyl formulated as a micro-dispersion formulation.

- Container sizes - 10 L, 58.5 L, 175.5 L, 1000 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Barley	Seed rot/pre-emergent damping-off, seedling blight (seed- and soil-borne *Fusarium* spp., soil-borne *Pythium* spp., *Cochliobolus sativus*, seed-borne *Aspergillus* spp.); post-emergent damping-off (seed- and soil-borne *Fusarium* spp., *C. sativus*, seed-borne *Aspergillus* spp.); true loose smut *(Ustilago nuda)*; covered smut *(U. hordei)*; false loose smut *(U. nigra)*; barley leaf stripe *(Pyrenophora graminis)*	Root rot (seed- and soil-borne *Fusarium* spp., *Cochliobolus sativus, Rhizoctonia solani)*; crown rot (*Fusarium* spp.); seedling blight (seed-borne *Penicillium* spp.); seed rot, pre-emergent damping off *(R. solani)*	325 mL
Oats	Seed rot/pre-emergent damping-off, seedling blight (seed- and soil-borne *Fusarium* spp., soil-borne *Pythium* spp., *Cochliobolus sativus*, seed-borne *Aspergillus* spp.); post-emergent damping-off (seed- and soil-borne *Fusarium* spp., *C. sativus*, seed-borne *Aspergillus* spp.); Covered smut *(Ustilago kolleri)*; loose smut *(U. avenae)*	Root rot (seed- and soil-borne *Fusarium* spp., *Cochliobolus sativus, Rhizoctonia solani)*; crown rot (*Fusarium* spp.); seedling blight (seed-borne *Penicillium* spp.); seed rot, pre-emergent damping off *(R. solani)*	325 mL
Wheat, rye, triticale	Seed rot/pre-emergent damping-off, seedling blight (seed- and soil-borne *Fusarium* spp., soil-borne *Pythium* spp., *Cochliobolus sativus*, seed-borne *Aspergillus* spp.); post-emergent damping-off (seed- and soil-borne *Fusarium* spp., *C. sativus*, seed-borne *Aspergillus* spp.); loose smut *(Ustilago tritici)*; common bunt *(Tilletia tritici, T. laevis)*	Root rot (seed- and soil-borne *Fusarium* spp., *Cochliobolus sativus, Rhizoctonia solani)*; crown rot (*Fusarium* spp.); seedling blight (seed-borne *Penicillium* spp.); seed rot, pre-emergent damping off *(R. solani)*	325 mL

Application Information:

Raxil PRO is a ready-to-use treatment formulation for use in commercial seed treatment operations and for on-farm treatment with conventional seed treating which can accurately meter, mix and apply flowable seed treatment formulations.

How it Works:

The active ingredient tebuconazole is a triazole demethylation inhibitor (DMI) fungicide with systemic activity. The active ingredient prothioconazole is a demethylation inhibitor with broad-spectrum systemic activity. The active ingredient metalaxyl is an acylalanine fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

Insecticide Seed Treatment: May be mixed with *Stress Shield 600*.
Follow the label directions for each product and use the most restrictive precautions and limitations for either product.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labeled "This seed has been treated with *Raxil PRO*, which contains tebuconazole, prothioconazole and metalaxyl. When handling treated seed wear chemical-resistant gloves. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs."
- **Grazing:** No restrictions listed.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store product in original container only, away from other pesticides, fertilizer, food or feed. Keep container closed. Store in a cool, dry area and avoid excessive heat.
- **Environment:** Toxic to aquatic organisms. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. Dispose of all excess treated seed. Left over seed may be double-sown around the headland or buried away from water sources. DO NOT leave exposed treated seed on soil surface. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable and/or the depth to the water is shallow.

Hazard Rating:

Caution – Skin Irritant

Refer to the Introduction for an explanation of the symbols.

Raxil PRO Shield Seed Treatment

Fungicide Group 3, 4
Insecticide Group 4A

Raxil PRO Shield is a co-pack of Raxil PRO (tebuconazole, prothioconazole and metalaxyl fungicides) and Stress Shield 600 *(imidacloprid insecticide). For other detailed information on the component products see the product pages listed above.*

Company:

Bayer (*Raxil PRO* – PCP#30102, *Stress Shield 600* – PCP#30668)

Formulation:

Raxil PRO: 3.0 g/L tebuconazole, 15.4 g/L prothioconazole and 6.2 g/L metalaxyl formulated as a suspension.
Stress Shield 600: 600 g/L imidacloprid formulated as a suspension.

- Container sizes - 10 L *Raxil PRO* and 1.54 L *Stress Shield 600*; 175.5 L *Raxil PRO* and 27 L *Stress Shield 600*

Crops, Diseases, Insects and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Insects Controlled	Rate (per 100 kg of seed)*	
				Raxil PRO	*Stress Shield 600*
Barley	Seed rot/pre-emergent damping-off, seedling blight (seed- and soil-borne *Fusarium* spp., soil-borne *Pythium* spp., *Cochliobolus sativus*, seed-borne *Aspergillus* spp.); post-emergent damping-off (seed- and soil-borne *Fusarium* spp., *C. sativus*, seed-borne *Aspergillus* spp.); true loose smut *(Ustilago nuda)*; covered smut *(U. hordei)*; false loose smut *(U. nigra)*; barley leaf stripe *(Pyrenophora graminis)*	Root rot (seed- and soil-borne *Fusarium* spp., *Cochliobolus sativus, Rhizoctonia solani*); crown rot (*Fusarium* spp.); seedling blight (seed-borne *Penicillium* spp.); seed rot, pre-emergent damping off *(R. solani)*	Wireworm	325 mL	50 mL
Oats	Seed rot/pre-emergent damping-off, seedling blight (seed- and soil-borne *Fusarium* spp., soil-borne *Pythium* spp., *Cochliobolus sativus*, seed-borne *Aspergillus* spp.); post-emergent damping-off (seed- and soil-borne *Fusarium* spp., *C. sativus*, seed-borne *Aspergillus* spp.); Covered smut *(Ustilago kolleri)*; loose smut *(U. avenae)*	Root rot (seed- and soil-borne *Fusarium* spp., *Cochliobolus sativus, Rhizoctonia solani*); crown rot (*Fusarium* spp.); seedling blight (seed-borne *Penicillium* spp.); seed rot, pre-emergent damping off *(R. solani)*	Wireworm	325 mL	50 mL
Wheat, rye and triticale	Seed rot/pre-emergent damping-off, seedling blight (seed- and soil-borne *Fusarium* spp., soil-borne *Pythium* spp., *Cochliobolus sativus*, seed-borne *Aspergillus* spp.); post-emergent damping-off (seed- and soil-borne *Fusarium* spp., *C. sativus*, seed-borne *Aspergillus* spp.); loose smut *(Ustilago tritici)*; common bunt *(Tilletia tritici, T. laevis)*	Root rot (seed- and soil-borne *Fusarium* spp., *Cochliobolus sativus, Rhizoctonia solani*); crown rot (*Fusarium* spp.); seedling blight (seed-borne *Penicillium* spp.); seed rot, pre-emergent damping off *(R. solani)*	Wireworm	325 mL	50 mL

Hazard Rating:

Stress Shield 600: Warning – Poison

Raxil PRO: Caution – Skin Irritant

Refer to the Introduction for an explanation of the symbols.

Raxil RISE

Fungicide Group
3, 4, 7

Company:
Bayer (PCP# 35475)

Formulation:
3.0g/L Tebuconazole, 15.4 g/L Prothioconazole, 15.4 g/L Metalaxyl and 6.4 g/L Penflufen formulated as a micro-dispersion.
- Container size(s) – 10L, 125L, 1000L

Crops, Diseases, Rates and Timing:

Crop	Disease Control	Disease Suppression	Rate (per 100 kg of seed)
Wheat, Rye, Triticale, Oat	Seed rot/pre-emergent damping-off caused by seed- and soil-borne Fusarium spp., Cochliobolus sativus and soil-borne Pythium spp. Seedling blight caused by seed-borne Fusarium spp., Cochliobolus sativus and soil-borne, Fusarium spp. and Pythium spp. Post-emergent damping-off caused by seed and soil-borne Fusarium spp. and Cochliobolus sativus Loose smut (Ustilago tritici, U. avenae) Covered smut (Ustilago kolleri) on oats Common bunt (Tilletia caries, T. laevis) on wheat, rye, triticale Seed rot/pre-emergent damping off and root rot caused by Rhizoctonia solani	Root and crown rot caused by seed- and soilborne Fusarium spp. Common root rot caused by seed- and soilborne Cochliobolus sativus Seedling blight caused by seed-borne Penicillium spp.	325 mL
Barley	Seed rot/pre-emergent damping-off caused by seed- and soil-borne Fusarium spp., Cochliobolus sativus and soil-borne Pythium spp. Seedling blight caused by seed-borne Fusarium spp., Cochliobolus sativus and soil-borne, Fusarium spp. and Pythium spp. Post-emergent damping-off caused by seed and soil-borne Fusarium spp. and Cochliobolus sativus True loose smut (Ustilago nuda) Covered smut (Ustilago hordei) False loose smut (Ustilago avenae) Leaf stripe (Pyrenophora graminea) Seed rot/pre-emergent damping off and root rot caused by Rhizoctonia solani	Root and crown rot caused by seed- and soilborne Fusarium spp. Common root rot caused by seed- and soilborne Cochliobolus sativus Seedling blight caused by seed-borne Penicillium spp.	

Application Information:
Raxil RISE is a ready-to-use formulation designed for commercial or on-farm treatment with conventional seed treating equipment. Uniform application to seed is necessary to ensure optimum product performance

Tank Mixes:
Raxil RISE may be combined with Stress Shield 600 for control of certain insect pests in wheat, barley and oats.

Restrictions:
- **Labelling:** All containers or packages containing treated wheat, barley, oat, rye or triticale seed for sale or use in Canada must be labelled with the following information: This seed has been treated with Raxil Rise, containing prothioconazole, tebuconazole, penflufen and metalaxyl. DO NOT use for food, feed and oil processing. Store away from feed and other foodstuffs. While handling and planting treated seed, wear coveralls over a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves.
- **Grazing:** No Restrictions.
- **Re-cropping:** No Restrictions.
- **Storage:** Store product in original container only, away from food or feed. Store in a cool, dry place and avoid excessive heat. Keep container closed.
- **Environmental Restrictions:** TOXIC to non-target terrestrial plants and aquatic organisms. This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soil is permeable, particularly where the water table is shallow, may result in groundwater contamination.

Hazard Rating:
Caution – Skin Irritant. Harmful if swallowed, inhaled or absorbed through the skin.

Reason 500SC

Fungicide Group 11

Company:
Gowan (PCP#27462)

Formulation:
500 g/L fenamidone formulated as a suspension concentrate.
- Container size - 2 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)*
Potato	Seed-borne late blight *(Phytophthora infestans)*	10 mL

Application Information:
For optimal disease control, good coverage of the seed piece is required. Apply specified dosage as a diluted spray using equipment that ensures uniform coverage of each seed piece.

Agitate or stir the slurry solution as needed. Apply only in areas with adequate ventilation or in areas that are equipped to remove spray mist or dust. It is recommended to periodically clean and sanitize all surfaces which may come in contact with cut seed-pieces (i. e. cutting machines, tables, knives, planting equipment etc.). Seed pieces must be treated immediately after cutting. DO NOT use treated seed pieces for food, feed, or fodder. As part of the seed cutting and treating process, application of an absorbent ingredient is recommended to improve suberization.

How it Works:
The active ingredient fenamidone is a strobilurin fungicide with contact activity. To be used as a preventative and inhibitive (spore germination and antisporulant) fungicide application. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
Reason 500 SC can be tank mixed with *Titan* and *Emesto Silver Titan* or *Emesto Silver* for application as a seed-piece treatment of potato when additional disease control and/or insect control is required. Refer to the registered label of each tank mix partner for application rate, precautions and directions for use associated with those products. Follow the most restrictive label precautions and limitations.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. If following a seed treatment application of *Revus* with foliar applications of this product, apply a fungicide belonging to a group other than Group 40 as the first foliar application of the season. DO NOT apply more than 243 g mandipropamid per acre per year.
- **Maximum number of applications:** DO NOT exceed 6 applications, or 0.48 L per acre, of this product per season.
- **Grazing:** No restrictions listed.
- **Preharvest interval:** 14 days.
- **Re-entry:** DO NOT re-enter treated areas until residues have dried.
- **Re-cropping:** A 30 day plant-back interval is required for potato and all other crops.
- **Storage:** DO NOT allow product to freeze. If stored more than 1 year, shake well before using. Keep away from fire, open flame or other sources of heat. Store in tightly closed container away from fertilizer, seeds, feed or food
- **Environment:** For ground application, maintain an 8 m buffer zone between areas sprayed and aquatic systems. For aerial application, allow a 10 m buffer. Toxic to fish and other aquatic organisms; DO NOT apply where runoff is likely to occur.

Hazard Rating:

Caution Poison – Eye Irritant

Refer to the Introduction for an explanation of the symbols.

Revus

Fungicide Group 40

Company:
Syngenta Canada Inc. (PCP#29074)

Formulation:
250 g/L mandipropamid formulated as a suspension.
- Container size - 10 kg

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)*
Potato	Seed-borne late blight *(Phytophthora infestans)*	Pink rot (*Phytophthora erythroseptica*)	13 to 26 mL

*** Use the higher rate when conditions favour heavy infection pressure.**

Application Information:
Apply using standard seed treating equipment that provides uniform seed coverage. Uneven or incomplete seed coverage may not get the desired level of disease control. Add sufficient water to allow for a slurry volume that will allow for sufficient coverage. Wear coveralls over long-sleeved shirt, long pants, chemical-resistant gloves, socks and boots during mixing, loading, application, clean-up and repair. When handling or planting treated potato seed pieces, workers must wear a long-sleeved shirt, long pants, gloves, socks and boots. DO NOT use open treating equipment when treating potato seed pieces. This product must be applied using a closed treatment system.

How it Works:
The active ingredient mandipropamid is a carboxylic acid amid (CAA) with contact and systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information. If following a seed treatment application of *Revus* with foliar applications of this product, apply a fungicide belonging to a group other than Group 40 as the first foliar application of the season. DO NOT apply more than 243 g mandipropamid per acre per year.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** No restrictions listed.
- **Storage:** Store in a cool, dry place away from food, beverages, and tobacco products. To prevent contamination store this product away from food and feed.
- **Environment:** DO NOT apply this product directly to freshwater habitats, estuarine/marine habitats. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Hazard Rating:
Warning – Poison

Caution – Skin Irritant

Potential Skin Sensitizer

Refer to the Introduction for an explanation of the symbols.

Sharda METEB 11ST

Fungicide Group
3, 4

Company and Formulation:
Sharda Crop Chem distributed by UAP Canada (PCP#34038)

Formulation:
5.0 g/L tebuconazole and 6.6 g/L metalaxyl formulated as a suspension.
- Container sizes - 10 L, 110 L drums, 200 L, 1000 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Barley	True loose smut (*Ustilago nuda*), covered smut (*Ustilago hordei*), false loose smut (*Ustilago nigra*), seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium* spp., seedling blight caused by seed-borne *Fusarium* spp., damping-off caused by *Pythium* spp.	Root and crown rot caused by seed- and soil-borne *Fusarium* species, common root rot caused by seed- and soil-borne *Cochliobolus sativus*, seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus*, seedling blight caused by seed-borne *Cochliobolus sativus*	300 mL
Oats	Covered smut (*Ustilago kolleri*), loose smut (*Ustilago avenae*), seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium* spp., seedling blight caused by seed-borne *Fusarium* spp., damping-off caused by *Pythium* spp.	Root and crown rot caused by seed- and soil-borne *Fusarium* species, common root rot caused by seed- and soil-borne *Cochliobolus sativus*, seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus*, seedling blight caused by seed-borne *Cochliobolus sativus*	
Wheat, rye, triticale	Loose smut (*Ustilago tritici*), common bunt or stinking smut (*Tilletia tritici, T. laevis*), seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium* spp., seedling blight caused by seed-borne *Fusarium* spp., damping-off caused by *Pythium* spp., seed-borne *Septoria nodorum*	Root and crown rot caused by seed- and soil-borne *Fusarium* species, common root rot caused by seed- and soil-borne *Cochliobolus sativus*, seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus*, seedling blight caused by seed-borne *Cochliobolus sativus*	

Application Information:
Commercial or on farm treating equipment that can control the application rates and provide good distribution of the chemical onto the seed in the mixing chamber. Review the product label before use for further instructions.

How it Works:
The active ingredient tebuconazole is a triazole demethylation inhibitor (DMI) fungicide with systemic activity. The active ingredient metalaxyl is an acylalanine fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** All containers or packages containing treated seed for sale or use in Canada must be labeled or tagged as follows: "This seed has been treated with *Sharda METEB 11ST* fungicide containing tebuconazole and metalaxyl. Wear coveralls or a long-sleeved shirt and long pants, NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask), shoes plus socks and chemical resistant gloves when handling treated seed, stacking bags, or transferring to storage bin. DO NOT use for food, feed, or oil processing. DO NOT graze or feed livestock on treated areas for 4 weeks after planting. DO NOT contaminate feed or foodstuffs with treated seed. Do not apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches, and wetlands), estuaries or marine habitats. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. Do not expose treated seeds on soil surface. Any spilled or exposed seed must be incorporated into the soil or otherwise cleaned-up from the soil surface. Dispose of all excess treated seed. Leftover treated seed may be double sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. DO NOT re-use bags from treated seed to handle food or feed products."
- **Grazing:** DO NOT graze or feed livestock on treated areas for 4 weeks after planting.
- **Re-cropping:** No restrictions listed.
- **Storage:** DO NOT freeze. Store product in original container only, away from other pesticides, fertilizer, food or feed. Store in a cool, dry place and avoid excessive heat. Keep container closed. DO NOT contaminate water, food, or feed by storage, disposal, or by cleaning of equipment.
- **Environment:** 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 otherwise cleaned-up from the soil surface.

Hazard Rating:

None listed.

Stadium

Fungicide Group
11, 3, 12

Company:

Syngenta Canada Inc. (PCP#31050)

Formulation:

143 g/L azoxystrobin, 112 g/L difenoconazole and 143 g/L fludioxonil formulated as a suspension concentrate seed treatment.

Crops and Diseases:

For use in post-harvest treatment of potatoes to control fusarium dry rot (*Fusarium* spp.) and to suppress silver scurf *(Helminthosporium solani)*.

Rate and Application Information:

Stadium is a suspension concentrate that must be diluted with water and applied at the rate of 32.5 mL per tonne of potatoes. Finally spray solution should deliver an application rate of 2 L (*Stadium* + water) per metric tonne of potatoes. Application is for in-line as an aqueous spray. Tubers should be rotating along a conveyor line in a single layer to ensure proper coverage. DO NOT make more than one post-harvest application to the tubers.

How it Works:

The active ingredient azoxystrobin is a methoxyacrylate (strobilurin) fungicide with broad spectrum activity to be used as a preventative and curative fungicide, difenoconazole is a triazole fungicide with broad-spectrum systemic activity and fludioxonil is phenylpyrrole fungicide with contact activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

None listed.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** This product is restricted to table and processing potatoes.
- **Storage:** Store in a cool dry place. DO NOT store food, beverages or tobacco products in storage area.
- **Environment:** This product is toxic to fish and aquatic invertebrates. DO NOT apply directly to water or to areas where surface water is present. DO NOT allow contaminated waste water from the processing areas to entre lakes, streams, ponds or other waters. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Hazard Rating:

Warning – Poison

Refer to the Introduction for an explanation of the symbols.

Straxan

Fungicide Group 3, 4

Company:

Corteva Agriscience (PCP#34928)

Formulation: Straxan is formulated as a suspension.

Active ingredient	
Difenoconazole	36.3 g/L
Metalaxyl	12.6 g/L
Tebuconazole	4.6 g/L
Container sizes:	2 x 9.45L case, 113.45L drum

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Wheat, Rye, Triticale	Seed rot/pre-emergence damping-off caused by *Aspergillus* spp., and *Penicillium* spp. Loose smut (*Ustilago tritici*) Common bunt and stinking smut (*Tilletia caries, T. tritici, T. laevis*) Dwarf bunt (*Tilletia controversa*) on wheat and rye only. Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium* spp. Seedling blight caused by seed-borne *Fusarium spp*. Damping-off caused by *Pythium* spp.	Root and Crown rot caused by seed- and soil-borne *Fusarium* spp. Common root rot caused by seed- and soil-borne *Cochliobolus sativus* Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus* Seedling blight caused by seed-borne *Cochliobolus sativus* Take-all (*Gaeumannomyces graminis*) Seed rot/pre-emergence damping-off, post-emergence damping-off, seedling blight and root rot (*Rhizoctonia solani*)	325 mL
Barley	Seed rot/pre-emergence damping-off caused by *Aspergillus spp*., and *Penicillium* spp. True loose smut (*Ustilago nuda*) Covered smut (*Ustilago hordei*) False loose smut (*Ustilago nigra*) Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium* spp. Seedling blight caused by seed-borne *Fusarium* spp. Damping-off caused by *Pythium* spp.	Root and Crown rot caused by seed- and soil-borne *Fusarium* species Common root rot caused by seed- and soil-borne *Cochliobolus sativus* Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus* Seedling blight caused by seed-borne *Cochliobolus sativus* Seed rot/pre-emergence damping-off, post-emergence damping-off, seedling blight and root rot (*Rhizoctonia solani*)	325 mL

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Oats	Seed rot/pre-emergence damping-off caused by *Aspergillus* spp., and *Penicillium* spp. Covered smut (*Ustilago kolleri*) Loose smut (*Ustilago avenae*) Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium* spp. Seedling blight caused by seed-borne *Fusarium* spp. Damping-off caused by *Pythium spp.*	Root and Crown rot caused by seed- and soil-borne *Fusarium* species Common root rot caused by seed- and soil-borne *Cochliobolus sativus* Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus* Seedling blight caused by seed-borne *Cochliobolus sativus*	325 mL

Application Information:

Straxan Fungicide Seed Treatment is a ready-to-use water-based formulation for use in commercial seed treatment plants, and for on-farm treatment using standard gravity flow or mist type seed treatment equipment which accurately meters and mixes a flowable seed treatment. Straxan Fungicide Seed Treatment may also be used in a treat-on-the-go air seeder. The equipment must provide uniform coverage of Straxan Fungicide Seed Treatment on the seed. Uneven seed coverage may not give the desired level of disease control. This product does not require the addition of water for application. Consult the manufacturer of the application equipment planned to be used for suitability for this application and for instructions on operation and calibration of the equipment. Water can be added to Straxan Fungicide Seed Treatment to create a slurry if additional seed coverage is required. Total application volume must be adjusted to reflect the additional volume so that the correct amount of Straxan Fungicide Seed Treatment is applied to each unit of seed (325 mL/100 kg).

How it Works:

Straxan contains the active ingredients difenoconazole, metalaxyl and tebuconazole. Difenoconazole and Tebuconazole are triazole fungicides (Group 3) with broad-spectrum systemic activity. Metalaxyl is a member of the acylalanine chemical group (Group 4) and interrupts fungal nucleic acid synthesis.
Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

Lumivia CPL is a supported tank mix partner for wheat, barley oats, and rye.

Restrictions:

- **Labelling:** Treated seed must be labeled "This seed has been treated with Straxan Fungicide Seed Treatment which contains the fungicides difenoconazole, metalaxyl and tebuconazole. Do not use treated seed for food, feed or oil processing. Store away from feeds and other foodstuffs. During handling and planting of commercially treated seeds, wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes. Use a closed-cab tractor when planting. Gloves are not required within the closed cab. Any spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface."
- **Storage:** Store product in original container only, away from other pesticides, fertilizer, food or feed. Store in a cool, dry place and avoid excessive heat. Keep container closed. DO NOT contaminate water, food, or feed by storage, disposal, or by cleaning of equipment.
- **Grazing:** Do not graze, feed green forage or cut for hay within 35 days of planting of cereals. DO NOT plant any crop other than cereals within 30 days to fields in which treated seeds were planted.
- **Environmental Restrictions:** DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. Toxic to aquatic organisms. 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. This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Hazard Rating:

None listed.

StorOx

Fungicide Group
NC

Company:
Manufactured by BioSafe Systems LLC (PCP#27432)
Distributed in Western Canada by Storcool Potato Services

Formulation:
27% hydrogen peroxide.
- Container size - 10 to 220 L

Crops and Diseases:
Control of fusarium tuber rot (*Fusarium* spp.), bacterial soft rot and silver scurf *(Helminthosporium solani)* in potato.

Rate and Application Information:
Prior to storage and in storage treatment for harvested potato tubers.

As a spray treatment for newly harvested potatoes before storage: 100 mL of *StorOx* per 10 L water. Spray diluted solution on tuber to runoff to achieve full and even coverage. Use 4.15 to 8.3 L water per tonne of potatoes.

As application to potatoes in storage as a direct injection into humidification water: 100 mL *StorOx* per 10 L water. Apply diluted product for at least 20 minutes per day, based on a humidification airflow rate of 0.6 cfm.

Tank Mixes:
May be used in conjunction with a growth inhibitor during humidification. Should not be combined or mixed with pesticides or fertilizer.

How it Works:
Hydrogen peroxide is an inorganic compound with contact activity against fungi and bacteria. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Restrictions:
- **Storage:** Store in cool, well ventilated area away from direct sunlight. Since *StorOx* is a strong oxidizing agent, contact with combustibles may cause fire.
- **Environmental:** DO NOT discharge effluent containing *StorOx* into lakes, streams, ponds or other bodies of water. DO NOT permit this product to enter surface or ground water.

Hazard Rating:

Danger – Corrosive to Eyes


Warning – Skin Irritant

Other Precautions: This product is corrosive to metal surfaces; rinse all application equipment thoroughly with water after use. DO NOT enter treated storage bins until the hydrogen peroxide air concentrations are below exposure levels established by occupational health and safety authorities.

Tarian MD

Fungicide Group
3, 4

Company:
NEWAgco (PCP# 35666)

Formulation:
6.6g/L Metalaxyl and 5.0 g/L Tebuconazole formulated as a suspension.
- Container size(s) – 10L, 100L

Crops, Diseases, Rates and Timing:

Crop	Disease Control	Disease Suppression	Rate (per 100 kg of seed)
Wheat, Rye, Triticale	Loose smut (*Ustilago tritici*) Common bunt or stinking smut (*Tilletia tritici, Tilletia laevis*) Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium spp*. Seedling blight caused by seed-borne *Fusarium spp*. Damping-off caused by *Pythium spp*. Seed-borne *Septoria nodorum*	Root and Crown rot caused by seed- and soil-borne *Fusarium spp*. Common root rot caused by seed- and soil-borne *Cochliobolus sativus* Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus* Seedling blight caused by seed-borne *Cochliobolus sativus*	300mL
Barley	True loose smut (*Ustilago nuda*) Covered smut (*Ustilago hordei*) False loose smut (*Ustilago nigra*) Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium spp*. Seedling blight caused by seed-borne *Fusarium spp*. Damping-off caused by *Pythium spp*.	Root and Crown rot caused by seed- and soil-borne *Fusarium* species Common root rot caused by seed- and soil-borne *Cochliobolus sativus* Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus* Seedling blight caused by seed-borne *Cochliobolus sativus*	
Oats	Covered smut (*Ustilago kolleri*) Loose smut (*Ustilago avenae*) Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Fusarium spp*. Seedling blight caused by seed-borne *Fusarium spp*. Damping-off caused by *Pythium spp*.	Root and Crown rot caused by seed- and soil-borne *Fusarium* species Common root rot caused by seed- and soil-borne *Cochliobolus sativus* Seed rot and pre-emergent damping-off caused by seed- and soil-borne *Cochliobolus sativus* Seedling blight caused by seed-borne *Cochliobolus sativus*	

Application Information:
Tarian MD is a ready to use formulation designed for commercial or on-farm treating with conventional seed treating equipment. Uniform application to seed is necessary to ensure optimum product performance.

Restrictions:
- **Labelling:**
- **Grazing:** Do not graze or feed livestock on treated areas for 4 weeks after planting. Do not use for food, feed or oil processing.
- **Re-cropping:** N/A
- **Storage:** Store this product away from food or feed. Store product in original container only, away from other pesticides and fertilizer. Store in a cool, dry place and avoid excessive heat. Keep container closed.
- **Environmental Restrictions:** Toxic to aquatic organisms and non-target terrestrial plants. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface. This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Hazard Rating
Indicate hazard rating(s): None listed.

Teraxxa F4

Fungicide Group
3, 4, 7, 11
Insecticide Group
30

Company:
BASF Canada Inc. (PCP#33667)

Formulation:
16.7 g/L broflanilide, 16.7 g/L triticonazole, 10.0 g/L metalaxyl, 8.35 g/L fluxapyroxad, 16.7 g/L pyraclostrobin formulated as a suspension concentrate.

- Container sizes - 2 x 9.8 L case, 120 L drum, 450 L tote

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Insects Controlled	Rate (per 100 kg of seed)
Wheat	Loose smut (*Ustilago tritici*), common bunt (*Tilletia tritici, T. laevis*)	Seedling blight and root rot (*Cochliobolus sativus*): fusarium crown and root rot (*Fusarium* spp.)	Wireworm (all species)	300 mL
Barley	Smuts (*Ustilago nuda, U. hordei, U. nigra*)			
Oats	Smuts (*Ustilago avenae, U. kolleri*)		Wireworm (all species)	300 mL
Rye	Common bunt (*Tilletia tritici, T. laevis*)			
Triticale	Common bunt (*Tilletia tritici, T. laevis*)			
Wheat, barley, oat, canaryseed, rye, triticale, annual canarygrass grown for human consumption	Seed rot, damping off, seedling blight and root rot caused by *Fusarium* spp., *Rhizoctonia solani*, and *Pythium* spp., seed rot and pre-emergent damping off caused by *Cochliobolus sativus*. Suppression of seedling blight and root rot caused by *Cochliobolus sativa*.			

Application Information:
Apply *Teraxxa F4* as a water-based mixture using standard slurry or mist-type seed treatment application equipment. The required amount of *Teraxxa F4* should then be diluted with the recommended amount of water that will provide uniform and complete coverage on the seed surface.

How it Works:
The active ingredient broflanilide is a GABA-gated chloride channel moderator with contact activity. The active ingredient triticonazole is a triazole fungicide that provides systemic broad spectrum activity. The active ingredient metalaxyl is an acylalanine fungicide with systemic activity. Fluxapyroxad is a carboximide fungicide that provides systemic broad spectrum protection. The active ingredient pyraclostrobin is a strobilurin fungicide with broad spectrum contact and systemic activity.

Tank Mixes:
None listed.

Restrictions:
DO NOT use for food, feed or oil processing. This seed is treated with broflanilide, pyraclostrobin, fluxapyroxad, triticonazole and metalaxyl.

Hazard Rating:
Warning – Contains the Allergen Soy

Caution – Skin Irritant

Trifloxystrobin + Metalaxyl

Obex/VIKING Grimstad

Fungicide Group 11, 4

Company:

AgraCity Crop & Nutrition Ltd. (*Obex* – PCP#34858)
Viking Crop Production Partners Inc. (*VIKING Grimstad* – PCP#34970)

Formulation: Formulated as a suspension.

Active ingredient	
Trifloxystrobin	13.5 g/L
Metalaxyl	10.8 g/L
Container sizes:	2 x 10 L case and 100 L drum

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Soybeans	Seed decay / pre-emergence damping-off and post-emergence damping-off caused by *Rhizoctonia solani, Fusarium* spp., and *Pythium* spp. Seed decay / pre-emergence damping-off caused by *Phomopsis longicolla*.	-	370 mL
Dry Beans	Seed decay / pre-emergence damping-off and post-emergence damping-off caused by *Rhizoctonia solani, Fusarium* spp, and *Pythium* spp.	-	370 mL
Field Pea Chickpea	Seed decay / pre-emergence damping-off and post-emergence damping-off caused by *Rhizoctonia solani, Fusarium* spp, and *Pythium* spp.	Seed-borne ascochyta blight caused by *Ascochyta* spp.	370 mL
Lentil	Seed decay / pre-emergence damping-off and post-emergence damping-off caused by *Rhizoctonia solani, Fusarium* spp., and *Pythium* spp. Seed rot / pre-emergence damping-off, post-emergence damping-off and seedling blight caused by *Botrytis cinerea* (seed-borne)	Seed-borne ascochyta blight caused by Ascochyta spp.	370 mL

Application Information:

These Seed Treatment Fungicides are ready-to-use formulations designed for commercial or on-farm treating with conventional seed treating equipment. If diluted with water by greater than 10% by volume, ensure agitation of the mixture prior to application to seed. Compatible with *Rhizobium*-based inoculants. Please check with inoculant manufacturers for further details prior to use.

How it Works:

Metalaxyl is a Group 4 fungicide as classified by the Fungicide Resistance Action Committee (FRAC); its mode of action is the interruption of fungal nucleic acid synthesis. Trifloxystrobin belongs to the strobilurin or Quinone Outside Inhibitors (QoI) class of fungicides (Group 11).
Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

None.

Restrictions:

- **Grazing:** DO NOT feed or graze livestock for four weeks after planting. Treated seed must not be used for food, feed or oil processing.
- **Storage:** Store product in original container only, away from other pesticides, fertilizer, food or feed. DO NOT store below 0°C. This product cannot be frozen must be placed in a heated or adequately insulated area to avoid sub-zero temperatures. Store in a cool, dry place and avoid excessive heat. Keep container closed. Do not contaminate water, food, or feed by storage, disposal, or by cleaning of equipment

- **Environmental Restrictions:** Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface. This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Hazard Rating:
None listed.

Trilex EverGol Fungicide Seed Treatment

Fungicide Group 4, 7, 11

Trilex EverGol *is a co-pack of* Trilex Component A *(penflufen and trifloxystrobin fungicides) and* Trilex Component B *(metalaxyl fungicide).* Trilex Component A *and* Trilex Component B *are not sold individually.*

Company:
Bayer (*Trilex Component A* – PCP#30644, *Trilex Component B* – PCP#30645)

Formulations:
Trilex Component A: 154 g/L penflufen and 154 g/L trifloxystrobin formulated as a liquid based water formulation.
- Container sizes - 1.5 L or in bulk package 6.49 L

Trilex Component B: 317 g/L metalaxyl formulated as a suspension.
- Container sizes - 0.96 L or in bulk package 4.15 L

Crops, Diseases and Rates:

Crop	Diseases		Rate (per 100 kg of seed)	
	Trilex Component A	*Trilex Component B*	*Trilex Component A*	*Trilex Component B*
Chickpea Dry Bean Faba bean Field pea Lentil	Control of seed decay/pre-emergence damping-off and post-emergence damping-off (*Rhizoctonia solani, Fusarium* spp., and *Botrytis cinerea*); seedling blight *(B. cinerea)*	Seed rots and seedling blights (*Pythium* spp.)	25 mL	16 mL
	Suppression of seedborne Ascochyta blight (*Ascochyta* spp.)	-	25 to 32 mL	-

***Add 7 to 1 ratio of water (25 mL of component A + 16 mL of component B + 287 mL of water for a total of 328 mL per 100 kg).**

Application Information:
Trilex Component A is a seed treatment formulation for use in commercial seed treatment operations, and for on-farm treating with conventional seed treating equipment which can accurately meter and apply flowable seed treatment formulations. This product is recommended to be diluted with water or another suitable liquid just prior to application to ensure uniform coverage on the seed during the application process. Uniform application to seed is necessary to ensure optimum performance. Allow seeds to dry before bagging, storing or seeding.

Trilex Component B should be mixed with water to form a slurry seed treatment. Mix 500 mL of slurry per 100 kg of seed to be treated. The slurry should be applied as a spray into the mixing chamber of the seed treating equipment to ensure good coverage. When preparing the slurry the following procedure should be used: 1) partially fill the mixing tank with water; 2) add the required quantity of *Trilex Component B* onto the water surface; 3) allow product to disperse and then switch on agitation; 4) top up with extra water to required volume and maintain agitation during use; and 5) add colourant last.

How it Works:
Trilex Component A: The active ingredient penflufen is a carboxamide (SDHI) fungicide with systemic activity. The active ingredient trifloxystrobin is a strobilurin fungicide with broad spectrum preventative activity.

Trilex Component B: The active ingredient metalaxyl is an acylalanine fungicide with systemic activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
Fungicide Seed Treatments: In addition to *Trilex Component B, Trilex Component A* may be mixed with *Allegiance FL*. Follow the label directions for each product and use the most restrictive precautions and limitations for either product.

Off-label tank mixes, as previously permitted under the Pest Management Regulatory Agency (PMRA) Off-label Tank Mix Policy memo of 2009 are no longer allowed under new guidance from PMRA. As of December 20, 2022 only products specifically indicated on product labels may be mixed, or when the labels of two or more products to be mixed include the statement quoted in the Introduction.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labeled "This seed has been treated with *Trilex Component A* (containing penflufen and trifloxystrobin) and *Trilex Component B* (containing metalaxyl). Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs."
- **Grazing:** DO NOT graze or feed livestock on treated areas for four weeks after planting.
- **Re-cropping:** Registered crops for *Trilex Component A*, as well as canola, mustard, rapeseed, soybean, alfalfa, corn and cereal grains, may be replanted at any time. For all other crops, DO NOT plant back within 30 days of seeding with *Trilex Component A*-treated seed.
- **Storage:** Store product in original container only, away from other pesticides, fertilizer, food or feed. Keep container closed. Store in a cool, dry area. DO NOT store in direct sunlight. DO NOT store *Trilex Component A* above 40°C or below -10°C. DO NOT store *Trilex Component B* above 35°C or below 0°C.
- **Environment:** Toxic to aquatic organisms. Treated seed may be toxic to birds and other wildlife. DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters. Dispose of all excess treated seed. Left over seed may be double-sown around the headland or buried away from water sources. DO NOT leave exposed treated seed on soil surface. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable and/or the depth to the water is shallow.

Hazard Rating:


Trilex Component B: Warning – Skin and Eye Irritant

Refer to the Introduction for an explanation of the symbols.

Trilex EverGol Shield Seed Treatment

Fungicide Group 4, 7, 11
Insecticide Group 4A

Trilex EverGol SHIELD is a co-pack of *Trilex Component A* (penflufen and trifloxystrobin fungicides), *Trilex Component B* (metalaxyl fungicide), and *Stress Shield 600* (imidacloprid). *Trilex Component A* and *Trilex Component B* are not sold individually. For individual component information, see the product pages listed above.

Company:

Bayer (*Trilex Component A* – PCP#30644, *Trilex Component B* – PCP#30645, *Stress Shield 600* – PCP#30668)

Formulations:

Trilex Component A: 154 g/L penflufen and 154 g/L trifloxystrobin formulated as a liquid based water formulation.

- Container sizes - 1.5 L or in bulk package 6.49 L

Trilex Component B: 317 g/L metalaxyl formulated as a suspension.

- Container sizes - 0.96 L or in bulk package 4.15 L

Stress Shield 600: 600 g/L imidacloprid formulated as a suspension.

Vayantis IV (Co-pack)

Fungicide Group
U17, 7, 4, 12

Company:
Syngenta Canada Inc.

Formulation:
Co-pack contains 3.42L of Vayantis (PCP#34138) and 54.72L of Vibrance Trio (PCP#33310) formulated as a suspension.

Active Ingredient:	Vayantis	Vibrance Trio
Picarbutrazox	400 g/L	-
Sedaxane	-	24.8 g/L
Metalaxyl-M and S-isomer	-	149.3 g/L
Fludioxonil	-	24.8 g/L
Container size:	1 L to 1000 L	

Crops, Diseases and Rate:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Soybeans	Control of seed rot and pre-and post-emergence damping-off caused by *Phytophthora sojae*. Seed rot/pre-emergence damping-off, post-emergence damping-off and seedling blight caused by Fusarium spp., *Pythium* spp. and *Rhizoctonia* 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*	Vayantis 6.25 mL + Vibrance Trio 100 mL

Application Information:
For use in commercial seed treatment (facilities and mobile treaters) with closed-transfer, including closed mixing, loading, calibrating, and closed-treatment equipment only. No open transfer is permitted.

VAYANTIS Seed Treatment mixes easily with water. When mixing with products from other manufacturers, the compatibility should be tested prior to use by conducting a jar test; mixing all intended seed treatments with the appropriate amount of water in a clear glass container, mix well, and allow to sit for one hour. Remix and observe for incompatibility.

VAYANTIS Seed Treatment may be applied as a seed treatment following the guidelines specified in the Directions for Use section of the label. Ensure product is thoroughly mixed prior to application. Apply VAYANTIS Seed Treatment as a water-based slurry utilizing standard slurry seed treatment equipment that provides uniform seed coverage. Uneven or incomplete seed coverage may not give the desired level of disease control. Thoroughly mix the recommended amount of VAYANTIS Seed Treatment into the required amount of water for the slurry treater and dilution rate to be used. Follow the manufacturer's application instructions for the seed treatment equipment being used. Maintain constant agitation of the slurry during the seed treatment process. Allow the seed to dry before bagging.

Depending on planting equipment, seed treated with VAYANTIS Seed Treatment or a combination of VAYANTIS Seed Treatment and other seed treatment products may not flow through planting equipment at the same rate as untreated seed. Recalibrate the equipment before planting treated seed.

How it Works:
Picarbutrazox is an ingredient belonging to the tetrazolyloxines chemical group of fungicides (FRAC U17). Picarbutrazox is a systemic fungicide developed to protect soybeans from key diseases like *Pythium* and Phytophthora caused by oomycete plant pathogens. In combination with metalaxyl-M, picarbutrazox improves the consistency of oomycete protection through overlapping effective modes of action. Sedaxane is a succinate dehydrogenase inhibitor fungicide with preventative and systemic activity that inhibits fungal metabolism by binding to the succinate dehydrogenase enzyme to disrupt cellular respiration and energy generation. Fludioxonil is a phenylpyrrole fungicide with contact activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:

- **Labelling:** KEEP TREATED SEED OUT OF REACH OF CHILDREN AND ANIMALS. All containers or packages containing treated seed for sale or use in Canada must be labelled or tagged as follows: This seed has been treated with VAYANTIS Seed Treatment, which contains picarbutrazox. Do not use for feed, food or oil processing. Store this product away from food or feed. When handling and planting treated seed, wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes. Gloves are not required within a closed-cab tractor. For good hygiene practice, it is also recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities. This product is toxic to aquatic invertebrates. Dispose of all excess treated seed. Dispose of seed packaging in accordance with local requirements. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- **Grazing:** DO NOT graze or feed livestock on treated area for 45 days after planting soybeans.
- **Re-cropping:** DO NOT plant any crop other than cereals, corn, soybeans, members of Crop Subgroup 6C (Dried shelled peas and beans, chickpeas, lentils and fava beans) or members of Crop Subgroup 20A (Canola/rapeseed subgroup), within 60 days to fields in which treated seeds were planted.
- **Storage:** Store this product away from food or feed. Ideal storage temperature is above freezing and below 30 °C. Repeated freeze-thawing of VIBRANCE TRIO Seed Treatment will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application. To prevent contamination store this product away from food or feed.
- **Environmental Restrictions:** Toxic to 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 otherwise cleaned-up from the soil surface.
  - This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Hazard Rating:

Warning – contains the allergen soy

Vibrance Maxx RFC/RTA

Fungicide Group 4, 7, 12

Vibrance Maxx RTA *is a co-pack of* Apron Maxx RTA *(fludioxonil and metalaxyl-M and S-isomer fungicides and* Vibrance 500 FS *(sedaxane fungicide).* Vibrance Maxx RFC *is a pre-mix formulation. For other detailed information on the component products see the product pages listed above.*

Company:

Syngenta Canada Inc. (*Apron Maxx RTA* – PCP#27577, *Vibrance 500 FS* – PCP#30438, *Vibrance Maxx RFC* – PCP#32272)

Formulations:

Apron Maxx RTA: 0.73% fludioxonil, 1.10% metalaxyl-M and S-isomer formulated as a suspension.
Vibrance 500 FS: 500 g/L sedaxane formulated as a suspension.
Vibrance Maxx RFC: 50 g/L sedaxane, 37.5 g/L metalaxyl-M and S-isomer and 25 g/L fludioxonil.

- Container sizes - 2 x 3.075 L jugs per case, 56.78 L drum
- *Vibrance Maxx RTA* co-packs container size - 115 L *Apron Maxx RTA* + 3.33 L *Vibrance 500 FS;* 450 L *Apron Maxx RTA* + 4 x 3.33 L *Vibrance 500 FS*

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)		
		Apron Maxx RTA	*Vibrance 500 FS*	*Vibrance Maxx RFC*
Chickpea	Seed-borne Ascochyta blight (*Ascochyta rabiei)*; seed rot/pre-emergence damping-off and post-emergence damping-off, (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Fusarium* spp., *Pythium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	325 mL	10 mL	100 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100 mL
Dry bean	Seed rot/pre-emergence damping-off, and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Pythium* spp.); anthracnose (*Colletotrichum* spp.)	325 mL	10 mL	100 mL
Faba bean	Seed rot/pre-emergence damping-off, post-emergence damping-off, seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.)	325 mL	10 mL	100 mL

Crop	Diseases Controlled	Rate (per 100 kg of seed)		
		Apron Maxx RTA	*Vibrance 500 FS*	*Vibrance Maxx RFC*
Field pea	Seed-borne Ascochyta blight and foot rot *(Ascochyta pinodes)*; seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.)	325 mL	10 mL	100 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100 mL
Lentil	Seed-borne Ascochyta blight (*Ascochyta* lentis); seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling root rot (*Fusarium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	325 mL	10 mL	100 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100 mL
Soybean	Seed rot/pre-emergence damping-off, and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Fusarium* spp., *Pythium* spp.); seedling root rot (*Fusarium* spp.); seed rot and seedling blight (*Phomopsis* spp.), early season root rot (*Phytophthora megasperma* var. *sojae*)	325 mL	10 mL	100 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100mL

Product information provided below for *Vibrance Maxx RFC* (pre-mix). For detailed information on component products of *Vibrance Maxx RTA* co-pack please consult individual product pages.

Application Information

Vibrance Maxx RFC is for use in commercial seed treatment and for on-farm seed treatment using seed treatment equipment that accurate metres, mixes and applies a flowable seed treatment. Thoroughly mix the recommended amout of *Vibrance Maxx RFC* with the required amount of water for the slurry treatment and dilution rate to be used. Maintain constant agitation of the slurry during the treatment. Allow the seed to dry before bagging, storing or seeding.

How it Works:

The active ingredient sedaxane is a succinate dehydrogenase inhibitor fungicide with preventative and systemic activity that inhibits fungal metabolism by binding to the succinate dehydro-genase enzyme to disrupt cellular respiration and energy generation. The active ingredient fludioxonil is a phenylpyrrole fungicide with contact activity. The active ingredient metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes, including Pythium damping-off. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** All seed treated with *Vibrance Maxx RFC* must be labelled "This seed has been treated with the fungicides metalaxyl-M and S-isomer, fludioxonil and sedaxane. When handling and planting treated seed, workers must wear cotton coveralls or long-sleeved shirt and long pants, chemical-resistant gloves, and work boots. For good hygiene practice, it is also recommended to wear a NIOSH-approved N95 filtering facepiece respirator (dust mask) that is properly fit tested during all job activities. DO NOT use for food, feed or oil processing. Store away from food and feed."
- **Grazing:** DO NOT graze or feed livestock on treated areas for 45 days after planting soybeans. DO NOT graze or feed livestock on treated area for 60 days after planting chickpea, dry beans, faba beans, field peas, or lentils.
- **Re-cropping:** DO NOT plant any crop other than cereals, corn, soybeans, dry beans, chickpeas, lentils, faba beans and field peas within 60 days in which treated seeds were planted.
- **Storage:** Store away from food and feed. Ideal storage temperature is above freezing and below 30°C. If product should freeze, bring to room temperature and ensure the contents are mixed well prior to application.
- **Environment:** This product is toxic to fish and other aquatic organisms. DO NOT apply this product directly to aquatic habitats, estuaries or marine habitats. 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 otherwise cleaned-up from the soil surface.
- **Compatibility with *Rhizobia*-based inoculants:** *Vibrance Maxx RFC* is compatible with *Rhizobia*-based inoculants. Please check with inoculants manufacturers for specific planting windows and methods of application prior to use.

Hazard Rating:

Vibrance 500 FS: Caution – Poison

Refer to the Introduction for an explanation of the symbols.

Vibrance Maxx RFC with INTEGO Solo

Fungicide Group
4, 7, 12, 22

Vibrance Maxx RFC with INTEGO Solo *is a co-pack of* Vibrance Maxx RFC *(sedaxane, fludioxonil and metalaxyl-M and S-isomer fungicides) and* INTEGO Solo Fungicide *(ethaboxam fungicide). For more detailed information on the component products see the product pages listed above.*

Company:

Syngenta Canada Inc. (*Vibrance Maxx RFC* – PCP#32272)
Valent Canada Inc. distributed by Nufarm Agriculture (*INTEGO Solo Fungicide* – PCP#31324)

Formulations:

Vibrance Maxx RFC: 50 g/L sedaxane, 37.5 g/L metalaxyl-M and S-isomer and 25 g/L fludioxonil.

- Container sizes - 2 x 3.075 L jugs in a case, 56.78 L drum

INTEGO Solo Fungicide: 383 g/L ethaboxam formulated as a suspension.

- Container sizes - 2 x 605 mL

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate per 100 kg of seed	
			Vibrance Maxx RFC	*INTEGO Solo*
Chickpea	Seed-borne Ascochyta blight *(Ascochyta rabiei)*; seed rot/pre-emergence damping-off and post-emergence damping-off, (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Fusarium* spp., *Pythium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	-	100 mL	19.6 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100 mL
Dry bean	Seed rot/pre-emergence damping-off, and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Pythium* spp.); anthracnose (*Colletotrichum* spp.)	Early season root rot *(Aphanomyces euteiches)*	100 mL	19.6 mL
Faba bean	Seed rot/premergence damping-off and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Pythium* spp.)	Early season root rot *(Aphanomyces euteiches)*	100 mL	19.6 mL
Field pea	Seed-borne Ascochyta blight and foot rot (*Ascochyta* pinodes); seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.)	Early season root rot *(Aphanomyces euteiches)*	100 mL	19.6 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100 mL
Lentil	Seed-borne Ascochyta blight *(Ascochyta lentis)*; seed rot/pre-emergence damping-off, post-emergence damping-off, and seedling blight (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling root rot (*Fusarium* spp.); seed rot and seedling blight (seed-borne *Botrytis* spp.)	Early season root rot *(Aphanomyces euteiches)*	100 mL	19.6 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100 mL
Soybean	Seed rot/pre-emergence damping-off, and post-emergence damping-off (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp.); seedling blight (*Fusarium* spp., *Pythium* spp.); seedling root rot (*Fusarium* spp.); seed rot and seedling blight (*Phomopsis* spp.);early-season root rot (*Phytophthora megasperma* var. *sojae*)	-	100 mL	19.6 mL
	Seed-borne *Sclerotinia sclerotiorum*	-	-	100 mL

Hazard Rating:

None listed.

Vibrance Total

Fungicide Group
1, 4, 7, 12, U17

Company:
Syngenta Canada Inc. (PCP#34890)

Formulation: Vibrance Total is formulated as a suspension.

Active ingredient	
Thiabendazole	46.2 g/L
Metalaxyl-M and S-isomer	11.4 g/L
Sedaxane	15.4 g/L
Fludioxonil	7.7 g/L
Picarbutrazox	7.7 g/L
Container sizes:	10 L jugs, 115L totes

Crops, Diseases and Rates:

Crop	Diseases Controlled	Rate (per 100 kg of seed)
Lentils	Seed-borne ascochyta blight caused by *Ascochyta lentis* Seed rot/pre-emergence damping-off, post-emergence damping-off and seedling blight caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp. Seedling root rot caused by *Fusarium* spp. Seed-borne *Sclerotinia sclerotiorum* Seed rot and seedling blight caused by seed-borne *Botrytis* spp.	325 mL
Chickpeas	Seed-borne ascochyta blight caused by *Ascochyta rabiei* Seed rot/pre-emergence damping-off and post-emergence damping-off and seedling blight caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp. Seed rot and seedling blight caused by seed-borne *Botrytis* spp. Seed-borne *Sclerotinia sclerotiorum*	325 mL
Field peas	Seed-borne ascochyta blight and foot root caused by *Ascochyta pinodes* Seed rot/pre-emergence damping-off, post-emergence damping-off and seedling blight caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp. Seed-borne *Sclerotinia sclerotiorum*	325 mL
Dry beans	Seed rot/pre-emergence damping-off and post-emergence damping-off caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp. Seedling blight caused by *Pythium* spp. and *Rhizoctonia* spp. Seed-borne *Sclerotinia sclerotiorum* Anthracnose caused by seed-borne *Colletotrichum* spp.	325 mL
Lupins and Faba Beans	Seed rot/pre-emergence damping-off, post-emergence damping-off and seedling blight caused by *Fusarium* spp., *Pythium* spp. and *Rhizoctonia* spp.	325 mL

Application Information:
Vibrance Total is a seed treatment formulation for use in commercial seed treatment (in facilities or with mobile treaters) and for on-farm treatment using seed treatment equipment that accurately meters, mixes and applies a flowable seed treatment. The equipment must provide uniform coverage of Vibrance Total on the seed. Uneven seed coverage may not give the desired level of disease control. Allow the seed to dry before bagging, storing or seeding. Thoroughly mix the recommended amount of Vibrance Total with the required amount of water for the slurry treater and dilution rate to be used. Slurry volumes will vary depending on seed size. Follow the manufacturer's application instructions for the seed treatment equipment being used. Maintain constant agitation of the slurry during the treatment.

Seed Treatment and Inoculants

Vibrance Total is compatible with Rhizobium based inoculants. Please check with inoculant manufacturers for specific planting windows and methods of application prior to use. Consult the manufacturer of the application equipment planned to be used for suitability for this application and for instructions on operation and calibration of the equipment. Seed treated with Vibrance Total, or a combination of Vibrance Total and seed inoculants, may not flow through a seed drill at the same rate as untreated seed. Recalibrate the seed drill before planting treated seed. Mixing with inoculants may increase drying time while treating, extending the processing time.
This product contains a pigment that will colour the treated seed; however, users are responsible for ensuring that the treated seed, when dried and ready for bagging, storage or seeding has an unnatural colour. If the pigment contained in the formulation does not colour the seed adequately, additional colourant must be added to the mixture while treating the seed.

How it Works:

Vibrance Total contains the active ingredients thiabendazole, metalaxyl, sedaxane, fludioxonil and picarbutrazox. Thiabendazole is a benzimidazole fungicide with both contact and systemic activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes, including Pythium damping-off. Sedaxane is a succinate dehydrogenase inhibitor fungicide with systemic activity that inhibits fungal metabolism by binding to the succinate dehydrogenase enzyme to disrupt cellular respiration and energy generation. Fludioxonil is phenylpyrrole fungicide with contact activity. Picarbutrazox is an ingredient belonging to the tetrazolyloxines chemical group of fungicides (FRAC U17). Picarbutrazox is a systemic fungicide developed to protect against diseases caused by oomycete plant pathogens like Pythium. In combination with metalaxyl-M, picarbutrazox improves the consistency of oomycete protection through overlapping effective modes of action.
Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:

This product may be tank mixed with a fertilizer, a supplement, or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions for Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. DO NOT tank mix products containing the same active ingredient unless specifically listed on this label.

Restrictions:

- **Labelling:** All containers or packages containing treated seed for sale or use in Canada must be labeled or tagged as follows: "This seed has been treated with the fungicides thiabendazole, sedaxane, metalaxyl-M and S-isomer, fludioxonil, and picarbutrazox. Wear chemical resistant coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks, and shoes during planting and handling of treated seeds and any other activities involving calibrating, clean-up, and repair. Wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested when transferring treated seed to the planter/seeder. This product is toxic to aquatic organisms. Do not use for food, feed or oil processing. Store away from food and feed. Dispose of all excess treated seed. Dispose of seed packaging in accordance with local requirements. Toxic to birds and small wild mammals. Any spilled or exposed seeds.
- **Grazing:** DO NOT graze or feed livestock on treated area for 60 days after planting dried shelled pea and bean crops, chickpeas, lentils and faba beans
- **Re-cropping: D**O NOT plant any crop other than cereals, soybeans, members of Crop Subgroup 6C (Dried shelled peas and beans, chickpeas, lentils and faba beans) or members of Crop Subgroup 20A (Canola/rapeseed subgroup), within 60 days to fields in which treated seeds were planted.
- **Storage:** Keep in original container, tightly closed, during storage. Store in a cool, dry, well-ventilated area away from other pesticides, feed and foodstuffs, and out of the reach of children and animals. To prevent contamination, store this product away from seed, food or feed. Ideal storage temperature is above freezing and below 30°C. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.
- **Environmental Restrictions:** Toxic to aquatic organisms. 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. This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Hazard Rating:

None listed.

Vibrance Quattro

Fungicide Group
3, 4, 7, 12

Company:
Syngenta Canada Inc. (PCP#31408)

Formulation:
36.8 g/L difenoconazole, 15.4 g/L sedaxane, 9.2 g/L metalaxyl-M (and S-isomer), and 7.6 g/L fludioxonil formulated as a suspension.
- Container sizes - 1 to 1050 L

Crops, Diseases and Rates:

Crops	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Barley	General seed rots (*Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.); seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); covered smut *(Ustilago hordei)*; false loose smut *(U. nigra)*; true loose smut *(U. nuda)*; seed-borne *Alternaria alternata*	Common root rot *(Cochliobolus sativus)*; seed-borne *Cochliobolus sativus*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	325 mL
Oats	General seed rots *(Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.*)*; seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); covered smut *(Ustilago hordei)*; loose smut *(U. avenae)*; seed-borne *Alternaria alternata*	Common root rot *(Cochliobolus sativus);* seed-borne *Cochliobolus sativus*	325 mL
Rye	General seed rots *(Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.*)*; seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); common bunt *(Tilletia tritici)*; dwarf bunt *(T. controversa)*; seed-borne *Alternaria alternata*	Common root rot *(Cochliobolus sativus)*; seed-borne *Cochliobolus sativus*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	325 mL
Triticale	General seed rots *(Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.*)*; seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); loose smut *(Ustilago tritici)*; seed-borne *Alternaria alternata*	Common root rot *(Cochliobolus sativus)*; seed-borne *Cochliobolus sativus*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	325 mL
Spring wheat	General seed rots *(Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.*)*; seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); common bunt *(Tilletia tritici)*; loose smut *(Ustilago tritici)*; seed-borne *Alternaria alternata*	Common root rot *(Cochliobolus sativus)*; seed-borne *Cochliobolus sativus*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	325 mL
Winter wheat	General seed rots *(Fusarium* spp., *Pythium* spp., *Rhizoctonia* spp., *Penicillium* spp., *Aspergillus* spp.*)*; seedling blight, root rot, damping-off (*Fusarium* spp., *Rhizoctonia* spp., *Pythium* spp.); common bunt *(Tilletia tritici)*; dwarf bunt *(T. controversa)*; loose smut *(Ustilago tritici)*; seed-borne *Alternaria alternata*	Common root rot *(Cochliobolus sativus)*; seed-borne *Cochliobolus sativus*; fusarium crown and foot rot (*Fusarium* spp.); take-all *(Gaeumannomyces graminis)*	325 mL

Application Information:
Vibrance Quattro is for use on-farm on barley, wheat, oats, rye and triticale. This product can also be applied by commercial seed treaters using closed system transfer. Treat seed in a well-ventilated area. When treating seeds, handling and planting treated seed, workers should wear cotton coveralls or long-sleeved shirt and long pants, chemical-resistant gloves, and work boots. Wear a suitable dust mask when transferring treated seed to a storage bin. For good hygiene practice, it is also recommended to wear a NIOSH approved dust mask during all job activities.

How it Works:
The active ingredient difenoconazole is a triazole fungicide with broad-spectrum, systemic activity. Metalaxyl-M is an acylalanine fungicide with systemic activity against diseases caused by the Oomycetes, including Pythium damping-off. Sedaxane is a succinate dehydrogenase inhibitor fungicide with systemic activity that inhibits fungal metabolism by binding to the succinate dehydrogenase enzyme to disrupt cellular respiration and energy generation. Fludioxonil is phenylpyrrole fungicide with contact activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
Vibrance Quattro may be mixed with *Cruiser 5FS* for crops common to the registered labels of both products. Refer to label for details. Consult each product and follow the most restrictive label precautions and limitations.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled (listing only the applicable active ingredients) as follows: "This seed has been treated with difenoconazole, metalaxyl- M (and S-isomer), sedaxane and fludioxonil fungicides. When handling and planting treated seed, workers should wear cotton coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, and work boots. Wear a suitable dust mask when transferring seed to a storage bin. DO NOT graze or feed livestock on seeded area for 45 days after planting. DO NOT use for food, feed or oil processing. Store away from food and feed."
- **Grazing:** DO NOT graze or feed livestock on treated areas for 45 days after planting.
- **Re-cropping:** DO NOT plant any crop other than cereals within 60 days to fields in which treated seed were planted.
- **Storage:** Store away from food and feed. Ideal storage temperature is above freezing and below 30°C. If product should freeze, bring to room temperature, and then ensure the contents are mixed well prior to application.
- **Environment:** Toxic to 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 otherwise cleaned-up from the soil surface.

Hazard Rating:
Potential Skin Sensitizer

Refer to the Introduction for an explanation of the symbols.

Vibrance Ultra Potato

Fungicide Group
3, 7, 40

Company:
Syngenta Canada Inc. (PCP#33171)

Formulation:
77.2 g/L Sedaxane, 77.2 g/L difenoconazole, 154.3 g/L mandipropamid formulated as a suspension.
- Container sizes - 1 L to bulk

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Potato	Seed-borne Silver Scurf (*Helminthosporium solani*), fusarium dry rot (*Fusarium* spp.), Seed-borne black scurf, stem and stolon canker (*Rhizoctonia solani*) Preventative control of seed-borne late blight (*Phytophthora infestans*)	Pink rot (*Phytophthora erythroseptica*)	32 mL

Application Information:
DO NOT use open treating equipment when treating seed-pieces, *Vibrance Ultra Potato* must be applied using a closed treatment system. Treat seed in a well ventilated area and keep treated seed-pieces away from animals.

How it Works:
Sedaxane is a succinate dehydrogenase inhibitor fungicide with preventative and systemic activity that inhibits fungal metabolism by binding to the succinate dehydrogenase enzyme to disrupt cellular respiration and energy generation. The active ingredient difenoconazole is a triazole fungicide with broad-spectrum, systemic activity. The active ingredient mandipropamid is a carboxylic acid amide (CAA) fungicide with contact and systemic activity. To be used as a preventative and inhibitive (prevents spore germination) fungicide application. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
For control of Colorado potato beetle, aphids and potato leafhopper, *Vibrance Ultra Potato* can be tank mixed with *Actara 240 SC* insecticide. For control of Colorado potato beetle, *Vibrance Ultra Potato* can be tank mixed with *Fortenza*. Protection is provided during early to mid-season growth and development for potatoes only. Refer to to tank-mix partner labels for specific application instructions and precautions. Always use in accordance with the most restrictive label restrictions and precautions.

Restrictions:

- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Maximum number of applications:** DO NOT apply more than 243 g mandipropamid per acre per year.
- **Labelling:** No restrictions listed.
- **Grazing:** No restrictions listed.
- **Re-cropping:** DO NOT plant any crop other than corn, cereals, canola, soybean, dry beans, dry pea, chickpea, lentil and sugar beets within 60 days to fields where seed treated with *Vibrance Ultra Potato* were planted.
- **Storage:** Store away from food or feed. Ideal storage temperature is above freezing and below 30°C. repeated freeze thawing will not affect the physical integrity of the product. If the product freezes, bring it back to room temperature and ensure the contents are well mixed prior to application.
- **Environment:** TOXIC to aquatic animals. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. Treated seed is toxic to small wild animals. Any spilled or exposed seed must be incorporated into the soil or cleaned-up from the soil surface.

Hazard Rating:

None listed.

Vitaflo Brands

Fungicide Group 7, M3

Company:

Manufactured by UPL AgroSolutions Canada Inc. (*Vitaflo 280 Fungicide* – PCP#11423)
Manufactured by Interprovincial Cooperative Limited (*Vitaflo SP Fungicide* – PCP#30381)
Manufactured for Loveland Products by Interprovincial Cooperative Limited (*Vitaflo Fungicide* – PCP#30380)

Formulation:

Vitaflo 280/Vitaflo Fungicide/Vitaflo SP Fungicide: 15.59% carbathiin and 13.25% thiram formulated as a liquid suspension.

- Container sizes - 10 L, 55 L, 100 L, 200 L, 1000 L

Crops, Diseases and Rates:

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Barley	False loose smut *(Ustilago nigra)*; covered smut *(U. hordei)*; leaf stripe *(Pyrenophora graminea)*; partial control of true loose smut *(U. nuda)*	Root rot (*Fusarium* spp.); net blotch *(Pyrenophora teres)*	230 mL
	Seed rot and seedling blight (*Pythium* spp., *Penicillium* spp., *Fusarium* spp., *Cochliobolus sativus*); seed rot (*Aspergillus* spp., *Alternaria* spp.)	Root rot (*Cochliobolus sativus, Fusarium* spp.)	330 mL
Wheat	Common bunt *(Tilletia tritici, T. laevis)*; seed-borne dwarf bunt *(T. controversa)*; Partial control of loose smut *(Ustilago tritici)*	Root rot (*Fusarium* spp.)	230 mL
	Seed-borne *Septoria* spp.; seed rot and seedling blight (*Pythium* spp., *Penicillium* spp., *Fusarium* spp., *Cochliobolus sativus*); seed rot (*Aspergillus* spp., *Alternaria* spp.), soil-borne dwarf bunt *(Tilletia controversa)*	Root rot *(Cochliobolus sativus)*	330 mL
Oats	Loose smut *(Ustilago avenae)*; covered smut *(U. kolleri)*; seed rot and seedling blight (*Fusarium* spp., *Pythium* spp., *Penicillium* spp.); seed rot (*Aspergillus* spp., *Alternaria* spp.)	Root rot *(Cochliobolus sativus)*	330 mL
Rye	Partial control of stem smut *(Urocystis occulta)*	Root rot *(Cochliobolus sativus)*	230 mL
	Damping off, seed rot and seedling blight (*Fusarium* spp., *Pythium* spp., *Penicillium* spp., *Cochliobolus sativus)*; seed rot (*Aspergillus* spp., *Alternaria* spp.)	Root rot *(Cochliobolus sativus)*	330 mL
Triticale	Seed rot, damping off, seedling blight (*Fusarium* spp., *Pythium* spp., *Penicillium* spp., *Cochliobolus sativus)*	–	200 mL
Dry bean	Early season seed rot, seedling blight, root rot *(Rhizoctonia solani);* seed-borne anthracnose *(Colletotrichum lindemuthianum)*[1]	–	260 mL

Crop	Diseases Controlled	Diseases Suppressed	Rate (per 100 kg of seed)
Corn (field & sweet)	Seed rot and damping off (*Fusarium* spp., *Pythium* spp., *Penicillium* spp.)	–	280 mL
	Seed-borne head smut *(Sporisorium holci-sorghi)*		560 to 748 mL
Flax	Seed rot, root rot and seedling blight (*Rhizoctonia solani*, *Fusarium* spp.)	–	525 mL
Lentil	Seed rot, seedling blight, and early season root rot *(Botrytis cinerea, Rhizoctonia solani*, *Fusarium* spp., *Pythium* spp.)	–	330 mL
Field pea	Seed rot and seedling blight *(Rhizoctonia solani, Fusarium* spp., *Pythium* spp.)	–	260
	Seed rot and seeding blight *(Ascochyta pinodes)*		330
Soybean	Seed rot and seedling blight *(Rhizoctonia solani, Phomopsis* spp., *Fusarium* spp.)	–	260 mL

[1] **Will not control severe anthracnose infections**

Application Information:
Designed to be used undiluted in commercial seed treaters. Undiluted product can be used at temperatures down to -20°C. Centrifugal pumps are not recommended for pumping product. Centrifugal pumps are not recommended for pumping product. Peristaltic pumps (positive displacement) using polypropylene lines with a minimum inside diameter of 2 cm are recommended. If containers have been in storage, some settling may occur and require agitation.

How it Works:
The active ingredient carbathiin is a carboximide fungicide with systemic activity and the active ingredient thiram is a dithiocarbamate fungicide with contact activity. Refer to "Fungicide Modes of Action" in the Plant Disease Control section for more information.

Tank Mixes:
None listed.

Restrictions:
- **Resistance management:** Refer to "Pathogen Resistance" in the Plant Disease Control section for more information.
- **Labelling:** Treated seed must be labelled as follows "This seed has been treated with *Vitaflo 280, Vitaflo Fungicide, or Vitaflo SP Fungicide* liquid seed protectant containing carbathiin and thiram. DO NOT use for feed, food, or oil processing."
- **Grazing:** DO NOT graze or feed livestock on treated area for four weeks after planting except for the following crops:
  - ***Soybean*** – DO NOT graze or feed livestock on forage and hay on treated areas.
  - ***Bean*** – DO NOT graze or feed on bean forage for 60 days.
  - ***Barley, oat, wheat*** – DO NOT graze or feed on treated area for 6 weeks.
- **Re-cropping:** No restrictions listed.
- **Storage:** DO NOT store product in direct sunlight or above 35°C. Will not freeze even at extreme temperatures. If containers have been stored for several months, shake well before using. DO NOT store dry beans, peas, lentils, or soybeans treated with any *Vitaflo* product. Wheat, barley, rye, oats, triticale and flax seed treated with *Vitaflo 280/Vitaflo Fungicide/Vitaflo SP Fungicide* can be stored up to 18 months and treated corn seed can be stored up to one year without reduction in germination.
- **Environment**: DO NOT contaminate ponds, lakes or streams.
- **Compatibility with *Rhizobia*-based inoculants:** *Vitaflo 280, Vitaflo Fungicide*, and *Vitaflo SP Fungicide* are compatible with *Rhizobia*. DO NOT tank mix *Vitaflo 280, Vitaflo Fungicide*, or *Vitaflo SP Fungicide* and *Rhizobia*. Always check with *Rhizobia* manufacturers on any restrictions that may exist with seed treatments.

Hazard Rating:
 Warning – Eye Irritant

 Caution – Skin Irritant

Refer to the Introduction for an explanation of the symbols.

Zeltera Cereals Seed Treatment Fungicide

Fungicide Group 3,4,7,22

Company:

Valent Canada, Inc. (PCP#34751)
Distributor: Nufarm Agriculture Inc.

Active ingredients:

Active Ingredients	Guarantee	Resistance Group
Ethaboxam	15.4 g/L	3
Metalaxyl	9.2 g/L	4
Metconazole	4.6 g/L	7
Inpyrfluxam	3.1 g/L	22

Formulation:

Formulation type: Suspension

- Container size(s) – 10 L, 110 L

Crops, Diseases and Rates:

Crop	Use pattern	Rate (per 100 kg of seed)	Disease	Suppression or Control
Wheat, barley, oat, rye, triticale, buckwheat, pearl millet, proso millet, teosinte	Seed Treatment	325 mL	Seed decay/pre-emergence damping-off (*Rhizoctonia solani*) Post-emergence damping-off and seedling blight (*Rhizoctonia solani*) under low to moderate disease pressure Early season seed rot/pre-emergence damping-off (*Fusarium spp.* and *Rhizoctonia solani*) Early season seed rot/pre-emergence damping-off, postemergence damping-off, seedling blight and seedling root rot (*Pythium spp.*) Loose smut (*Ustilago tritici* and *Ustilago avenae*)- Wheat, oat Common bunt (*Tilletia laevis* and *T. caries syn. T. tritici*)- Wheat, triticale, rye Covered smut (*Ustilago hordei*)- Barley False loose smut (*Ustilago nigra*)-Barley True loose smut (*Ustilago nuda*)- Barley	Control
			Common root rot (*Bipolaris sorokiniana* syn. *Cochliobolus sativus*) Root rot (*Rhizoctonia solani*) under low to moderate disease pressure	Suppression

Application Information:

This product is for both commercial and on-farm application. Do not apply this product in a hopper-box or planter-box at planting time. Always mix product thoroughly before use.

Tank Mixes:

This product may be tank mixed with a supplement or with registered pest control products, whose labels also allow tank mixing. Refer to labels for information on tank mixing products. Contact Nufarm Agriculture for information on insecticide tank mix options.

Restrictions:

- **Labelling:** All containers or packages containing treated seed for sale or use in Canada must be labeled or tagged as follows: This seed has been treated with a product containing the active ingredients ethaboxam, inpyrfluxam, metconazole, and metalaxyl. Do not use treated seed for feed, food or oil processing. Excess seed may be used for ethanol production only if (1) by-products are not used for livestock feed and (2) no measurable residues of pesticide remain in ethanol by-products that are used in agronomic practices. Store away from feeds and other foodstuffs. A closed-cab planter is required when planting treated cereal grain seeds. An open-cab planter may be used when planting teosinte seeds. Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes when handling and planting treated seeds. Gloves are not required within a closed-cab tractor. Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Do not contaminate water bodies when disposing of planting equipment washwaters. Dispose of seed packaging in accordance with local requirements.

- **Grazing:** No restrictions listed.
- **Re-cropping:** No restrictions listed.
- **Storage:** Keep pesticide in its original container. Store in a cool place. Do not store in direct sunlight. Protect from freezing temperatures. Store this product away from food or feed.
- **Environmental Restrictions:** Toxic to aquatic organisms. Toxic to birds and small wild mammals. Include toxicity information. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface. KEEP TREATED SEED OUT OF REACH OF CHILDREN AND ANIMALS.

Hazard Rating:

7.1 Indicate hazard rating(s): None listed.