

# Foliar Fungicide Directory

**Table 2. Foliar Fungicides for Disease Control in Potatoes**

FUNGICIDES	Page	Botrytis Gray Mould	Early Blight, Late Blight
Acrobat MZ	228		•
Allegro 500 DF	229		②
Bravo 500	230	•	•
Copper 53W	231		•
Copper Spray	231		•
Curzate 60 DF	233		②
Dithane DG Rainshield NT	241		•
Gavel 75 DF	234		•
Headline EC	235		•
Kocide 101	231		•
Kocide DF	231		•
Lance	239		①
Manzate DF	241		•
Parasol Flowable	231		•
Parasol WP	231		•
Penncozeb 75 DF	241		•
Polyram DF	242		•
Quadris	243		•
Reason 500SC	244		•
Ridomil Gold/Bravo	245	•	•
Tanos 50 DF	250		•
Tattoo C	251		②

① early blight only

② late blight only

**Note:** Before using any pesticide on potatoes, consult the list of Agricultural Pesticides Approved for Use, available from Simplot Canada and McCain Foods (Canada).

**Table 3. Foliar Fungicides for Disease Control in Cereals**

FUNGICIDES	Page	Wheat	Barley	Oats	Rye	Crown Rust (Oats)	Leaf Rust	Stem Rust	Stripe Rust	Septoria (Wheat, Barley, Oats,)	Tan Spot (Wheat)	Net Blotch, Scald (Barley)	Powdery Mildew	Spot Blotch	Fusarium Head Blight
Bravo 500	230	X								①	•				④
Dithane DG Rainshield NT	241	X					•			①	•				
Headline EC	235	X	X		X		③		②	①	•	•	③	②	
Manzate DF	241	X					•			①	•				
Penncozeb 75 DF	241	X					•			①	•				
Stratego 250EC	249	X					①	①	①	①	•		①		
Tilt 250E	252	X	X	X		•	②	②	①	•	•	•	②		

① wheat only

② wheat **and** barley

③ wheat **and** rye

④ suppression only

**Table 4. Foliar Fungicides for Oilseed and Pulse Crops**

FUNGICIDES	Page	Canola	Beans	Chickpeas	Lentils	Peas	Alternaria Blackspot (Canola)	Anthracnose (Beans, Lentils)	Ascochyta Blight (Chickpeas, Lentils, Peas)	Bacterial Blight (Beans)	Blackleg (Canola)	Botrytis Gray Mould (Beans, Chickpeas, Lentils)	Downy Mildew, Anthracnose (Beans)	Mycosphaerella Blight (Peas)	Powdery Mildew (Peas)	Rust (Beans)	Sclerotinia/White Mold (Canola, Beans)
Bravo 500	230			X	X	X		①	•								
Copper 53W	231		X						•				•				
Dithane DG Rainshield NT	241				X			①	①								
Headline EC	235		X	X	X	X		•	•					•	•	•	
Kocide 101	231		X							•							
Kumulus DF	238					X									•		
Lance	239	X	X	X	X		⑥	④				⑤					•
Parasol WP	231		X							•							
Quadris	243	X	X	X	X	X	•	•	•		•			•		•	•
Ronilan EG	246	X	X									②					•
Rovral Flo	247	X					•										③
Senator 70 WP	248		X														②
Tilt 250E	252	X	X								•					•	

- ① lentils only
- ② beans only
- ③ canola only
- ④ except peas
- ⑤ except beans
- ⑥ suppression only

**Table 5. Foliar Fungicides for Disease Control in Specialty Crops**

FUNGICIDES	Page	Alfalfa grown for seed	Canaryseed	Bluegrass, Fescues and Ryegrass grown for seed	Leaf and Stem Spot Diseases	Leaf Rust, Stem Rust (Grass Seed)	Powdery Mildew (Grass Seed)	Septoria (Canaryseed)
Dithane DG Rainshield NT	241	X			•			
Headline EC	235			X		•	①	
Tilt 250E	252		X					①

- ① suppression only

# Acrobat MZ

**Fungicide Group – 15, M**  
(Refer to page 225)

## Company:

BASF Canada PCP# 24546

## Formulation:

9% dimethomorph and 60% mancozeb formulated as a wettable powder.

Container size - 10 kg.

## Crops:

Potatoes.

## Diseases Controlled:

Early and late blight. Reduction of tuber blight.

## Crop Stage:

Make the first application when the disease threatens or when the first visible signs of disease occur in the field or nearby. Apply every 5 to 7 days under high disease pressure or every 7 to 10 days under low disease pressure. Do not apply more than 3 times per season. It is recommended to apply this product alternately with a fungicide having a different mode of action. Under high level of late blight infection, apply after top kill to control tuber blight.

## How it Works:

Acrobat MZ has protectant, systemic and antispore activity. The active ingredient mancozeb is a dithiocarbamate fungicide with contact activity. The active ingredient dimethomorph penetrates into the leaf tissue and moves within the leaf.

## Cost (2004 suggested retail price):

\$28.50/acre.

## Rate:

Apply at 1.0 kg per acre.

## Water Volume:

Use sufficient water to obtain adequate spray coverage.

Ground - 18 gallons/acre (80 L/acre).

Aerial - minimum 5 gallons/acre (20 L/acre).

## Tank Mixes:

None registered.

## Restrictions:

**Rainfall:** Do not apply when rain is expected within 2 - 3 hours. Apply to dry foliage.

**Preharvest Interval:** 14 days.

**Recropping:** Do not replant in treated area within 120 days of last application.

**Environment:** Do not apply to terrain where there is a potential for surface runoff to enter aquatic systems. This product is highly toxic to aquatic organisms. Do not apply within 100 m of streams, ponds, rivers and lakes when applying by air and within 50 m when applying by ground.

**Storage:** Store under cool, dry conditions in secure, well ventilated buildings away from food or feed.

**Resistance:** Plant disease fungi can develop resistance when exposed to one type of product or even products of similar chemistry. Use cultural practices and fungicide rotation as well as early preventive fungicide applications. Consult the government Potato Specialist or Plant Disease Specialist for disease outbreak forecast and recommendations.

## Hazard Rating:

Caution: Potential skin sensitizer.

# Allegro 500F

**Fungicide Group – 29**  
(Refer to page 225)

## Company:

Syngenta – PCP# 27517

## Formulation:

40% fluazinam. Container size – 18.9 L.

## Crops:

Potatoes

## Diseases Controlled:

Late blight (*Phytophthora infestans*)

## Crop Stage:

Begin applications when the plants are 15-20 cm tall or when conditions favour disease development. Repeat application at 7-10 day intervals. Do not make more than 10 applications in a season.

## How it Works:

Fluazinam is a pyridinamine fungicide with protective (contact) activity.

## Cost (2004 suggested retail price):

\$6.10/acre (\$15.24/ha)

## Rate:

0.16 L/acre (0.4 L/ha)

## Water Volume:

80-240 L/acre (200-600 L/ha). Spray volumes vary with amount of plant growth; apply in sufficient water to obtain adequate coverage of foliage.

## Tank Mixes:

None registered.

## Restrictions:

**Resistance:** This product is a Group 29 fungicide and is considered to have low risk of resistance development. It is recommended to not rely exclusively on the same product for pest control. Prolong the effectiveness of this product by not making more than 3 consecutive applications before alternating to a fungicide with a different mode of action. Use as part of an integrated pest management program.

**Preharvest interval:** 14 days

**Re-cropping:** Can be replanted with potatoes as soon as practical after the last application, 30 days for other root crops and leafy vegetates, and 70 days for all other crops. Fluazinam will carry over, do not use in areas treated with this product during the previous season.

**Environment:** Do not apply during periods of dead calm or when winds are gusty. Do not contaminate aquatic habitats when cleaning and rinsing spray equipment or containers. Do not overspray non-target terrestrial or aquatic habitats.

## Precautions:

Keep out of reach of children. Causes skin irritation. Harmful if swallowed or absorbed through skin. Avoid contact with eyes. Wear coveralls over long sleeved shirt, long pants, chemical resistant gloves, socks and footwear. Avoid breathing spray mist.

## Hazard Rating:



Caution Poison

Warning - skin irritant.  
Potential skin sensitizer.

# Bravo 500

**Fungicide Group – M**  
(Refer to page 225)

## Company:

Syngenta PCP# 15723

## Formulation:

500 g/L chlorothalonil formulated as a suspension.  
Container sizes - 2 x 10 L case, 200 L drum.

## Crops:

Wheat (all wheat including durum & winter wheat),  
potatoes, lentils, chickpeas and field peas.

## Diseases Controlled:

**Wheat** - Tan Spot, Septoria Glume Blotch, Septoria Leaf Spot. Suppression of Fusarium Head Blight (Scab).

**Potatoes** - Early and late blight, Botrytis vine rot.

**Lentils** - Anthracnose and Ascochyta blight.

**Chickpeas** - Ascochyta blight

**Peas** - Mycosphaerella blight

## Crop Stage:

**Wheat** - For control of Tan Spot and Septoria, begin application at flag leaf emergence and repeat 10 to 14 days later when ears are visible. A third application when ears are fully emerged may be necessary, if conditions favour disease spread. For suppression of Fusarium Head Blight apply Bravo at early flowering. For best results, this application must be made before flowering has started in the majority of tillers and before the beginning of weather favouring disease. Do not make more than 3 applications per season. Rates and number of applications will depend upon disease severity and weather conditions.

**Potatoes** - Begin application when plants are 6 to 8 inches (15 to 20 cm) high or when disease threatens. Repeat applications at 7 to 10-day intervals or as necessary to maintain disease control. Under severe disease conditions use the higher rates at 7-day intervals.

**Lentils** - One application, must occur at early flowering. Two applications - first application before flowering when bud formation is evident. Second application must occur at early to mid-flowering, 10 to 14 days after the first application, but before rows close in to form a dense canopy. Rates and number of applications will depend upon disease and weather conditions.

**Chickpeas** - Make first application at early flowering and remaining applications at 10-day intervals. Do not make more than 3 applications per season. Rate and number of applications will depend upon disease severity and weather conditions.

**Peas** - Begin application at early flowering and repeat 10 days later at early pod set or mid-flowering if necessary. Make a third application 10 to 14 days after the second application at pod fill or later flowering should conditions remain favourable for disease. Do not make more than 3 applications per season. Rates and the number of applications will depend upon disease severity and weather conditions.

## How it Works:

The active ingredient chlorothalonil is a chloronitrile fungicide with contact activity.

## Cost (2004 suggested retail prices):

\$8.77 to \$14.61/acre for wheat.

\$7.01 to \$14.61/acre for potatoes.

\$11.69 to \$23.38/acre for lentils.

\$11.69 to \$23.38/acre for chickpeas.

\$11.69 to \$17.53/acre for peas.

## Rate:

**Wheat** - 0.6 L to 1 L/acre for the control of Tan Spot and Septoria.

0.8 L to 1 L/acre for the suppression of Fusarium Head Blight.

**Potatoes** - 0.48 to 1 L/acre for control of late blight. 0.65 to 1 L/acre for control of early blight and botrytis stem rot.

**Lentils** - 0.8 to 1.6 L/acre.

**Chickpeas** - 1.2 to 1.6 L/acre for first application. 0.8 to 1.2 L/acre for subsequent applications.

**Peas** - 0.8 L to 1.2 L/acre for the control of Mycosphaerella blight.

## Water Volume:

Volume will vary with amount of plant growth. Use sufficient water to obtain adequate spray coverage. Spray volume will usually range from 20 to 140 gallons/acre (90 to 640 L/acre) for dilute sprays and 4.4 to 8.8 gallons/acre (20 to 40 L/acre) for concentrate sprays.

**Chickpeas** - 20 gallons/acre (90 L/acre). Ground application only.

### Tank Mixes:

**Fungicides:** On potatoes, Bravo may be applied with Quadris for the control of early blight. Do not apply sequential applications of this tank mix and do not exceed 3 tank mix applications per season. Do not apply to potatoes later than 2 days before harvest.

Do not combine with pesticides, surfactants or fertilizers unless prior use has shown the combination physically compatible and non-injurious under your conditions of use.

**Herbicides:** On lentils, do not apply in combination with POAST herbicide and MERGE surfactant or within 48 hours of the application of POAST and MERGE.

**Fertilizers:** None registered.

**Insecticides:** None registered.

### Restrictions:

**Grazing:** Do not graze treated areas. Do not feed straw from treated crop to livestock.

**Preharvest Interval:** Potato - 1 day.

Lentils and chickpeas - 48 days.

Wheat - 30 days.

Peas - 32 days.

**Recropping:** None.

**Application:** On lentils do not make more than 2 applications in the same season. On chickpeas, wheat and peas, do not make more than 3 applications per season. Do not apply by air for chickpeas.

**Storage:** Store in a cool, dry, ventilated place. Protect from excessive heat.

**Environment:** Do not apply if weather conditions favour drift from area being treated. Do not contaminate lakes, streams or ponds. Allow a buffer zone of 15 m between area being treated and aquatic systems for ground applications and a buffer zone of 100 m for aerial application.

**Re-entry:** Do not re-enter treated area within 48 hours. If required, and at least 4 hours have passed since application, individuals may re-enter treated area for short-term tasks not involving hand labour. Long pants, long-sleeved shirt, and chemical resistant gloves must be worn.

### Hazard Rating:

Warning, causes severe eye damage.

## Copper-based Fungicides

Fungicide Group – M  
(Refer to page 225)

### Copper 53W/Copper Spray/Kocide 101/Kocide DF/ Parasol WP/Parasol Flowable

#### Company:

United Agri Products, (Copper 53W – PCP# 09934, Copper Spray – PCP# 19146)

E.I. du Pont Canada Company (Kocide 101 – PCP# 14417, Kocide DF – PCP# 24538)

Nufarm (Parasol WP – PCP# 24671, Parasol Flowable PCP# 25901)

#### Formulation:

**Copper 53 W** - 53% tribasic copper sulphate formulated as a wettable powder.  
Container size - 10 kg.

**Copper Spray** - 50% copper oxychloride formulated as a wettable powder.  
Container size - 10 x 2 kg case.

**Kocide 101** - 50% copper as copper hydroxide formulated as a wettable powder.  
Container size - 5 kg.

**Kocide DF** - 40% copper as copper hydroxide formulated as a dry flowable.  
Container size - 10 kg.

**Parasol WP** - 50% copper equivalent as copper hydroxide formulated as a wettable powder.  
Container size - 10 kg.

**Parasol Flowable** - 24.4% copper equivalent as copper hydroxide formulated as a flowable.  
Container size - 10L.

#### Crops:

Potatoes, beans.

**Diseases Controlled:**

PRODUCT	POTATO	BEAN
Copper 53W	Early and late blight	Anthracnose Downy Mildew Bacterial Blight
Copper Spray	Early and late blight	
Kocide 101	Early and late blight	Bacterial blight (bacterial and halo)
Kocide DF	Early and late blight	
Parasol WP	Early and late blight	Bacterial blight (bacterial and halo)
Parasol Flowable	Early and late blight	

**Crop Stage:**

**Potatoes** - (Copper 53W, Copper Spray) - Apply when plants are 5 to 7 inches (12 to 18 cm) tall. Repeat at 7 to 10 day intervals.

**Rates:**

Product	Potato (kg/acre)	Acres treated by 1 container	Beans (kg/acre)	Acres treated by 1 container
Copper 53W	2.2	4.5	2.2	4.5
Copper Spray	1.6	6.25		
Kocide 101	0.44 - 0.9 1.38 (vine kill)	11.4 - 5.5 3.7 (vine kill)	0.9 - 1.3	5.5 - 3.8
Kocide DF	0.44 - 0.69 1.38 (vine kill)	23 - 14.5 7.3 (vine kill)		
Parasol WP	0.44 - 1.0 1.36 (vine kill)	23 - 10 7.3 (vine kill)	0.9 - 1.3	11 - 7.7
Parasol Flowable	0.32 - 0.72 L/ acre 1 L/ acre (vine kill)	31.2 - 13.9 10 (vine kill)		

**Water Volumes:**

Kocide 101, DF - Enough to ensure thorough coverage. Check label.

Copper 53W and Copper Spray - 88 gallons/acre (400 L/acre).

Parasol WP, Parasol Flowable - Enough to ensure thorough coverage.

(Kocide 101, Kocide DF, Parasol WP, Parasol Flowable) - Apply when plants are 6 inches (15 cm) tall. Apply combined with 0.7 to 0.9 kg of a mancozeb (80%) product per acre, at 7 to 10 day intervals. Kocide and Parasol may be applied with a desiccant at vine kill or alone after vine kill, prior to harvest, to reduce the risk of late blight tuber infection. See table for rates.

**Beans** - First application when plants are 6 inches (15 cm) tall, as a protectant. Repeat every 7 to 14 days depending on local conditions.

**How it Works:**

The active ingredients tribasic copper sulphate, copper oxychloride and copper hydroxide are inorganic fungicides with contact activity.

**Cost** (2004 suggested retail prices):

Copper 53W - \$12.20/kg

Copper Spray - \$12.41/kg

Kocide 101 - \$10.86/kg (2003 suggested retail price)

Kocide DF - \$10.86/kg (2003 suggested retail price)

Parasol WP - \$10.00/kg (2003 suggested retail price)

Parasol Flowable - \$14.90/L

**Tank Mixes:**

None registered.

**Restrictions:**

**Storage:** Store in cool, dry, ventilated area, away from feed or food. Keep away from heat, fire and sparks.

**Preharvest Interval:** 1 day.

**Environment:** Do not apply or allow to drift onto streams or any body of water.

**Hazard Rating:**

 Warning Poison (Copper 53W, Copper Spray)

 Caution Poison (Kocide 101, Parasol Flowable, Parasol WP)

 Danger Poison (Kocide DF)

**Curzate 60 DF**

**Fungicide Group – U**  
(Refer to page 225)

**Company**

E.I du Pont Canada Company PCP# 26284

**Formulation:**

60% cymoxanil formulated as a dry flowable.  
Container size - 1.8 kg

**Crops:**

Potatoes

**Diseases Controlled:**

Late blight (*Phytophthora infestans*)

**Crop Stage:**

Use Curzate 60 DF only in a tankmix with Manzate DF. Do not use Curzate 60 DF alone.

Initial applications should start when local conditions indicate that late blight is imminent. Make additional applications at 5 to 7 day intervals. Apply no more than 7 applications per crop.

**How it Works:**

The active ingredient cymoxanil is a highly active, locally systemic fungicide. It works at several levels of preventative, curative and inhibitive (against sporulation) activity.

The active ingredient mancozeb in Manzate 200 DF is a dithiocarbamate fungicide with contact activity.

**Cost** (2004 suggested retail price):  
\$11.65/acre.

**Rate:**

Apply Curzate 60 DF at 0.09 kg/acre  
Plus  
Manzate DF at 0.65 kg/acre

**Water Volume:**

Utilize sufficient water to obtain thorough coverage: 20 to 100 gallons/acre (80 to 400 L/acre).

**Tank Mixes:**

None registered.

**Restrictions:**

**Rainfall:** Curzate is rainfast within 2 hours after application.

**Re-entry:** Do not re-enter treated area within 24 hours.

**Preharvest Interval:** 8 days

**Application:** Do not apply by air.

**Storage:** Store product in original container in a secure, dry area away from food or feed. Protect against humid air and water. Not for use or storage in or around the home. Keep container tightly closed.



**Environment:** A buffer zone of 50m is required between the down-wind edge of the boom and sensitive aquatic habitats such as ponds, lakes, rivers, streams, and wetlands. Do not contaminate these habitats when cleaning and rinsing equipment or containers. Do not clean sprayer near well or water source or near desirable vegetation.

## Hazard Rating:

 Danger Poison

# Gavel 75 DF

**Fungicide Group – 22, M**  
(Refer to page 225)

## Company:

Dow AgroSciences PCP# 26842

## Cost (2004 suggested retail):

\$12.82 to \$16.97/acre.

## Formulation:

66.7% mancozeb and 8.3% zoxamide formulated as a dry flowable.

## Rate:

Apply at 0.68 to 0.90 kg/acre

## Crops:

Potatoes

## Nozzles:

**Ground** – generally hollow cone, disc – D5 to D7. Consult spray nozzle accessory catalogues for specific information on proper equipment calibration.

**Aerial** – hollow cone brass nozzles with a D-series orifice disc and core (whirlplate) are recommended. Nozzles should point straight down or slightly backward.

## Diseases Controlled:

Early and late blight

## Water Volume:

Thorough, uniform coverage is essential for good disease control.

**Ground** – 20 gal/acre (90 L/acre).

**Aerial** – 4 to 8 gal/acre (18 to 36 L/acre). Use 36 liters of water under high disease pressure to provide better crop coverage.

## Crop Stage:

Optimum disease control is achieved when the fungicide is applied in a regularly scheduled preventative spray program. Begin applications at the first sign of disease or when blight is reported in the area. Apply at 0.90 kg/acre every 7 days under high disease pressure when either disease is present and environmental conditions favour continued disease development. Gavel 75 DF can be applied at 0.68 kg/acre every 7 days under low disease pressure and environmental conditions unfavorable for disease development. Do not apply more than 6 applications per season.

## Effects of Weather:

Must be dry on plant leaf prior to rainfall.

## How it Works:

The active ingredient zoxamide is a benzamide fungicide with contact activity.

The mancozeb component is a dithiocarbamate fungicide with contact activity.

## Tank Mixes:

None registered.

**Restrictions:**

**Preharvest Interval:** 3 days.

**Recropping:** A 30 day plant back interval (PBI) is required for leafy vegetables and root and tuber vegetables. For all other crops not included on the label, the PBI should be 140 days.

**Storage:** Do not allow product to freeze. Keep away from fire and sparks. Store in a cool, dry, well ventilated place away from feed or food.

**Environment:**

**Ground application** – a buffer zone of 25m for application by ground sprayer should be established between the last spray swath and the edge of aquatic systems. A buffer zone of 5m for application by ground sprayer should be established between the last spray swath and the edge of terrestrial habitats such as hedgerows, windbreaks, woodlots, vegetative strips and other vegetation.

**Aerial application** – a buffer zone of 20m is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats.

**Re-entry:** do not re-enter treated areas within 48 hours of application.

**Hazard Rating:**

**Caution** – causes moderate eye irritation. This product is a dermal sensitizer. Avoid contact with skin, eyes or clothing.

**Headline EC**

**Fungicide Group – 11**  
(Refer to page 225)

**Company:**

BASF Canada PCP# 27322

**Formulation:**

250 g/L of pyraclostrobin formulated as an emulsifiable concentrate

Container size: 6.5 L jug; 104 L tote

**Crops and Staging:**

**Wheat, barley, rye:** For control of leaf diseases apply single application immediately after flag leaf emergence; use higher rate to obtain extended protection; apply second application 10 to 14 days later if disease persists or weather conditions are favourable for disease development.

**Chickpea, lentil, dry field pea, dry field bean, faba bean:** Apply at the beginning of flowering or at the onset of symptoms for the more aggressive diseases (anthracnose in lentil, ascochyta blight in chickpea); apply a second application 10 to 14 days later if disease persists or weather conditions are favourable for disease development.

**Potatoes:** Apply prior to row closure when conditions become favourable for the development of disease (whichever comes first); use higher rates and shorter spray intervals under heavy disease pressure; do not make more than 6 applications of Headline per season.

**Grasses grown for seed (bluegrass, fescue, ryegrass):** Apply prior to disease development; apply second application 14 to 21 days later if disease conditions persist.

**How it Works:**

The active ingredient pyraclostrobin is a member of the strobilurin class of chemistry used as a broad spectrum preventive and curative fungicide.

**Cost** (2004 suggested retail price):

\$16.57/acre at the 0.16 L/acre rate

## Crops, Diseases Controlled, Staging and Rates:

### Cereals (Ground and aerial application)

Crop	Diseases controlled:	Rates (L / acre):
Wheat	Tan spot ( <i>Pyrenophora tritici-repentis</i> ) Septoria leaf spot ( <i>Septoria tritici</i> ; <i>S. nodorum</i> ) Leaf rust ( <i>Puccinia recondita</i> )	0.12 – 0.24
	Powdery mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> ) Spot blotch ( <i>Cochliobolus sativus</i> ) Stripe rust ( <i>Puccinia striiformis</i> )	0.16 – 0.24
Barley	Net blotch ( <i>Pyrenophora teres</i> )	0.12 – 0.24
	Scald ( <i>Rhynchosporium secalis</i> ) Spot blotch ( <i>Cochliobolus sativus</i> ) Stripe rust ( <i>Puccinia striiformis</i> )	0.16 – 0.24
Rye	Leaf rust ( <i>Puccinia recondita</i> )	0.12 – 0.24
	Powdery mildew ( <i>Erysiphe graminis</i> )	0.16 – 0.24

### Pulses (Ground and aerial application)

Crop	Diseases controlled:	Rates (L / acre):
Chickpea	Ascochyta blight ( <i>Ascochyta</i> spp.)	0.16 – 0.24
Lentil	Anthracnose ( <i>Colletotrichum truncatum</i> ) Ascochyta blight ( <i>Ascochyta</i> spp.)	0.16
Field pea	Mycosphaerella blight ( <i>Mycosphaerella</i> spp.) Powdery mildew ( <i>Erysiphe</i> spp.)	0.16
Dry beans ( <i>Phaseolus</i> spp.)	Anthracnose ( <i>Colletotrichum</i> spp.) Powdery mildew ( <i>Erysiphe</i> spp.) Rust ( <i>Uromyces</i> spp.)	0.16
Faba bean	Powdery mildew ( <i>Erysiphe</i> spp.) Rust ( <i>Uromyces</i> spp.)	0.16

### Grasses grown for seed (Ground application only)

Crop	Diseases controlled:	Rates (L / acre):
Bluegrass; fescue; ryegrass	Leaf and stem rust ( <i>Puccinia recondita</i> ; <i>P. graminis</i> ) Powdery mildew – suppression ( <i>Erysiphe graminis</i> )	0.16 – 0.27

### Potato (Ground application only)

Crop	Diseases controlled:	Spray interval:	Rates (L / acre):
Potato	Early blight ( <i>Alternaria solani</i> )	7 to 14 days	0.18 – 0.27
	Late blight ( <i>Phytophthora infestans</i> )	5 to 7 days	0.18 – 0.36

### Water Volume:

**Ground:** Use a minimum water volume of 40 L/acre (9 g/acre) on cereals, pulses and grasses and 80 L/acre (18 g/acre) on potatoes. Ensure thorough coverage of foliage.

**Aerial:** Use a minimum water volume of 20 L/acre (4.5 g/acre). Ensure thorough coverage of foliage. Use the highest rate recommended for the disease being controlled.

### Tank Mixes:

None registered.

### Restrictions:

**Resistance:** Like any fungicide with a single mode of action, the quinone outside inhibitor fungicides, while highly effective, may result in resistant strains of fungi where they have been overused or misused.

When applying multiple applications in one season, pay close attention to the labelled recommendations for resistance management such as using labelled rates, rotating to fungicides outside group 11 and not exceeding the maximum number of applications per season.

**Preharvest interval:** Cereals—apply no later than the end of flowering. Pulses—30 days. Grasses—14 days. Potatoes—3 days.

**Recropping:** Crops listed on label may be planted immediately following last application. Wait 14 days before planting all other crops.

**Application:** Do not apply during periods of dead calm or when winds are gusty.

**Environment:** Avoid overspray or drift to sensitive habitats. Maintain specified buffer zones.

**Storage:** Store in a cool, dry, locked, well-ventilated area. Do not freeze.

### Hazard Rating:



Danger Poison

Danger - Skin and eye irritant

# Kumulus DF

**Fungicide Group – M**  
(Refer to page 225)

**Company:**

BASF Canada PCP# 18836

**Formulation:**

80% sulphur formulated as a water dispersible granular.  
Container size - 25 kg bag.

**Crop:**

Field peas.

**Disease Controlled:**

Powdery mildew.

**Crop Stage:**

Spray at first appearance of disease and repeat at 7 to 10 day intervals as necessary.

**How it Works:**

The active ingredient sulphur is an inorganic fungicide with contact activity.

**Cost** (2004 suggested retail price):

\$1.68/acre.

**Rate:**

0.6 kg/acre (one bag treats 41 acres).

**Water Volume:**

Minimum of 10 gallons/acre (45 L/acre). Higher water volumes may be required later in the growing season. Use sufficient water volume to thoroughly cover all foliage.

**Effects of Weather:**

Do not apply when rain or night frost is expected. Do not apply if temperature is above 27°C (in shade) and high humidity prevails, or if any of the above conditions are expected within 3 days after treatment. Do not apply under intense sunshine. Do not apply when weather favours drift.

**Tank Mixes:**

None registered.

Do not mix with dinitro compounds, tetradifon or oils.

**Restrictions:**

**Preharvest Interval:** 1 day.

**Application:** Do not apply by air. Avoid drift onto neighbouring crops.

**Storage:** Keep away from heat, fire or sparks. Store in cool, dry, locked, well-ventilated area without floor drain.

**Caution:** Drift to off-target crops may cause leaf burn.

# Lance

**Fungicide Group – 7**  
(Refer to page 225)

**Company:**

BASF Canada PCP# 27495

**Crops:**

Canola, beans, lentils, chickpeas, potatoes.

**Formulation:**

70% water dispersible granular (WDG).  
Container size - 2 x 2.83 kg per jug.

**Crop Stage and Diseases Controlled:**

Crop*	Disease	Application Rate (g/acre)	Application Timing
Canola	Sclerotinia stem rot ( <i>Sclerotinia sclerotiorum</i> )	142	Apply at 20-50% flowering. Apply a second time 7-14 days later up to 50% bloom if disease persists, or weather conditions are favourable for disease development.
	Black spot** ( <i>Alternaria brassicae</i> and <i>A. raphani</i> )	142	Apply at late flowering to early green pod to control black spot.
Dry beans	White mold ( <i>Sclerotinia sclerotiorum</i> )	227 – 312	Apply at 20-50% flowering. Apply a second time 7-14 days later if disease persists, or weather conditions are favourable for disease development. Use the higher rate to obtain extended protection and maximum yield benefit.
Chickpeas Lentils	Ascochyta blight ( <i>Ascochyta spp.</i> ) White mold ( <i>Sclerotinia sclerotiorum</i> ) Gray mold ( <i>Botrytis cinerea</i> )	170	Apply at the beginning of flowering. Apply a second time 7-14 days later if disease persists, or weather conditions are favourable for disease development.
Potatoes	Early blight	70 – 126	Apply prior to disease development and at 14 day intervals if conditions continue to favour disease development.

\* Refer to the label for crops not detailed above. \*\* Suppression only.

**How it Works:**

The active ingredient boscalid is an anilid fungicide. It provides a protective effect because it inhibits spores and spore germination.

**Cost:**

\$22.58 - 49.61 /acre.

**Water Volume:**

**Aerial Application:** Use a minimum water volume of 40 L/ha. Ensure thorough coverage of foliage

**Ground Application:** Use a minimum water volume of 100 L/ha and ensure thorough coverage of foliage.

**Application:**

The product should be used in a preventative spray program and applied as a protectant. When mixing use vigorous agitation. Do not allow the product to sit more than one hour without further vigorous agitation prior to application.

**Ground or Aerial Application:** Canola, beans, chickpeas and lentils.

**Ground Application Only:** Potatoes.

**Effects of Weather:**

Apply under favourable conditions to minimize or avoid the occurrence of drift. Aerial drift is increased under certain meteorological conditions therefore do not apply when wind speed is greater than 16 km/hour at flying height at the site of application

**Tank Mixes:**

None registered.

Do not tank mix with any other products.

**Restrictions:****Crop-Specific Restrictions and Limitations:**

Crop*	Minimum Time from Application to Harvest (PHI)	Maximum Rate Per Acre Per Application (grams)	Maximum Number of Applications per season	Maximum Rate Per Acre Per Season (grams)
Beans, Dry	21 days	312	2	624
Canola	21 days	142	2	284
Chickpeas	21 days	170	2	340
Lentils	21 days	170	2	340
Potatoes	30 days	126	4	504

\* Refer to the label for crops not detailed above.

**Rainfall:** If rainfall is imminent, delay application.

**Grazing Restrictions:** All crops can be grazed or fed to livestock.

**Re-Entry Interval:** Do not re-enter treated area for 4 hours after application or until dry.

**Drift:** Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed

**Recropping:** A plant back restriction of 14 days is required for all crops not on the label.

**Hazard Rating:**

Caution Poison

Potential Skin Sensitizer

Warning - Eye Irritant

# Mancozeb-based Fungicides

Fungicide Group – M  
(Refer to page 225)

Dithane DG Rainshield NT/Manzate DF/Penncozeb 75 DF

## Company:

Dow AgroSciences (Dithane DG Rainshield NT – PCP# 20553)  
E.I du Pont Canada Company (Manzate DF – PCP# 21057)  
Cerexagri; distributed by United Agri Products (Penncozeb 75 DF – PCP# 25397)

## Formulations:

Dithane DG Rainshield NT - 75 % mancozeb formulated as a dispersible granule. Container size - 20 kg.  
Manzate DF - 75 % mancozeb formulated as a dry flowable granule. Container sizes - 20 kg, 2.5 kg.  
Penncozeb 75 DF - 75 % mancozeb formulated as a dry flowable powder. Container sizes - 20 kg.

## Crops:

Potatoes  
Wheat  
Lentils (Dithane DG Rainshield NT only)  
Seed alfalfa (Dithane DG Rainshield NT only)

## Diseases Controlled:

	DITHANE DG RAINSHIELD NT	MANZATE DF PENNCOZEB 75 DF
Wheat	Tanspot, leaf rust, Septoria leaf blotch	Tanspot, leaf rust, Septoria leaf blotch
Lentils	Anthracnose and ascochyta blight	
Potatoes	Early and late blight	Early and late blight
Seed Alfalfa	Leaf spot and stem spot diseases	

## Crop Stage:

**Potatoes** - Apply when plants are 4 to 6 inches (10 to 15 cm) high; repeat at 7 to 10-day intervals. Start with low rate and increase to maximum as foliage develops. The spray interval may be reduced to 5 to 6 days during periods of wet weather favoring late blight and/or vigorous crop growth.

**Wheat** - May be applied early (when crop is in the 3 leaf to tillering stage) and/or late (when head is fully emerged, but prior to flowering). Do not make more than 2 applications per season.

**Lentils** – Apply the first application before flower when bud formation is evident. A second application should be applied 10 to 14 days after the initial application, but before rows close in to form a dense canopy. If conditions for disease development persist, a third application may be applied 10 to 14 days later. Do not apply more than 3 applications of Dithane DG per season.

**Seed Alfalfa** - Apply first application prior to 50% bloom. Repeat 7 to 10 days after the first application and 10 days after the second application. Do not make more than 3 applications per season.

## How it Works:

The active ingredient mancozeb is a dithiocarbamate fungicide with contact activity.

## Cost (2004 suggested retail prices):

\$3.78 to \$7.65/acre.

## Rates:

**Potatoes** - 0.45 to 0.90 kg/acre.  
**Wheat (early)** - 0.45 kg/acre; **wheat (late)** - 0.9 kg/acre.  
**Lentils** - 0.9 kg/acre.  
**Alfalfa** - 0.6 kg/acre.

## Nozzles:

Dithane DG Rainshield NT - flat fan.

## Water Volume:

Thorough, uniform coverage is essential for good disease control.

Manzate DF, Penncozeb 75 DF - 17 to 100 gallons/acre (80 to 400 L/acre) by ground sprayer; 5 to 7 gallons/acre (20 to 32 L/acre) by air.

Dithane DG Rainshield NT - 10 to 18 gallons/acre (45 to 80 L/acre) for ground application. Use 4 gallons/acre (18 L/acre) for aerial application.



**Effects of Weather:**

Dithane DG Rainshield NT - must be dry on plant leaf prior to rainfall; approximately 1 hour is required without rainfall at moderate temperatures and humidity.

**Tank Mixes:**

None registered.

For Dithane DG Rainshield NT, add other co-applied fungicides, insecticides, growth regulators, micronutrients and spray adjuvants to the tank last. Do not let Dithane DG Rainshield NT settle out in unagitated spray tank.

**Restrictions:**

**Grazing:** Do not graze or feed treated straw or plant tops to livestock.

**Preharvest Interval:** Potatoes - 1 day.

Lentils - 35 days.

Wheat - 40 days.

**Storage:** Store in cool, dry, well-ventilated place. Keep away from fire and sparks.

**Environment:** Do not apply if weather favours drift from areas treated. Do not apply to water or wetlands.

**Hazard Rating:**

Warning Poison - Eye irritant

# Polyram DF

**Fungicide Group – M**  
(Refer to page 225)

**Company:**

BASF Canada PCP# 20087

**Formulation:**

80% metiram formulated as dry flowable. Container size - 20 kg.

**Crops:**

Potatoes.

**Diseases Controlled:**

Early blight, late blight

**Crop Stage:**

Apply at 7 to 10 day intervals using 1.10 to 1.75 kg per hectare until plants cover the row. Then increase the rate to 2.25 kg per hectare until tops are killed, or use 1.10 to 1.75 kg per hectare at 5 to 7 day intervals starting when plants are 15 cm high and continuing until top killing. When conditions (rain or dew) favour infections, use the shorter intervals in each case.

**How it Works:**

The active ingredient metiram is a dithiocarbamate fungicide with contact activity.

**Cost** (2004 suggested retail price):

\$3.71 - 7.51/acre.

**Tank Mixes:**

**Herbicides:** None registered.

**Fertilizers:** Polyram DF can be mixed with fertilizers after a physical compatibility test has been conducted.

**Insecticides:** Mixtures with diazinon or malathion should be prepared immediately prior to use and not allowed to stand in the tank.

**Fungicides:** None registered.

**Rates:**

0.45 to 0.91 kg per acre

**Water Volumes:**

Ground - 8.8 to 17.6 gallons/acre (40 to 80 L/acre);

Aircraft - 4.9 gallons/acre (22 L/acre).

**Nozzles:**

Hollow cones or flat fans recommended.

**Effects of Weather:**

When weather conditions favor disease development the shorter spray intervals may be required.

**Restrictions:**

**Grazing:** Do not use treated crop parts for feed or food.

**Preharvest Interval:** May be applied up to the day before harvest.

**Recropping:** None.

**Storage:** Store in a cool, dry place away from flame or sparks. If product becomes wet or overheated, effectiveness is reduced and flammable vapors may be produced. Do not freeze.

**Environment:** Do not apply when environmental conditions favor drift from treated area. Do not contaminate domestic or irrigation water, lakes, streams or ponds by the cleaning of equipment or otherwise.

# Quadris

## Fungicide Group – 11

(Refer to page 225)

**Company:**

Syngenta PCP# 26153

**Formulation:**

250 g/L azoxystrobin formulated as a flowable suspension concentrate

Container size – 4 x 3.78 L jugs

**Crops:**

Canola, chickpeas, lentils, peas, beans and potatoes

**Diseases Controlled:**

Canola - Blackleg, Sclerotinia stem rot and Alternaria black spot.

Chickpeas - Ascochyta blight.

Lentils – Anthracnose and Ascochyta blight.

Field Peas – Mycosphaerella blight

Beans – Anthracnose

Potatoes – Early blight and Late blight; Rhizoctonia stem rot, stolon canker and black scurf

**Crop Stage:****Canola**

**Blackleg:** Apply at the 2 to 6 leaf stage of canola.

**Sclerotinia stem rot:** Apply at early bloom (prior to 30% bloom). This will also suppress alternaria black spot.

**Alternaria black spot:** Apply at early pod stage (90% petal fall).

**Chickpeas, Lentils, Field Peas, Beans**

Make first application no later than onset of flowering. Second application 10 to 14 days later.

**How it Works:**

The active ingredient azoxystrobin is a methoxyacrylate compound (strobilurin) used as a broad spectrum preventative and curative fungicide.

**Cost** (2004 suggested retail price):

\$20.16/acre for control of blackleg and alternaria black spot.

\$28.23 to \$40.33/acre for control of sclerotinia stem rot.

\$20.16/acre per application on legumes.

\$20.16 to \$32.26/acre per application on potatoes.

**Rate:****Canola**

**Blackleg and alternaria black spot:** Use 0.2 L/acre.

**Sclerotinia stem rot:** Use 0.28 to 0.4 L/acre. Use the higher rate if there is a history of sclerotinia stem rot infection in the area and when conditions favour development (heavy crop canopy, high humidity and/or excessive rain).

**Chickpeas, Lentils, Field Peas, Beans**

For each application use 0.2L/acre.

**Potatoes**

**Early blight:** 0.2 to 0.32 L/acre starting prior to disease development

**Late blight:** 0.32 L/acre starting prior to disease development

**Rhizoctonia stem rot, stolon canker and black scurf:** (in-furrow treatment) 4 to 6 mL/ 100m of row, applied at planting.

**Water Volume:**

**Ground:** Use sufficient water volume to obtain adequate coverage. Use minimum 9 gallons/acre (40 L/acre). In-furrow treatment in 5 to 15 gallons/acre (20 to 57 L/acre).

**Aerial:** Use minimum of 4 gallons/acre (18 L/acre). Ensure uniform application.

## Tank Mixes

**Herbicides:** None registered.

**Fertilizers:** None registered.

**Insecticides:** None registered.

**Fungicides:** On potatoes, Quadris may be applied with Bravo for the control of early blight. Do not apply sequential applications of this tank mix and do not exceed 3 tank mix applications per season. Do not apply to potatoes later than 2 days before harvest.

## Restrictions:

**Resistance:** Like any fungicide with a single mode of action, the quinone outside inhibitor fungicides, while highly effective, may result in resistant strains of fungi where they have been overused or misused.

When applying multiple applications in one season, pay close attention to the labelled recommendations for resistance management such as using labelled rates, rotating to fungicides outside group 11 and not exceeding the maximum number of applications per season.

**Grazing:** Do not feed dried pea vines to livestock.

**Preharvest Interval:** Canola - 30 days. Legumes - 15 days. Potatoes - 1 day; 90 days for in-furrow application

**Recropping:** Do not plant broadleaf or root crops within 30 days of application. Do not plant cereals within 45 days of application.

**Application:** In-furrow application: Mount the spray nozzle so that spray is directed into the furrow as a 15-20 cm band just before the seed is covered.

Do not exceed 2 applications or 0.56 L/acre per season on legume crops. Do not exceed 3 applications or 0.96 L/acre per season on potatoes. Do not apply sequential treatments of Quadris to potatoes but apply in alternation with fungicides that have a different mode of action and to which disease resistance has not developed.

Do not apply if rainfall is imminent. Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 15 km/hr at 2 m above ground at the site of application.

**Environment:** For ground application maintain a 1 m buffer zone between areas sprayed and aquatic systems.

For aerial application allow a 6 m buffer zone. Quadris can be extremely phytotoxic to certain apple varieties. Do not apply where there is the possibility of spray drift reaching apple or crabapple trees.

**Storage:** Store in a cool, dry, well-ventilated area. Do not store below 0°C

## Hazard Rating:

None.

# Reason 500SC

**Fungicide Group - 11**  
(Refer to page 225)

## Company:

Bayer CropScience PCP# 27462

## Formulation:

500 g/L fenamidone. Container sizes - 2, 4 or 10 L.

## Crops:

Potatoes.

## Diseases Controlled:

Early and late blight.

## Crop Stage:

Begin application when plants are 15 to 20 cm high or when disease threatens. Apply a fungicide with a different mode of action within 7 to 10 days after each application using the shorter interval when conditions favor disease development. Ensure even application.

## How it Works:

The active ingredient fenamidone is a member of the strobilurin class of chemistry and has preventative and protectant activity, inhibiting spore germination and sporulation.

## Cost:

TBA.

**Rate:**

Apply at 80 mL per acre as a tank mix with either Dithane DG\* at 500 g/ac or Bravo 500 at 500 mL/ac. \*When using other formulations of mancozeb, adjust application rates to apply 375 g active ingredient per acre.

**Water Volume:**

21 gallons/acre (80 L/ac).

**Tank Mixes:**

**Herbicides:** None registered.

**Fertilizers:** None registered.

**Insecticides:** None registered.

**Fungicides:** To be applied ONLY as a tank mix with mancozeb-based fungicides or Bravo 500. Follow mixing instructions provided on the label.

**Restrictions:**

**Resistance:** The strobilurin fungicides, while highly effective, have quickly led to resistant strains of fungi where they have been overused or misused. Especially where multiple applications in one season are considered, pay close attention to the labeled recommendations for resistance management.

**Rainfall:** Reason is rainfast within 2 hours of application.

**Preharvest Interval:** 14 days.

**Recropping:** A 30 day plantback interval is required for potatoes and all other crops.

**Application:** Do not apply by air or through any type of irrigation system. Do not exceed 6 applications or 0.48 L/ac in a year. Alternate with fungicides having a different mode of action.

**Environment:** Maintain an 8 m buffer zone between areas sprayed and aquatic systems. Toxic to fish and other aquatic organisms; do not apply where runoff is likely to occur.

**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.

**Hazard Rating:**

Caution: Eye Irritant.

# Ridomil Gold/Bravo

**Fungicide Group – 4, M**  
(Refer to page 225)

**Company:**

Syngenta PCP# 26443

**Formulation:**

500 g/L chlorothalonil and 480 g/L metalaxyl-M in a Twin-Pak Jug. Container size - 8.83 L.

**Crops:**

Potatoes.

**Diseases Controlled:**

Early blight, late blight, late blight tuber rot, Botrytis vine rot. Suppression of Pythium leak and Pink rot.

**Crop Stage:**

Begin preventive applications, early in the season when conditions are favorable for disease, (before infection), but no later than when the plant foliage meets within the row uniformly across the field. Apply a second and third application at 14-day intervals. The labelled rate of a registered contact fungicide should be applied 7 days after each application. Do not make more than three applications per season.

**How it Works:**

The metalaxyl component is an acylalanine fungicide with systemic activity.

The chlorothalonil component is a chloronitrile fungicide with contact activity.

**Cost** (2004 suggested retail price):  
\$29.66/acre.

**Rate:**

One 8.83 L jug treats 10 acres. The entire contents of the jug must be added to the spray tank or an improper mixture will result.

**Water Volume:**

**Ground:** use sufficient water to ensure thorough coverage of foliage. Use a water volume of 20 to 140 gallons/acre (90 to 640 L/acre).

**Aerial:** use a minimum water volume of 5 gallons water/acre (23 L/acre).

**Tank Mixes:**

None registered.

**Restrictions:**

**Resistance:** Strains of late blight resistant to metalaxyl may develop especially when applied after disease is present. If late blight develops in the field, contact government Potato Specialist or Plant Disease Specialist.

**Application:** Do not make more than 3 applications per season.

**Storage:** Protect from excessive heat.

**Environment:** Do not apply where runoff is likely to occur. Do not use on coarse textured gravelly soils, soils with less than 2% organic matter or in areas where the water table may be high. Avoid application when weather favors drift. Avoid application by ground or air near or around bodies of water. Do not contaminate streams or ponds by spray drift, by cleaning equipment, or disposal of wastes. A buffer zone of 100 m for aerial application and 15 m for ground application should be observed to protect water bodies.

**Hazard Rating:**

 Warning Poison

Warning, causes severe eye damage.

# Ronilan EG

**Fungicide Group – 2**  
(Refer to page 225)

**Company:**

BASF Canada PCP# 24894

**Formulation:**

50% vinclozolin formulated as an extruded granular fungicide.

Container size - 12 kg (1.2 kg/PVC bag, 2 x 1.2 kg/pouch, 5 x 2.4 kg/pouch per box).

**Crops:**

Canola, beans.

**Disease Controlled:**

**Canola** - Sclerotinia stem rot.

**Beans** - Sclerotinia (white mold) and Botrytis (grey mold).

**Crop Stage:**

Canola - Apply once at 20 to 50% bloom, usually 4 to 8 days after first blooms appear in field. For two applications, apply first at early bloom (20 to 30%) with a second application 7 days later at late bloom (70%) if the disease persists or weather conditions are favourable for disease development.

Beans - Apply at early to mid bloom (30 to 50%) with or without a second application 7 to 14 days later at full bloom if disease persists, or weather conditions are favourable for disease development.

**How it Works:**

The active ingredient vinclozolin is an dicarboximide fungicide with contact activity.

**Cost** (2004 suggested retail prices):**Canola** - \$13.42 to \$26.83/acre**Beans** - \$26.83 to \$40.25/acre**Rate:****Canola** - 0.30 to 0.40 kg/acre. The high rate is used when conditions favor sclerotinia development (heavy crop canopy, high humidity, and/or excessive rain).

For split application, 0.2 kg/acre per treatment at early bloom (20 to 30%) and again 7 days later.

**Beans** - 0.4 kg/acre if using 2 applications/year, 0.6 kg/acre if using 1 application/year. Do not apply more than 0.8 kg/acre per season.**Water Volume:****Canola (by ground)** - 10 to 20 gallons/acre (45 to 90 L/acre).**Canola (by air)** - Use minimum 3.6 gallons/acre (16 L/acre).**Beans** - Use sufficient spray volume to obtain thorough coverage of foliage. Use 10 to 20 gallons/acre (45 to 90 L/acre). Ground application only.**Pressure:**

Minimum 275 kPa (40 psi).

**Effects of Weather:**

Do not apply if rain or frost is expected. If rainfall is imminent, delay spraying. Do not treat plants at very low temperatures. Do not apply to any crops that have been stressed due to conditions such as flooding, drought, etc.

**Tank Mixes:****Herbicides:** None registered.**Fertilizers:** Do not use a product that contains boron.**Insecticides:** Lorsban and Pyrinex. See label for details on rates. Ronilan EG must be added first to mix.**Fungicides:** None registered.**Restrictions:****Grazing:** Do not allow livestock to graze on treated crop.**Preharvest Interval:** 45 days for beans, 40 days for canola.**Storage:** Store in original, tightly closed container in cool, dry, locked, well ventilated area without floor drain. Ronilan may be frozen.**Environment:** For ground application, maintain 15 m buffer zone between area sprayed and aquatic systems, for aerial application allow a 100 m buffer zone.**Hazard Rating:**

Caution Poison

**Rovral Flo****Fungicide Group – 2**  
(Refer to page 225)**Company:**

Bayer CropScience PCP# 24378

**Formulation:**240 g/L iprodione formulated as a liquid flowable.  
Container size - 8.4 L.**Crop:**

Canola

**Diseases Controlled:**

Sclerotinia stem rot and Alternaria black spot.

**Crop Stage:****Sclerotinia stem rot:** Apply when the canola crop is in the 20 to 50% bloom stage. This will be approximately 4 to 8 days after the canola crop begins to flower. Best protection will be achieved when the fungicide is applied at the 20 to 30% bloom stage - prior to petals beginning to fall. Rovral Flo fungicide can be applied until the 50% bloom stage - when the canola crop is at its maximum yellow color, and prior to significant petal fall.

**Alternaria black spot:** Apply as a single spray at early green pod, or as split application: the first at full bloom, followed by a second application at early green pod stage. Early green pod stage occurs when almost all canola pods are fully formed and still green with only a few flowers or undeveloped pods remaining at the top of the plant. Good coverage of plants is essential.

### How it Works:

The active ingredient iprodione is a dicarboximide fungicide with protective and eradicant activity.

**Cost** (2004 suggested retail price):  
\$16.46 to \$32.66/acre.

### Rate:

**Sclerotinia stem rot (white mold):** 0.63 to 1.25 L/acre. Use of the higher rate is recommended for fields with a history of heavy disease pressure. Split applications: 0.42 to 0.63 L/ac at 20 percent bloom stage followed by 0.42 L/ac at 50 percent bloom stage.

**Alternaria black spot:** A single application of 0.85 L/acre at early green pod. Split applications: 0.42 L/acre at full bloom followed by 0.42 L/acre at early green pod stage of canola.

### Water Volume:

**Ground:** 10 gallons/acre (45 L/acre)

**Air:** Not less than 4.5 gallons/acre (20 L/acre)

### Nozzles:

Flat fan or hollow cone for ground and properly calibrated aerial equipment.

### Tank Mixes:

None registered.

Rovral should not be mixed with other pesticides, adjuvants or fertilizers except where stated.

### Effects of Weather:

Do not spray in heavy dew or when rain is imminent within one hour. Spraying should be carried out in crosswind where possible. Avoid spraying in a dead calm and when wind speeds exceed 20 km/hr.

### Restrictions:

**Application:** Do not make more than 2 applications per season

**Preharvest Interval:** 38 days

**Storage:** Protect from frost.

### Hazard Rating:



Caution Poison

## Senator 70WP

**Fungicide Group – 1**  
(Refer to page 225)

### Company:

Engage Agro Corporation PCP# 25343

### Formulation:

70% thiophanate-methyl formulated as wettable powder.  
Container size - 2 kg.

### Crop:

White beans.

### Diseases Controlled:

Sclerotinia (white mold).

### Crop Stage:

Apply when conditions favour disease development (i.e., warm, humid weather and heavy, dense foliage). This usually occurs during early bloom stage, prior to rows closing in. If conditions favouring disease persist, repeat applications may be warranted.

**How it Works:**

The active ingredient thiophanate-methyl is a benzimidazole fungicide with systemic activity.

**Cost:** (2004 suggested retail price)  
\$55.88 to \$71.85/acre.

**Rate:**

0.7 to 0.9 kg/acre (one container treats 2.14 to 1.67 acres).

**Water Volume:**

10 to 20 gallons/acre (40 to 90 L/acre).

**Nozzles:**

Ground - Flat fan.  
Air - Hollow cone.

**Tank Mixes:**

None registered.  
Senator 70WP is compatible with most pesticides.  
Do not mix with lime or other alkaline materials.

**Restrictions:**

**Resistance:** Experience has shown that strains of fungi resistant to thiophanate-methyl may develop in treated crops.

**Grazing:** Do not feed or allow livestock to graze on treated crops.

**Storage:** Store in a dry place.

**Stratego 250EC**

**Fungicide Group – 3, 11**  
(Refer to page 225)

**Company:**

Bayer CropScience PCP# 27528

**Formulation:**

125 g/L propiconazole and 125 g/L trifloxystrobin formulated as an emulsifiable concentrate. Container size - 2 x 8 L case

**Crops:**

Spring Wheat (including Hard Red, Durum, Canada Prairie, Soft White) and Winter Wheat

**Diseases Controlled:**

Septoria leaf blotch, Tan spot, Powdery mildew, Leaf and Stem rust, Stripe rust

**Crop Stage:**

Single application – 4-leaf stage up to early heading (GS 14 to 55).

Two applications – First at 4-leaf to flag leaf stage. Second before early heading but not within 14 days of first application.

Apply at the very early stages of disease development. Typically, one application from tillering up to flag leaf emergence is required.

**How it Works:**

The active ingredient propiconazole is a triazole fungicide with broad spectrum systemic activity.

The active ingredient trifloxystrobin is a strobilurin fungicide with broad spectrum preventative activity.

**Cost** (2004 suggested retail price):  
\$10.95/acre



**Rate:**

0.2 L/acre.

**Water Volume:**

Ground: 9 to 18 gallons/acre (40 to 80 L/acre)

Air: Not less than 4.5 gallons/acre (20 L/acre)

**Effects of Weather:**

If rain occurs within one hour of application, reapplication may be necessary.

Avoid spraying in a dead calm or when winds are gusty.

**Tank Mixes:**

None registered.

**Restrictions:**

**Application:** Do not make more than 2 applications per season.

**Grazing:** Do not graze or harvest as forage if 2 applications made in one season. If a single application is made, do not allow livestock to graze or harvest as forage within 30 days after application.

**Preharvest Interval:** 45 days

**Recropping:** A plant back restriction of 14 days is required for all crops not on the label

**Environment:** Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

**Hazard Rating:**

Danger – Eye irritant, potential skin sensitizer

**Tanos 50 DF**

**Fungicide Group – 11, U**  
(Refer to page 225)

**Company:**

E.I. duPont Canada Company PCP# 27435

**Formulation:**

25% famoxadone and 25% cymoxanil as a dry flowable.

**Crops:**

Potatoes.

**Diseases Controlled:**

Early and late blight.

**Crop Stage:**

Make the first application following one or two applications of a preventative broad spectrum fungicide such as chlorothalonil or mancozeb. Tanos may be applied on a 7-day interval, but it is recommended to alternate with a fungicide having a different mode of action to prevent resistance.

**How it Works:**

The active ingredient cymoxanil is a highly active, locally systemic fungicide. It works at several levels of preventative, curative and inhibitive (against sporulation) activity. The active ingredient famoxadone is a member of the strobilurin class of chemistry used as a broad spectrum preventative and curative fungicide.

**Cost:**

TBA.

**Rate:**

Apply at 225 to 340 g/ acre.

**Water Volume:**

Use sufficient water to obtain thorough coverage. With a conventional sprayer use no less than 100 to 120 L/ acre. With an air-assisted sprayer use no less than 44 L/ acre. Ground application only.

**Effects of Weather:**

Do not apply during periods of dead calm or when winds are gusty. TANOS Fungicide must not be applied to any crop suffering from stress as a result of drought, water logging, low temperatures, insect attacks, nutrient or lime deficiency or other factors reducing crop growth.

**Tank Mixes:**

None registered.

**Restrictions:**

**Resistance:** Plant diseases can develop resistance when exposed to one type of product or even products of similar chemistry. Use cultural practices and fungicide rotation as well as early preventive fungicide applications. Consult the government Potato Specialist or Plant Disease Specialist for disease outbreak forecast and recommendations.

**Rainfall:** Rainfast within 12 hours of application.

**Preharvest Interval:** 14 days.

**Recropping:** Crops that are on the product label (potatoes and field tomatoes) may be planted back at any time. A 30-day plantback interval is required for cereal grains. All other crops may be planted following a 1 year interval.

**Application:** Do not apply Tanos to more than 500 ac (200 ha) per day. Do not apply by air. Tank mix solutions containing boron may affect product solubility. When using boron containing solutions, add the correct amount of Tanos first and boron containing solution last. Do not make more than 6 applications per year.

**Re-entry:** Do not re-enter treated areas within 24 hours of application.

**Environment:** Toxic to fish and aquatic organisms. Observe prescribed buffer zones. Toxic to birds, mammals and harmful to beneficial arthropods. Minimize off-target drift to reduce the effects on wildlife at the field boundary. Do not apply to areas prone to run-off and delay spraying if rainfall is imminent.

**Hazard Rating:**

 Warning Poison

Eye Irritant.

**Tattoo C**

**Fungicide Group – 28, M**  
(Refer to page 225)

**Company:**

Bayer CropScience PCP# 24544

**Formulation:**

375 g/L propamocarb HCl and 375 g/L chlorothalonil formulated as a suspension. Container size - 10 L.

**Crops:**

Potatoes.

**Disease Controlled:**

Late blight.

**Crop Stage:**

Begin applications when conditions are favorable for disease, but before infection, and continue on 7 to 14-day intervals until threat of disease is over. Use the 7-day inter-

val when the risk and conditions for disease are high. To avoid resistance, rotating and alternating applications with fungicides having different modes of action is recommended if multiple fungicide applications are required. Make no more than 3 applications per season.

**How it Works:**

The active ingredient propamocarb HCl is a carbamate fungicide with systemic activity. Chlorothalonil is a chloronitrile fungicide with contact activity.

**Cost** (2004 suggested retail price):

\$27.14/acre

**Rate:**

1.09 L per acre.

**Water Volume:**

17.8 to 26.7 gallons/acre (80 to 120 L/acre).

**Tank Mixes:**

None registered.

**Restrictions:**

**Resistance:** Plant disease fungi can develop resistance when exposed to one type of product or even products of similar chemistry. Use cultural practices and fungicide rotation as well as early preventive fungicide applications. Consult the government Potato Specialist or Plant Disease Specialist for disease outbreak forecasts and recommendations.

**Grazing:** Do not feed treated crops to livestock.

**Preharvest Interval:** 7 days.

**Recropping:** Do not plant a new crop in the treated area within 120 days of the last application.

**Application:** Do not apply by air. Treatment with any product containing chlorothalonil must be separated by a minimum of 7 days.

**Re-entry:** Do not re-enter treated areas within 48 hours after treatment. If required, individuals may re-enter treated areas within 48 hours for short tasks not involving hand labour, provided that 4 hours have passed since application and that long pants and a long-sleeve shirt are worn.

**Storage:** Keep away from fire, open flame or other sources of heat. Do not store below freezing. Store the tightly closed container away from seeds, fertilizers, plants and food-stuffs.

**Environment:** Do not apply directly to water or areas where surface water is present. Do not apply where runoff is likely to occur. Do not contaminate water when disposing of equipment wash waters. Allow a buffer zone of 15 m around bodies of water when applying.

**Hazard Rating:**

Danger – Corrosive to eyes

Potential skin sensitizer

**Tilt 250E****Fungicide Group – 3**

(Refer to page 225)

**Company:**

Syngenta PCP# 19346

**Formulation:**

250 g/L propiconazole formulated as an emulsifiable concentrate. Container sizes - 5 L, 4 x 5 L.

**Crops:**

Winter and spring wheat (including hard red, durum, Canada Prairie, soft white)

Spring Barley

Oats

Canaryseed

Canola

Beans

**Diseases Controlled:**

WHEAT	BARLEY	OATS	CANOLA	BEANS
Septoria leaf spot Tan spot Septoria glume blotch Stripe rust Powdery mildew Leaf and stem rust	Spot blotch Net blotch Scald Leaf rust Stem rust Septoria leaf spot Powdery mildew	Septoria leaf blotch Crown rust	Blackleg	Rust

## Diseases Suppressed:

Canaryseed – Septoria leaf mottle

## Crop Stage:

**Wheat, barley, oats:** Apply at the very early stage of disease development, anytime from the beginning of stem elongation to before the head is half emerged. Best results have been achieved when applied just when the flag leaf emerges. Tilt 250E last about 3 weeks in the plant. If conditions favourable to disease continue, another application may be necessary. The second application is usually applied at the time of head emergence.

**Canaryseed:** Apply at emergence of flag leaf.

**Canola:** Apply during the rosette stage (after second true leaf and prior to bolting).

**Beans:** Apply at the first detection of disease in the field. A second application may be made 14 to 21 days later.

## How it Works:

The active ingredient propiconazole is a triazole fungicide with broad-spectrum systemic activity.

**Cost** (2004 suggested retail price):  
\$13.97/acre

## Rate:

0.2 L/acre. One 5 L container treats 25 acres.

## Water Volume:

**Ground:** Minimum 18 gallons/acre (80 L/acre).

**Air:** 4 to 5 gallons/acre (16-20 L/acre).

## Nozzles:

**Ground:** Flat fan.

**Air:** Flat fan or hollow cone.

## Tank Mixes:

**Herbicides:** In wheat and barley only, Tilt 250E may be applied with: 2,4-D amine, estimine 2,4-D, MCPA amine, estimine MCPA, Buctril-M or Pardner. In wheat only, Tilt 250E may be applied with Horizon.

To ensure weed and disease control:

1. Weeds and crops must be at correct growth stage.
2. Tank mixes of Tilt 250E and Buctril-M, Horizon or Pardner can only be applied by ground.
3. 2,4-D and MCPA formulations can be applied by ground or air.

**Fertilizers:** Tilt 250E may be applied with small amounts of nitrogen. Rate of actual N not to exceed 4 kg/acre (9lb/acre). Add the nitrogen to the spray tank before adding Tilt 250E. Excessive nitrogen or application during hot weather may result in crop injury. Do not add nitrogen when tank-mixing Tilt 250E with a herbicide.

**Insecticides:** None registered.

**Fungicides:** None registered.

## Effects of Weather:

If rainfall occurs within 1 hour of application, reapplication is necessary. For aerial application, wind speed should be less than 18 km/hr to avoid drift. High humidity and low temperature (10 to 20°C) allow for better deposition of spray droplets.

## Restrictions:

**Grazing:** Do not graze animals on treated green crops within 3 days of application. Do not feed straw treated with herbicide tankmixes to livestock.

**Preharvest Interval:** Wheat, oats, barley - 45 days. Canola - 60 days. Beans – 28 days

**Recropping:** None.

**Storage:** Do not freeze.

**Environment:** Do not contaminate food or feed. This pesticide is toxic to fish. Do not spray any body of water by direct application, drift or by cleaning equipment.

## Hazard Rating:



Caution Poison