THE SIMPLER WAY TO DO BUSINESS

No rebates and no bundles, just straightforward pricing on effective products with an expert team to back them up.

*We bring an alternative approach to Canadian agriculture.*

ADAMA.COM/CANADA  1.855.264.6262

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⚠ Always read and follow pesticide label directions.
WE KNOW THE TRUE DEFINITION OF A REBEL

Someone with a mind to do things their own way. That’s why we’ve made this guide easy to use, with straightforward info on our products and helpful tips on the pests they take down. Use it to make your own crop protection choices. We’re not going to tell you how to run your business. Our job is simple: to help you do things your way.

Contact your nearest ADAMA Area Business Manager to see how simple success can be.

ADAMA.COM/CANADA
1.855.264.6262
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<td>37</td>
</tr>
</tbody>
</table>

Always read and follow pesticide label directions.
WEEDS DON’T STAND A CHANCE
**HERBICIDE**

**ARROW® 240 EC**

Get broad-spectrum grassy weed control in canola, pulses and other broadleaf and specialty crops.

**ACTIVE INGREDIENT**
Clethodim

**CHEMISTRY GROUP**
Group 1

**APPLICATION RATES AND PACKAGING**
- 50 ml/ac for light infestations or 60 ac/case
- 80 ml/ac for moderate infestations or 40 ac/case
- 150 ml/ac for quack grass or 20 ac/case
- 1 x 3 L jug + 1 x 9 L jug of X-ACT® adjuvant

**REGISTERED CROPS:**
- Alfalfa, seedling
- Beans
- Canola
- Chickpeas
- Coriander
- Cranberries
- Fenugreek
- Flax
- Highbush blueberries
- Lentils
- Linola™
- Mustard
- Onion
- Peas
- Potatoes
- Prairie carnation
- Soybeans
- Spinach
- Sunflowers

**WEEDS CONTROLLED:**

<table>
<thead>
<tr>
<th>Grass Species</th>
<th>Leaf Stage</th>
<th>Application Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foxtail (green, yellow), Wild oats, Volunteer cereals (wheat, barley, oats)</td>
<td>2 – 4</td>
<td>50 ml/ac</td>
</tr>
<tr>
<td>Barnyard grass, Fall panicum, Proso millet, Volunteer corn, Volunteer canarygrass, Witch grass</td>
<td>2 – 6</td>
<td>50 ml/ac</td>
</tr>
<tr>
<td>Barnyard grass, Crabgrass (smooth, large), Fall panicum, Foxtail (green, yellow), Persian darnel, Proso millet, Quack grass suppression, Volunteer canarygrass, Volunteer cereals (wheat, barley, oats), Volunteer corn, Wild oats, Witch grass</td>
<td>2 – 6</td>
<td>80 ml/ac</td>
</tr>
<tr>
<td>Quack grass control</td>
<td>2 – 6</td>
<td>150 ml/ac</td>
</tr>
</tbody>
</table>

**HOW IT WORKS:**
The active ingredient is translocated from the treated foliage to the growing points of the leaves, shoots and roots. Leaf foliage will first change from green to yellowish, then purplish and finally brown. Newest leaf of affected plant pulls out easily in 3 – 5 days. Time required for complete control is normally 7 – 21 days following treatment, depending on growing conditions and crop competition.

**CROP STAGING:**
- Most crops are tolerant at all stages, so target applications at the optimal weed stage.
- Always adhere to the pre-harvest interval for each crop.
HERBICIDE

ARROW® 240 EC

WATER VOLUME:
- Ground application only
- 20 – 90 L/ac to achieve uniform spray coverage

RAINFASTNESS:
1 hour

SUPPORTED TANK MIXES:
Herbicides:
- Canola: Lontrel® or Muster®
- Clearfield® canola only: Imazethapyr (Phantom® 240 SL)
- LibertyLink® canola only: Liberty®
- Field peas: Imazethapyr (Phantom 240 SL)
- Flax, including low linolenic acid varieties: Bromoxynil + MCPA ester (Badge® II) or Curtail® M
- Flax, not including low linolenic: Lontrel or MCPA ester
- Glyphosate-tolerant soybeans: Glyphosate

MIXING INSTRUCTIONS:
1. Fill clean spray tank ½ full with water. Start agitation.
2. Add the correct amount of Arrow® 240 EC. Continue to agitate.
3. Add the correct amount of adjuvant X-ACT® along with the remaining amount of water necessary to fill the spray tank.
4. Continue to agitate or run the bypass system.
5. After any break in the spraying operation, agitate thoroughly before spraying again.
6. Do not allow the mixture to sit overnight.
7. If tank mixing, follow label directions for each tank-mix partner.

CROP ROTATIONS:
No restrictions when applied alone.

PRE-HARVEST INTERVALS:
- Alfalfa, fenugreek: 30 days
- Blueberries, spinach: 14 days
- Canola, coriander, beans, flax (including low linolenic), lentils, potatoes, chickpeas, mustard: 60 days
- Onion: 45 days
- Soybeans, peas: 75 days
- Sunflowers: 72 days

GRAZING RESTRICTIONS:
Do not cut treated crops for feed or graze until 60 days after application.

STORAGE:
- May be stored at any temperature.
- Shake well before use.

QUICK TIPS:
Arrow 240 EC works best when applied to actively growing weeds. Regrowth of tillers may occur if applied to weeds under stress conditions. Arrow 240 EC must be used with the adjuvant X-ACT.
HERBICIDE

BADGE® II

Get proven control of almost 30 broadleaf weeds in cereals, flax and corn with easy-to-use tank-mix options for one-shot weed control.

ACTIVE INGREDIENTS
Bromoxynil and MCPA ester

CHEMISTRY GROUPS
Group 4 (MCPA ester) and Group 6 (bromoxynil)

APPLICATION RATES AND PACKAGING
- 0.5 L/ac or 1 case treats 40 acres
- 2 x 10 L jug/case
- 120 L drum treats 240 acres

REGISTERED CROPS:
Field crops:
- Barley
- Canary seed
- Corn
- Fall rye

Seedling grasses:
- Bromegrass
- Creeping red fescue
- Crested wheatgrass
- Intermediate wheatgrass
- Meadow fescue

CHEMISTRY GROUPS
- Flax
- Oats
- Solin

- Timothy (established for seed production)
- Wheat (spring, winter, durum)
- Seedling tall fescue
- Slender wheatgrass
- Streambank wheatgrass
- Tall wheatgrass
- Timothy

WEEDS CONTROLLED:
- American nightshade
- Ball mustard
- Bluebur
- Canada thistle¹
- Cocklebur
- Common buckwheat
- Common groundsel
- Common ragweed
- Cow cockle²
- Flixweed
- Green smartweed
- Kochia²
- Lady’s thumb
- Lamb’s quarters
- Night-flowering catchfly
- Pale smartweed
- Perennial sow thistle¹
- Redroot pigweed
- Russian thistle²
- Scentless chamomile³
- Shepherd’s purse
- Stinkweed
- Tartary buckwheat
- Velvetleaf⁴
- Volunteer canola (all types)
- Volunteer sunflower
- Wild buckwheat
- Wild mustard
- Wild tomato
- Wormseed mustard

1 Top growth control.
2 Spray before plants are 2 inches high.
3 Spring annual only.
4 Spray before plants are 3 inches high.
5 Up to 4-leaf stage.

HOW IT WORKS:
A combination of systemic and contact activity with weeds yellowing within 2–4 days and exhibiting abnormal growth (twisting and cupping of leaves) in 2–10 days.
**CROP STAGING:**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley, Oats, Spring wheat (including durum)</td>
<td>2 leaf to early flag</td>
</tr>
<tr>
<td>Canary seed</td>
<td>3–5 leaf</td>
</tr>
<tr>
<td>Corn</td>
<td>4–6 leaf</td>
</tr>
<tr>
<td>Fall rye</td>
<td>When growth commences in spring to early flag leaf.</td>
</tr>
<tr>
<td>Flax, Solin</td>
<td>2 inches to early bud stage. Best tolerance occurs when flax is 2–4 inches tall.</td>
</tr>
<tr>
<td>Seedling grasses</td>
<td>2–4 leaf</td>
</tr>
<tr>
<td>Timothy (established for seed production)</td>
<td>Prior to shot blade in the seed production year.</td>
</tr>
<tr>
<td>Winter wheat</td>
<td>2–4 leaf stage in the fall or after growth resumes up to early flag leaf.</td>
</tr>
</tbody>
</table>

**WATER VOLUME:**
- Ground: 20 – 40 L/ac in cereals and flax; 80 – 120 L/ac in corn; 60 L/ac in forages
- Aerial: 8 – 20 L/ac

**RAINFASTNESS:**
- 1 hour

**SUPPORTED TANK MIXES:**
- Corn: Atrazine
- Flax and Solin: Clethodim (Arrow® 240 EC) or Poast®
- Oats: MCPA
- Spring wheat and barley: Ally®, Avenge®, MCPA, Refine Extra® or tralkoxydim (Bison® 400 L)
- Spring wheat only: Axial®, clodinafop (Ladder® 240 EC) or Everest®
- Winter wheat: Refine Extra

**MIXING INSTRUCTIONS:**
1. Fill clean spray tank ½ full with water.
2. Add the required amount of Badge® II and agitate thoroughly.
3. Fill the tank and agitate again before use.
4. When tank mixing, follow instructions on both labels.

**CROP ROTATIONS:**
No re-cropping restrictions the year after treatment.

**PRE-HARVEST INTERVAL:**
- Flax or Solin: 60 days

**STORAGE:**
Avoid freezing.

**GRAZING RESTRICTIONS:**
- Do not graze treated grain or established timothy crops or cut for feed within 30 days of application.
- Do not graze meadow foxtail in the year of treatment.
- Do not graze other treated forage grasses within 56 days of treatment.

**QUICK TIPS:**
Badge II herbicide is well known for being gentle on the crop. Avoid spraying if temperatures are above 25 C.

Always read and follow pesticide label directions.
BISON® 400 L

Get a wide window of application and excellent control of Persian darnel, wild oats and other grassy weeds in cereals and seedling forage grasses grown for seed. It gives you tank-mix flexibility with more than 20 different broadleaf herbicides.

ACTIVE INGREDIENT
Tralkoxydim

CHEMISTRY GROUP
Group 1

APPLICATION RATES AND PACKAGING
- 200 ml/ac or 40 ac/case
- 1 x 8 L jug Bison® 400 L + 1 x 8 L jug Addit® adjuvant per case

REGISTERED CROPS:
Field crops:
- Barley
- Rye (spring, winter)
- Triticale
- Wheat (spring, durum, winter)

Cereal crops underseeded to forage legumes:
- Alfalfa
- Birdsfoot trefoil
- Clovers
- Sainfoin

WEEDS CONTROLLED:

<table>
<thead>
<tr>
<th>Weed</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild oats, Volunteer oats</td>
<td>1 – 6 leaf (Zadoks 11,20 – 14,22)</td>
</tr>
<tr>
<td>Green foxtail, Yellow foxtail</td>
<td>1 – 5 leaf (Zadoks 11,20 – 14,21)</td>
</tr>
<tr>
<td>Barnyard grass, Persian darnel</td>
<td>1 – 4 leaf (Zadoks 11 – 14)</td>
</tr>
</tbody>
</table>

HOW IT WORKS:
A systemic post-emergent herbicide that translocates the active ingredient to the growing point. Yellowing of the growing point in 1 – 3 weeks. The newest leaf pulls out easily in 3 – 5 days.

CROP STAGING:
Generally there are no restrictions. Always read the label for tank-mixing instructions and additional restrictions.

WATER VOLUME:
- Ground: 20 – 40 L/ac
- Aerial: 12 – 18 L/ac

RAINFASTNESS:
1 hour
**HERBICIDE**

**BISON® 400 L**

**SUPPORTED TANK MIXES:**
Do not apply any broadleaf herbicide tank mixes to underseeded forage legumes.

Herbicides:
- 2,4-D ester
- Attain®
- Bromoxynil (Bromotril® II)
- Bromoxynil + 2,4-D ester (Thrasher® II)
- Bromoxynil + MCPA ester (Badge® II)
- Curtail® M
- Dichlorprop + 2,4-D ester
- Flyroxyppy + MCPA (Rush M™)
- Lontrel®
- MCPA ester
- Prestige™
- Starane®

Insecticides:
- Decis®
- Lambda-cyhalothrin (Silencer® 120 EC)

**MIXING INSTRUCTIONS:**
1. Begin to fill spray tank or premix tank with clean water, and engage agitator.
2. Agitation must be continued throughout the entire mixing and spraying procedure.
3. When the spray tank or premix tank is 3/4 full of water, add Bison® 400 L. If more than 1 case of Bison 400 L is to be used, add the Bison 400 L from all cases prior to adding tank-mixed products or Addit® adjuvant.
4. If tank mixing, add the recommended product(s) next.
5. Add Addit adjuvant, and continue to fill tank to desired level with water.

**CROP ROTATIONS:**
Do not reseed treated areas to tame oats or corn for at least 4 weeks after application.

**PRE-HARVEST INTERVAL:**
60 days

**GRAZING RESTRICTIONS:**
- Immature cereal crops may be grazed or cut for hay 16 days after treatment.
- Mature straw may be fed to livestock.
- Do not feed or graze underseeded forage crops in the year of treatment.

**STORAGE:**
- Store above -5 C.
- Shake well before use.

**QUICK TIPS:**
For optimal crop safety, spray in warm weather with moist soil. Avoid stressful growing conditions, and avoid applying within 2 – 3 days of temperatures at 4 C or below.

Always read and follow pesticide label directions.
HERBICIDE

BROMOTRIL® II POST-EMERGENT

Get post-emergent control of tough broadleaf weeds with tank-mix flexibility and excellent crop safety in cereals and other crops.

ACTIVE INGREDIENT
Bromoxynil

CHEMISTRY GROUP
Group 6

APPLICATION RATES AND PACKAGING
- 0.49 – 0.57 L/ha or 40 – 34 ac/case
- 2 x 9.7 L jugs/case
- 116.4 L drum treats 240 acres

REGISTERED CROPS:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Crop Leaf Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa (seedling)</td>
<td>2 – 6 trifoliate</td>
</tr>
<tr>
<td>Alfalfa (established)</td>
<td>Spring: before the crop begins to shield the weeds</td>
</tr>
<tr>
<td>Barley, Oats, Triticale, Wheat (spring, durum)</td>
<td>2 leaf to early flag</td>
</tr>
<tr>
<td>Winter wheat</td>
<td>Fall: 2 – 4 leaf Spring: first growth to early flag</td>
</tr>
<tr>
<td>Corn (field, sweet) with drop pipes</td>
<td>Beyond 8 leaf</td>
</tr>
<tr>
<td>Canary seed (seed production only)</td>
<td>3 – 5 leaf</td>
</tr>
<tr>
<td>Fall rye</td>
<td>Spring: from first growth to early flag</td>
</tr>
<tr>
<td>Flax</td>
<td>2 – 4 inches in height</td>
</tr>
<tr>
<td>Forage millet, Sorghum</td>
<td>4 leaf to 8 inches</td>
</tr>
<tr>
<td>Seedling grasses (seed production only): Bromegrass, Fescue (creeping red, meadow), Orchard grass, Reed canarygrass, Russian wildrye, Timothy, Wheatgrass (crested, intermediate, slender, tall)</td>
<td>2 – 4 leaf (year of establishment only)</td>
</tr>
</tbody>
</table>

WEEDS CONTROLLED:

Seedling up to 4-leaf stage:
- American nightshade
- Bluebur
- Cocklebur
- Common ragweed
- Cow cockle
- Green smartweed
- Kochia
- Lady’s thumb
- Pale smartweed
- Pigweed
- Russian thistle
- Stinkweed
- Velvetleaf
- Wild mustard

Seedling up to 8-leaf stage:
- Common buckwheat
- Common groundsel
- Lamb’s quarters
- Tartary buckwheat
- Wild buckwheat

1 In normal conditions, it will be controlled up to 4-leaf stage. Plants beyond this stage are unlikely to be controlled; the higher rate generally gives better results.
2 Spray before plants are 2 inches high.
3 Spray before plants are 3 inches high.
BROMOTRIL® II POST-EMERGENT

HOW IT WORKS:
Bromotril® II is a contact herbicide. Leaves will yellow in 2 – 4 days with complete control in 7 – 14 days.

WATER VOLUME:
- Ground: 20 – 40 L/ac
- Air (wheat and barley only): 8 – 16 L/ac

RAINFASTNESS:
30 minutes

SUPPORTED TANK MIXES:
- Spring wheat: 2,4-D, Avenge®, clodinafop-propargyl (Ladder® 240 EC), MCPA, tralkoxydim (Bison® 400 L)
- Winter wheat: 2,4-D, MCPA, tralkoxydim (Bison 400 L)
- Barley: 2,4-D, Avenge, MCPA, tralkoxydim (Bison 400 L)
- Oats: MCPA
- Corn: Accent®, Atrazine, Banvel®, Ultim®
- Fall rye: MCPA
- Flax: MCPA or MCPA-K
- Canary seed: MCPA
- Seedling grasses: MCPA

MIXING INSTRUCTIONS:
1. Fill spray tank ½ full with water.
2. Add required amount of Bromotril II. Begin agitation.
3. If tank mixing, add the recommended amount of the tank-mix partner product to the spray tank first, agitate and then add Bromotril II (unless otherwise directed by the Bromotril II and tank-mix partner label).
4. Add the remaining amount of water while agitation continues.

CROP ROTATIONS:
No restrictions.

PRE-HARVEST INTERVAL:
30 days

GRAZING RESTRICTIONS:
- Do not use treated crops for grazing of livestock or green feed until 30 days after application.
- Do not cut treated crops for forage until 30 days after application.

STORAGE:
Avoid freezing.

QUICK TIPS:
Avoid spraying if temperatures are above 25 C. Leaf scorching may occur in corn and flax if applied during or after adverse growing conditions, such as cool and wet or hot (above 27 C) and humid weather. For best results, spray when weeds are in the seedling stage.
When tank mixed with glyphosate, Bromotril® II provides outstanding burn-off control of tough weeds like kochia, buckwheat, cow cockle and Russian thistle.

### Active Ingredient
Bromoxynil

### Chemistry Group
Group 6

### Application Rates and Packaging
- Bromotril II at 0.49 L/ac (40 ac/case) tank mixed with glyphosate at a rate of 175 g a.i./ac
- 2 x 9.7 L jugs/case
- 116.4 L drum treats 240 acres

When tank mixed with glyphosate, Bromotril® II provides outstanding burn-off control of tough weeds like kochia, buckwheat, cow cockle and Russian thistle.

### Registered Crops:
Tank mixed with glyphosate, this pre-seed burn-off should only be used for minimum or zero-tillage cropping systems in wheat, barley and oats.

### Weeds Controlled:

#### Seedling up to 4-leaf stage:
- American nightshade
- Bluebur
- Cocklebur
- Common ragweed
- Cow cockle
- Green smartweed
- Kochia
- Lady’s thumb
- Pale smartweed
- Pigweed
- Russian thistle
- Stinkweed
- Wild mustard
- Velveteen

#### Seedling up to 8-leaf stage:
- Common buckwheat
- Common groundsel
- Lamb’s quarters
- Tartary buckwheat
- Wild buckwheat

#### Grassy weeds up to 6 inches:
- Green foxtail
- Volunteer cereals
- Wild oats

1 In normal conditions, it will be controlled up to 4-leaf stage. Plants beyond this stage are unlikely to be controlled; the higher rate generally gives better results.
2 Spray before plants are 2 inches high. Includes Group 2 and Group 9 resistant biotypes.
3 Spray before plants are 3 inches high.

### How it Works:
Bromotril II is a contact herbicide. Leaves will yellow in 2 – 4 days with complete control in 7 – 14 days. Bromotril II controls Group 2 and Group 9 (glyphosate) resistant biotypes.

### Crop Staging:
- Application can be made just prior to or immediately after seeding.
- Under no circumstances should application be made after crop emergence.

### Water Volume:
Ground: 20 – 40 L/ac
RAINFASTNESS:
30 minutes

SUPPORTED TANK MIXES:
Must be tank mixed with glyphosate at a rate of 175 g a.i./ac of glyphosate.

MIXING INSTRUCTIONS:
1. Fill spray tank ½ full with water.
2. Add required amount of Bromotril® II. Begin agitation.
3. Add the recommended amount of glyphosate to the spray tank, agitate.
4. Add surfactant.
5. Add the remaining amount of water while agitation continues.

CROP ROTATIONS:
Only apply prior to wheat, barley and oats.

STORAGE:
Avoid freezing.

QUICK TIPS:
For best results, spray when weeds are in the seedling stage.
It has 3 active ingredients and 2 modes of action to fight herbicide resistance and provide post-emergent control of broadleaf weeds in wheat and barley.

**ACTIVE INGREDIENTS**
Fluroxypyr, bromoxynil and MCPA ester

**CHEMISTRY GROUPS**
- Group 4 (MCPA ester, fluroxypyr) and Group 6 (bromoxynil)

**APPLICATION RATES AND PACKAGING**
- 2 x 10 L bromoxynil/MCPA + 9.6 L fluroxypyr or 40 ac/case
- 2 x 120 L bromoxynil/MCPA + 115.2 L fluroxypyr treats 480 acres

**REGISTERED CROPS:**
- Wheat (spring, winter, durum)
- Barley

**WEEDS CONTROLLED:**
- American nightshade
- Bluebur
- Burdock
- Canada thistle
- Chickweed
- Cleavers (including Group 2 resistant biotypes)
- Cockelbur
- Common groundsel
- Cow cockle
- Flixweed
- Hempnettle
- Kochia (including Group 2 and glyphosate-resistant biotypes)
- Lady’s thumb
- Lamb’s quarters

1Top growth control

**HOW IT WORKS:**
Quickly causes plants to stop growing. Convenient co-pack controls a wide range of weeds, including glyphosate-resistant and Group 2 resistant kochia, Group 2 resistant cleavers and Group 2 resistant wild mustard.

**CROP STAGING:**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>2 leaf to early flag</td>
</tr>
<tr>
<td>Barley</td>
<td>2 leaf to early flag</td>
</tr>
</tbody>
</table>

**WATER VOLUME:**
Ground: 20 – 40 L/ac

**RAINFASTNESS:**
1 hour
SUPPORTED TANK MIXES:

Wheat:
- Tralkoxydim (Bison® 400 L)
- Clodinafop (Ladder® 240 EC)
- Simplicity®
- Thifensulfuron/tribenuron for suppression of narrow-leaved hawk’s beard

Durum:
- Clodinafop (Ladder 240 EC)
- Simplicity

Barley:
- Tralkoxydim (Bison 400 L)
- Thifensulfuron/tribenuron for suppression of narrow-leaved hawk’s beard

MIXING INSTRUCTIONS:
1. Fill spray tank ½ full with water.
2. Add the required amount of Forcefighter™ M and agitate thoroughly.
3. Add any tank-mix partners.
4. Fill the tank and agitate again before use.

CROP ROTATIONS:
Can be seeded the following year to barley, canola, flax, forage grasses, lentils, mustard, peas, rye and wheat.

PRE-HARVEST INTERVAL:
60 days

GRAZING RESTRICTIONS:
30 days

STORAGE:
Store in a heated facility. If product is frozen, bring to room temperature and agitate well before use.

QUICK TIPS:
Forcefighter M’s activity is influenced by weather conditions. The optimal temperature is 12 – 24 C. Avoid application 3 days before or after frost. Do not apply before the 2-leaf stage as crop injury may occur. Use 10 gal/ac application volume when there is a heavy canopy or when most weeds are at an advanced stage of growth. Do not apply by air.
HOTSHOT™

A powerful glyphosate tank-mix partner for pre-seed burn-off that controls a wide range of annual broadleaf weeds including Group 2 and Group 9 resistant Kochia, Volunteer canola including glyphosate-resistant varieties, wild buckwheat, dandelion and narrow-leaved hawk’s beard.

**ACTIVE INGREDIENTS**
Bromoxynil and florasulam

**CHEMISTRY GROUPS**
Group 6 (bromoxynil) and Group 2 (florasulam)

**APPLICATION RATES AND PACKAGING**
- 50 ac/case
- 2 x 9.7 L jugs of bromoxynil + 1.6 L jug of florasulam

**REGISTERED PRE-SEED CROPS:**
- Barley
- Oats
- Wheat

**WEEDS CONTROLLED WHEN TANK-MIXED WITH GLYPHOSATE:**
Up to the 4-leaf stage, please refer to product labels for more detailed information.

- American nightshade
- Bluebur
- Chickweed
- Cleavers
- Cockelbur
- Common groundsel
- Common ragweed
- Cow cockle
- Dandelion²
- Green foxtail
- Hempnettle
- Horsetail
- Kochia (Group 2 and 9 resistant)¹
- Lady’s thumb
- Lamb’s quarters
- Narrow-leaved hawk’s beard
- Redroot pigweed
- Russian thistle
- Shepherd’s purse
- Smartweed
- Sow thistle (annual, perennial)
- Stinkweed
- Tansy mustard
- Tartary buckwheat
- Velvetleaf³
- Volunteer canola (including glyphosate-resistant varieties)
- Volunteer cereals
- Wild buckwheat
- Wild mustard

¹ Spray before plants are 2 inches high.
² Top growth control up to 6 leaf.
³ Spray before plants are 3 inches high.

**HOW IT WORKS:**
The combination of bromoxynil and florasulam with glyphosate creates a powerful resistance management tool for pre-seed burn-off. Bromoxynil provides contact herbicide activity and controls Group 2 and Group 9 (glyphosate) resistant biotypes while florasulam, an ALS inhibitor, adds additional control of weeds like hempnettle and narrow-leaved hawk’s beard.

**WATER VOLUME:**
- Ground: 20 – 40 L/ac
- Do not apply by air.
RAINFASTNESS:
30 minutes

SUPPORTED TANK MIXES:
 Glyphosate (DMA, IPA or K-salt formulation)

MIXING INSTRUCTIONS:
1. Fill spray tank ½ full with water.
2. Start spray tank agitation.
3. Add required amount of florasulam.
4. Add required amount of bromoxynil.
5. Add required amount of glyphosate.
6. Fill the tank with sufficient water.

Note: Do not add a surfactant to this tank mixture.

CROP ROTATIONS
Pre-seed: Barley, oats, wheat (spring, durum, winter)

PRE-HARVEST INTERVAL:
Do not harvest the treated crop within 60 days after application.

GRAZING RESTRICTIONS:
Livestock may be grazed on treated crop 30 days following application.

STORAGE:
Do not store at temperatures below freezing.

QUICK TIPS:
Remember not to mix different glyphosate salts (DMA, IP or K+) together. Always put the florasulam in the tank first. Do not apply if there is heavy dust on the leaves. Shallow seeding may increase chance of injury.
LADDER® 240 EC
Get effective grassy weed control in spring and durum wheat that is tank mixable with nearly 30 broadleaf herbicides.

ACTIVE INGREDIENT
Clodinafop-propargyl

CHEMISTRY GROUP
Group 1

APPLICATION RATES AND PACKAGING
- 93 ml/ac for registered grassy weeds except Persian darnel
- 117 ml/ac for Persian darnel control
- 3.68 L of Ladder® 240 EC + 4 L of Adjuvant 80
- 11.04 L of Ladder 240 EC + 12 L of Adjuvant 80

REGISTERED CROPS:
Wheat (spring, durum)

WEEDS CONTROLLED:

<table>
<thead>
<tr>
<th>Timing</th>
<th>Growth Stage</th>
<th>Additional Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnyard grass</td>
<td>1 – 5 leaf stage on main stem</td>
<td>For optimum control, apply before tillering and while barnyard grass is actively growing.</td>
</tr>
<tr>
<td>Foxtail (green, yellow)</td>
<td>1 – 5 leaf stage on main stem</td>
<td>For optimum control, apply prior to emergence of the 3rd tiller and while foxtail is actively growing.</td>
</tr>
<tr>
<td>Persian darnel</td>
<td>1 – 5 leaf stage on main stem</td>
<td>For optimum control, apply before tillering and while Persian darnel is actively growing.</td>
</tr>
<tr>
<td>Volunteer canary seed</td>
<td>1 – 6 leaf stage on main stem</td>
<td>Prior to emergence of 4th tiller.</td>
</tr>
<tr>
<td>Volunteer oats</td>
<td>3 – 6 leaf stage on main stem</td>
<td>Prior to emergence of 4th tiller.</td>
</tr>
<tr>
<td>Wild oats</td>
<td>1 – 6 leaf stage on main stem</td>
<td>Prior to emergence of 4th tiller.</td>
</tr>
</tbody>
</table>

HOW IT WORKS:
Ladder 240 EC is quickly absorbed by the leaves and rapidly moves to the growing points of leaves and stems. Grassy weeds stop growing within 48 hours of application. Complete control, depending on growing conditions, crop competition and species of weed, will occur within 14 – 21 days.

CROP STAGING:
- 1 – 6 leaf stage, prior to the emergence of the 4th tiller.
- When tank mixing with another product, always refer to the label of the tank-mix partner for additional restrictions.

WATER VOLUME:
- Ground: 20 – 40 L/ac
- Aerial: 12 L/ac
RAINFASTNESS:
30 minutes

SUPPORTED TANK MIXES:

Herbicides:
- 2,4-D amine
- Ally®
- Attain®
- Bromoxynil + 2,4-D (Thrasher® II)
- Bromoxynil + MCPA (Badge® II)
- Bromoxynil (Bromotril® II)
- Curtail® M
- Dichlorprop-D
- DyVel®
- Estaprop®
- Fluroxypyr + MCPA ester (Rush M™, Trophy®)
- Lontrel® 360
- Lontrel 360 + MCPA ester 500
- Lontrel 360 + Refine Extra® 75DF
- MCPA 300SL sodium salt
- MCPA amine
- MCPA ester
- Mecoprop
- Prestige™
- Refine Extra®
- Target®
- Turboprop® 600

Insecticides:
- Decis®
- Lambda-cyhalothrin (Silencer® 120 EC, Matador®)

Fungicides:
- Propaconazole (Bumper®, Tilt®)

MIXING INSTRUCTIONS:
1. Fill spray tank ½ full with desired water quantity.
2. When using a tank-mix partner, add the tank-mix partner first and agitate for 2 – 3 minutes.
3. Add Ladder® 240 EC and agitate 2 – 3 minutes.
4. Add Adjuvant 80 and agitate for 1 – 2 minutes, and then add remaining water.
5. Maintain constant agitation during mixing and spraying operations.

CROP ROTATIONS:
No restrictions the year following treatment.

PRE-HARVEST INTERVAL:
60 days

GRAZING RESTRICTIONS:
Do not graze livestock within 3 days of spraying.

STORAGE:
No temperature restrictions.

QUICK TIPS:
When using a tank-mix partner, always add the tank-mix herbicide first. Consult both labels for further instructions.

Always read and follow pesticide label directions.
OUTSHINE™

This selective post-emergent herbicide gives you control of hard-to-kill annual broadleaf weeds in spring wheat, durum wheat and spring barley.

ACTIVE INGREDIENTS
Florasulam, fluroxypyr and MCPA ester

APPLICATION RATES AND PACKAGING
- 40 ac/case
- 2 x 8 L and 1 x 9.33 L MCPA 2 EH ester

REGISTERED CROPS:
- Barley
- Wheat (spring, durum)

WEEDS CONTROLLED:
- Burdock
- Cleavers (including ALS-resistant biotypes)
- Cocklebur
- Common chickweed
- Flixweed
- Hempnettle (including ALS-resistant biotypes)
- Kochia (including ALS-resistant biotypes)
- Lamb’s quarters
- Plantain
- Prickly lettuce
- Ragweed
- Redroot pigweed
- Russian pigweed
- Shepherd’s purse
- Smartweed
- Stinkweed
- Stork’s bill
- Sunflower (annual)
- Vetch
- Volunteer canola (all varieties)
- Volunteer flax
- Wild buckwheat
- Wild mustard
- Wild radish

HOW IT WORKS:
Outshine™, applied early and thoroughly to the main flush of actively growing broadleaf weeds, quickly causes plants to stop growing, even if typical symptoms of dying weeds are not noticeable for 1 – 2 weeks after application.

CROP STAGING:
2-leaf expanded to 6-leaf stage.

WATER VOLUME:
Ground: minimum 40 L/ac

RAINFASTNESS:
2 hours
SUPPORTED TANK MIXES:
Barley:
- Assert®
- Axial®
Wheat (spring, durum):
- Assert
- Axial
- Everest®
- Simplicity™

MIXING INSTRUCTIONS:
1. Fill spray tank ½ full with water and begin agitation.
2. Add the required amount of Outshine™.
3. Add the required amount of MCPA 2 EH ester.
4. Continue filling the tank with sufficient water to spray 40 L/ac of mixture.
5. Use caution near susceptible crops or desirable plants.
6. Product has the potential to leach; avoid excessive irrigation.

CROP ROTATIONS:
- Can be seeded the following year to barley, canola, oats, peas, wheat, or fields to be summerfallowed.
- Do not use in successive years at the same site.

PRE-HARVEST INTERVAL:
Do not harvest treated crop within 60 days of application.

GRAZING RESTRICTIONS:
Do not graze livestock within 7 days of application.

STORAGE:
- Store in original containers in secure, dry, heated storage.
- If product is frozen, bring to room temperature and agitate before use.

QUICK TIPS:
2 unique modes of action and 3 active ingredients provide resistance management and high performance.
PHANTOM® 240 SL

Get early post-emergent broadleaf weed control in peas, dry beans, alfalfa and soybean crops with residual control to eliminate early season weed competition.

ACTIVE INGREDIENT
Imazethapyr

CHEMISTRY GROUP
Group 2

APPLICATION RATES AND PACKAGING
- 85 ml/ac or 80 ac/case
- 2 x 3.3 L jugs/case

REGISTERED CROPS:
- Alfalfa, established (for seed)
- Alfalfa, seedling (forage, seed)
- Chickling vetch (for seed)
- Dry beans (pinto, pink, red)
- Field peas
- Grassy peas
- Soybeans (Manitoba only)

WEEDS CONTROLLED:
Check label as weeds controlled vary by crop.

Broadleaf weeds up to and including 4-leaf stage:
- Chickweed
- Cleavers
- Hempnettle
- Redroot pigweed
- Shepherd’s purse
- Smartweed
- Stinkweed
- Volunteer canola (non-Clearfield®)
- Wild buckwheat¹
- Wild mustard

Grassy weeds:
- Green foxtail
- Wild oats²

¹ Suppression only.
² Apply between the 2- and 4-leaf stage.

HOW IT WORKS:
Phantom® 240 SL is readily absorbed through both leaf and root uptake, and it is translocated in the plant to inhibit amino acid production and cell division. Plant growth is inhibited, and a few days after application, chlorosis and terminal bud death become evident. Leaves and stems become yellow and purple, and root growth may be inhibited. Crop competition is quickly reduced, although complete plant death is relatively slow.
CROP STAGING:
For best results, spray when weeds are in the seedling stage.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Crop Stage</th>
<th>Soil Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa, established (seed production only)²</td>
<td>Apply before alfalfa reaches 12 inches.</td>
<td>N/A</td>
</tr>
<tr>
<td>Alfalfa, seeding (forage or seed)</td>
<td>After the 1st trifoliate leaf.</td>
<td>Black, grey wooded and irrigated brown soils.</td>
</tr>
<tr>
<td>Chickling vetch (for seed), Grassy peas</td>
<td>5 – 7 leaf</td>
<td>N/A</td>
</tr>
<tr>
<td>Dry beans (pinto, pink, red)</td>
<td>Up to and including the 2nd trifoliate leaf.</td>
<td>Black, grey wooded and irrigated brown soils.</td>
</tr>
<tr>
<td>Field peas</td>
<td>Up to the 6th trifoliate leaf.</td>
<td>Black and grey wooded soils.</td>
</tr>
<tr>
<td>Soybeans (Manitoba only)</td>
<td>1 – 3 leaf</td>
<td>N/A</td>
</tr>
</tbody>
</table>

²Do not use in the last year of seed production.

WATER VOLUME:
- Ground: 40 – 160 L/ac
- Do not apply by air.

RAINFASTNESS:
6 hours or reduced control may occur on foliar application.

SUPPORTED TANK MIXES:
None registered.

MIXING INSTRUCTIONS:
1. Fill the spray tank ½ –¾ full with water.
2. Add the required amount of Phantom® 240 SL while agitating the spray solution.
3. While agitating, add non-ionic surfactant containing at least 80% active ingredient (e.g. Agral®, Ag-Surf®) at the rate of 0.25% (2.5 L of surfactant per 1,000 L of spray solution).
4. Fill the remainder of the tank with water.

CROP ROTATIONS:
Research studies have shown the following crops can be safely grown in black and grey wooded soil zones the year following application:
- Alfalfa
- Clearfield® canola (imazethapyr and imazamox tolerant)
- Field peas
- Lentils
- Spring barley
- Spring wheat

PRE-HARVEST INTERVALS:
- Dry beans: 75 days
- Field peas, chickling vetch, grassy peas: 60 days
- Soybeans: 85 days

GRAZING RESTRICTIONS:
- Do not graze or harvest seedling alfalfa within 14 days of treatment.
- Do not graze or harvest field peas for feed within 30 days of treatment.
- Do not graze other treated crops or cut for feed prior to crop maturity.

STORAGE:
Do not store below freezing.

QUICK TIPS:
Consult your local provincial guidelines or other herbicide labels for potential tank-mix partners.

Always read and follow pesticide label directions.
HERBICIDE

PRIORITY®

This is the ideal glyphosate tank-mix partner to keep fields free of weeds in chemfallow and post-harvest applications. It controls a wide range of annual broadleaf and grassy weeds.

ACTIVE INGREDIENT
Florasulam

CHEMISTRY GROUP
Group 2

APPLICATION RATES AND PACKAGING
- Priority® at 0.04 L/ac or 320 ac/case + glyphosate at 0.5 L/ac at 360 g a.i.
- 2 x 6.4 L jugs/case

APPLICATION TIMING:
- Chemfallow: Apply when weeds are actively growing in 1 – 4 leaf stage.
- Post-harvest: Apply from late September to freeze-up.
- Low-disturbance seeding system: Apply just prior to seeding.
- Other seeding systems: Apply 1 week prior to seeding.

WEEDS CONTROLLED BY PRIORITY + GLYPHOSATE:

Controlled (2 – 4 leaf stage):
- Canada fleabane
- Cleavers
- Common chickweed
- Common ragweed
- Cow cockle
- Dandelion
- Downey brome
- Flixweed
- Giant foxtail
- Green foxtail
- Hempnettle
- Lady’s thumb
- Lamb’s quarters
- Narrow-leaved hawk’s beard
- Persian darnel
- Redroot pigweed
- Russian thistle
- Shepherd’s purse
- Smartweed
- Stinkweed
- Volunteer barley
- Volunteer canola
- Volunteer flax
- Volunteer wheat
- Wild buckwheat
- Wild mustard
- Wild oats

WEEDS SUPPRESSED BY PRIORITY + GLYPHOSATE:
- Kochia
- Annual sow thistle
- Perennial sow thistle

180 g of active ingredient per acre.
Less than 3 inches in height.
Mature plants up to 12 inches in diameter, rosettes and seedlings.
Including all herbicide-tolerant canola varieties.
Up to 5 leaves.
Applications made at advanced stages will be less effective.

HOW IT WORKS:
Priority inhibits the production of the ALS enzyme, quickly causing plants to stop growing and become discoloured (red, yellow, purple) at the growing point and spreading to the entire plant within 1 – 3 weeks.
**WATER VOLUME:**
- Ground: 20 – 40 L/ac
- Do not apply by air.

**RAINFASTNESS:**
30 minutes

**SUPPORTED TANK MIXES:**
- Tank mix Priority® herbicide at a rate of 0.04 L/ac with 180 g a.i./ac of glyphosate DMA, IPA or K salt formulation (0.5 L at 360 g equivalent).
- For improved control of larger annual weeds and control of established perennial weeds, Priority may be tank mixed with a higher rate of glyphosate.
- ADAMA supports the use of any glyphosate salt (DMA, IPA or K+).

**MIXING INSTRUCTIONS:**
1. Fill spray tank ½ full with water.
2. Start spray tank agitation.
3. Add the required amount of Priority.
4. Add tank-mix partner and continue to agitate.
5. Fill the tank with sufficient water to spray 40 L/ac of mixture.

**Note:** Do not add a surfactant to this tank mixture.

**CROP ROTATIONS:**
- Chemfallow: When applied prior to August 1, barley, canola, oats, peas and wheat (spring, durum, winter) can be seeded the following year.
- Chemfallow after August 1 and post-harvest: Barley, oats and wheat (spring, durum, winter) can be seeded the following year.

**PRE-HARVEST INTERVAL:**
Do not harvest the treated crop within 60 days of application.

**GRAZING RESTRICTIONS:**
Livestock may be grazed on treated crops 7 days following application.

**STORAGE:**
- Store in original containers in secure, dry, heated storage.
- Priority will freeze at -10 C. If product is frozen, bring to room temperature and agitate before use.

**QUICK TIPS:**
Priority can be mixed with the glyphosate of your choice. Remember not to mix different glyphosate salts (DMA, IPA or K+) together.
QUICK TIPS:
Do not apply if there is heavy dust on the leaves. Do not apply prior to heavy rainfall as leaching to root zone may occur. Shallow seeding increases chance of injury.
HERBICIDE

RUSH™ 24

It has 2 Group 4 active ingredients to control a wide spectrum of tough broadleaf weeds like kochia, cleavers and wild buckwheat (including Group 2 resistant biotypes) in spring wheat, durum wheat and barley, with excellent grassy weed tank mixability. It also has lots of tank-mix options for grassy weed control.

ACTIVE INGREDIENTS
Fluroxypyr and 2,4-D ester

CHEMISTRY GROUP
Group 4

APPLICATION RATES AND PACKAGING
- 180 ml/ac fluroxypyr + 260 ml/ac 2,4-D ester 700 or 40 ac/case
- 1 x 9.6 L fluroxypyr jug + 1 x 9.8 L 2,4-D ester 700 jug
- 115.2 L fluroxypyr + 117.6 L 2,4-D ester treats 480 acres

REGISTERED CROPS:
- Barley
- Wheat (spring, durum)

WEEDS CONTROLLED:

2 – 4 leaf stage unless otherwise noted:
- Bluebur
- Burdock
- Cleavers
- Cocklebur
- Field horsetail1
- Flixweed
- Goat’s beard
- Hoary cress1
- Kochia2
- Lamb’s quarters
- Plantain
- Prickly lettuce
- Ragweed
- Shepherd’s purge
- Stinkweed
- Sunflower (annual)
- Sweet clover
- Vetch
- Volunteer canola3
- Volunteer flax (½ – 5 inches)
- Wild buckwheat (1 – 6 leaf)
- Wild mustard
- Wild radish

For even tougher broadleaf weed control, add an additional 81 ml/ac 2,4-D ester:
- Blue lettuce1
- Dandelion4
- Docks
- Dog mustard
- Field bindweed1
- Field peppergrass
- Gumweed
- Russian thistle
- Smartweed
- Stork’s bill (1 – 8 leaf)
- Hairy galinsoga
- Hedge bindweed
- Lady’s thumb
- Leafy spurge1
- Narrow-leaved hawk’s beard (1 – 2 leaf)
- Oak-leaved goosefoot
- Redroot pigweed
- Round-leaved mallow
- Tansy
- Tartary buckwheat
- Wild buckwheat (1 – 8 leaf)

WEEDS SUPPRESSED:
- Annual sow thistle
- Canada thistle1
- Common chickweed (up to 3 inches)
- Hempnettle (2 – 6 leaf)
- Perennial sow thistle

1Top growth control only.
2Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.
3Including all herbicide-resistant canola varieties.
4Spring rosettes.
HOW IT WORKS:
Group 4 herbicides disrupt normal plant growth regulation, resulting in twisting and cupping of leaves and death of susceptible plants in 2–10 days.

CROP STAGING:
- 4 leaf up to the emergence of the flag leaf.
- Application before the 4-leaf stage of wheat and barley may lead to yield loss.

WATER VOLUME:
Ground: 40 L/ac

RAINFASTNESS:
2 hours

SUPPORTED TANK MIXES:
Wheat only:
- Clodinafop (Ladder® 240 EC)
- Everest®
- Fenoxaprop
- Simplicity™

Wheat and barley:
- Assert®
- Tralkoxydim (Bison® 400 L)

1 Additional 2,4-D ester is not recommended when mixing Rush™ 24 and Simplicity.

MIXING INSTRUCTIONS:
1. Fill the spray tank ½ full with water. With agitation running, add the required volume of fluroxypyr, followed by the required volume of 2,4-D ester.
2. Fill tank with remaining water.
3. If tank mixing with a grassy weed herbicide, read both labels and follow the more stringent directions for tank mixing.

CROP ROTATIONS:
The following crops may be grown 1 year after application:
- Barley
- Canola
- Flax
- Forage grass
- Lentils
- Mustard
- Oats
- Peas
- Rye
- Wheat

PRE-HARVEST INTERVAL:
60 days

GRAZING RESTRICTIONS:
- Do not feed or cut forage grasses for hay.
- Do not permit lactating dairy animals to graze cereal fields within 7 days of application. Do not harvest cereal crops for forage or cut hay within 30 days of application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

STORAGE:
Avoid freezing.

QUICK TIPS:
Get optimal weed control by applying between temperatures of 12–24 C. Reduced activity will occur when temperatures are below 8 C or above 27 C. Frost 3 days before or after application may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions.

Always read and follow pesticide label directions.
This post-emergent herbicide gives you superior control of tough broadleaf weeds like chickweed, cleavers and wild buckwheat in spring wheat, durum wheat and barley.

**ACTIVE INGREDIENT**
Fluroxypyr and MCPA ester

**CHEMISTRY GROUP**
Group 4

**APPLICATION RATES AND PACKAGING**
- 240 ml/ac fluroxypyr + 380 ml/ac MCPA ester 600 or 20 ac/case
- 1 x 4.8 L fluroxypyr jug + 1 x 7.5 L MCPA ester 600
- 76.8 L fluroxypyr and 120 L MCPA ester treats 320 acres

**REGISTERED CROPS:**
- Barley
- Wheat (spring, durum)

**WEEDS CONTROLLED:**
2 – 4 leaf stage unless otherwise noted:
- Burdock
- Cleavers (1 – 4 whorls)
- Cocklebur
- Common ragweed
- Hempnettle (2 – 6 leaf)
- Kochia (including ALS-resistant biotypes)
- Lamb’s quarters
- Mustards (except dog and tansy)
- Prickly lettuce
- Redroot pigweed
- Shepherd’s purse
- Stinkweed
- Sunflower (annual)
- Vetch
- Volunteer canola
- Volunteer flax (½ – 5 inches)
- Wild mustard
- Wild radish

**WEEDS SUPPRESSED:**
- Smartweed (green)
- Stork’s bill (1 – 8 leaf)
- Wild buckwheat (1 – 8 leaf)

**HOW IT WORKS:**
Systemic Group 4 herbicides disrupt normal plant growth regulation, resulting in death of susceptible plants.

**CROP STAGING:**
3 leaf up to the full emergence of the flag leaf.

**WATER VOLUME:**
40 L/ac

**RAINFASTNESS:**
None specified.
SUPPORTED TANK MIXES:
Wheat and barley:
- Assert®
- Fenoxaprop
- Clodinaflop (Ladder® 240 EC) (wheat only)
- Tralkoxydim (Bison® 400 L)

MIXING INSTRUCTIONS:
1. Fill the spray tank 1/2 full with water and start agitation.
2. Add the required amount of Rush M™ and continue agitation.
3. Add the required amount of MCPA and continue agitation.
4. Fill tank with sufficient water to spray 40 L/ac of mixture.

CROP ROTATIONS:
Fields can be summerfallowed, or the following crops can be grown 1 year after application:
- Barley
- Canola
- Flax
- Forage grass
- Lentils
- Mustard
- Oats
- Peas
- Rye
- Wheat

PRE-HARVEST INTERVAL:
60 days

GRAZING RESTRICTIONS:
- Do cut hay within 7 days of application.
- Do not permit any grazing within 7 days of application.

STORAGE:
- Store in original container in dry, heated storage.
- If frozen, bring to room temperature and agitate before use.

QUICK TIPS:
The optimal temperature range is 12 – 24 C. Reduced activity will occur when temperatures are below 8 C or above 27 C. Frost 3 days before or after application may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions.
This broad-spectrum herbicide is registered for grassy and broadleaf weed control in a wide range of crops, most notably lentils, peas, chickpeas, faba beans, soybeans and potatoes. It can work alone or in combination with recommended tank mixes.

**ACTIVE INGREDIENT**
Metribuzin

**CHEMISTRY GROUP**
Group 5

**APPLICATION RATES AND PACKAGING**
- 1 case – 4 x 5 kg jugs, treats 60 – 240 acres
- Please refer to the label for application rates as these vary based on crop, soil type and application methods.

**REGISTERED CROPS:**
- Asparagus (established)
- Chickpeas
- Dryland winter wheat
- Faba beans
- Field peas
- Highbush blueberries (newly seeded)
- Lentils
- Potatoes (including sprinkler irrigation)
- Processing peas
- Shelterbelts
- Soybeans
- Spring barley
- Spring wheat

**WEEDS CONTROLLED:**
- Annual bluegrass
- Ball mustard
- Barnyard grass
- Bromegrass
- Common chickweed
- Common groundsel
- Corn spurry
- Cow cockle
- Downy brome
- Flixweed
- Green foxtail
- Green smartweed
- Goose grass
- Hempnettle
- Kochia
- Lady’s thumb
- Lamb’s quarters
- Night-flowering catchfly
- Persian darnel
- Redroot pigweed
- Russian thistle
- Shepherd’s purse
- Stinkweed
- Tartary buckwheat
- Volunteer non-triazine-tolerant canola
- Wild buckwheat
- Wild mustard
- Wild oats
- Wormseed mustard
- Yellow foxtail

1 Control at 80 g/ac post-emergence.
2 Suppression at 80 g/ac post-emergence.
3 Control at 110 g/ac post-emergence.
4 Control at 150 g/ac post-emergence.
5 Control at 225 – 300 g/ac post-emergence.
6 Pre-seed incorporated with Treflan™ EC or Rival® herbicide.
7 Suppression only in chickpeas and lentils as post-emergence application.
HOW IT WORKS:
Metribuzin inhibits the photosynthesis of grassy and broadleaf weeds. Used pre-emergent, susceptible weeds and crop seedlings emerge through treated soil, but 2 – 5 days later the weeds show chlorosis and necrosis. Plants treated post-emergent show chlorosis and necrosis between leaf veins, followed by wilting and death.

SOIL TYPES AND RESTRICTIONS:
The recommended use rates of Squadron® are dependent upon soil texture and the organic matter content of the soil being treated: coarse, medium and fine.

The following chart outlines the soil textures included in each of the soil texture groupings:

<table>
<thead>
<tr>
<th>Coarse</th>
<th>Medium</th>
<th>Fine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loamy sand,</td>
<td>Loam, Silt loam, Silt,</td>
<td>Silty clay loam, Silty clay, Clay</td>
</tr>
<tr>
<td>Sandy loam</td>
<td>Sandy clay loam, Sandy clay</td>
<td>Clay loam, Clay</td>
</tr>
</tbody>
</table>

- On variable soils with coarse sandy areas, some crop injury may occur on the sandy areas if the rate used is for the finer soil type.
- Sandy loam and silty clay loam soils are transitional soils and may be classified as medium-textured soils in some regions.
- Do not use this product on muck soils. If Squadron is applied to muck soils, subsequent crops may be injured.
- Do not use on coarse soils with less than 2% organic matter.

SUPPORTED TANK MIXES:
Spring wheat and spring barley (post-emergent):
- MCPA amine
- 2,4-D amine
- Banvel® II
- Target® Liquid

Field peas (post-emergent):
- MCPA sodium salt

Lentils, soybeans, faba beans and field peas (pre-seed incorporated):
- Treflan™ EC

Potatoes (pre-seed incorporated and pre-emergence through irrigation system):
- Eptam® 8-E

RAINFASTNESS:
6 hours after foliar application

Always read and follow pesticide label directions.
APPLICATION TIMING AND CROP STAGING:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Crop Stage</th>
<th>Application Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td>2–5 leaf</td>
<td>Post-emergence</td>
</tr>
<tr>
<td>Wheat</td>
<td>2–5 leaf</td>
<td>Post-emergence</td>
</tr>
<tr>
<td>Peas</td>
<td>Pea vines must be less than 6 inches long at time of post-emergent application.</td>
<td>Post-emergence or pre-seed incorporated (spring and fall)</td>
</tr>
<tr>
<td>Chickpeas</td>
<td>1–3 above ground nodes</td>
<td>Post-emergence</td>
</tr>
<tr>
<td>Lentils</td>
<td>Vines must be less than 6 inches long or in 3–5 node stage.</td>
<td>Post-emergence or pre-seed incorporation (fall)</td>
</tr>
<tr>
<td>Soybeans</td>
<td>Before seeding</td>
<td>Pre-seed incorporation (spring)</td>
</tr>
<tr>
<td>Fababean</td>
<td>Before seeding</td>
<td>Pre-seed incorporated (spring and fall)</td>
</tr>
<tr>
<td>Potatoes</td>
<td>First use on a potato variety should be limited to a small test area to ensure varietal tolerance.</td>
<td>Post-emergence or pre-seed incorporated. Refer to the label for sprinkler irrigation application.</td>
</tr>
</tbody>
</table>

CROP ROTATIONS:
Rotational crops such as onions, celery, peppers, cole crops, lettuce and spinach, sugar beets, table beets and turnips, pumpkins and squash, cucumbers and melons, tobacco and non-triazine-tolerant canola (rapeseed) are sensitive to Squadron and may be injured if seeded in soil treated with Squadron during the year of application or the following crop year.

Fall seeded or cover crops such as wheat, oats and rye may be injured when seeded within the same season as the application of Squadron.

GRAZING:
- Do not graze treated wheat or barley for 30 days after application.
- Do not graze peas, chickpeas or lentils for 70 days after application.
HERBICIDE

THRASHER® II

Provides excellent dual modes of action for control of 26 tough broadleaf weeds (including Group 2 resistant kochia) in wheat and barley.

ACTIVE INGREDIENTS
Bromoxynil and 2,4-D ester

CHEMISTRY GROUPS
Group 4 (2,4-D ester) and Group 6 (bromoxynil)

APPLICATION RATES AND PACKAGING
- 500 ml/ac or 40 ac/case
- 2 x 10 L jugs/case
- 120 L drum treats 240 acres

REGISTERED CROPS:
- Barley
- Wheat (spring, durum)

WEEDS CONTROLLED:
4-leaf stage unless otherwise noted:
- American nightshade
- Ball mustard
- Bluebur
- Cocklebur
- Common buckwheat (8 leaf)
- Common groundsel (8 leaf)
- Common ragweed
- Cow cockle
- Flixweed
- Green smartweed
- Kochia (2 inches high or 1–12 leaf)
- Lady’s thumb
- Lamb’s quarters (8 leaf)
- Night-flowering catchfly
- Pale smartweed
- Redroot pigweed
- Russian thistle (2–12 leaf)
- Shepherd’s purse
- Stinkweed (8 leaf)
- Tartary buckwheat (8 leaf)
- Triazine-resistant pigweed
- Velvetleaf (3 inches high)
- Volunteer canola
- Volunteer sunflower
- Wild buckwheat (8 leaf)
- Wild mustard (8 leaf)

¹Weeds can be controlled up to the recommended stage.

HOW IT WORKS:
A combination of systemic and contact activity with weeds yellowing within 2–4 days and exhibiting abnormal growth (twisting and cupping of leaves) in 2–10 days.

CROP STAGING:
4 leaf to early flag leaf.

WATER VOLUME:
- Ground: 20 – 40 L/ac
- Aerial: 12 – 16 L/ac

RAINFASTNESS:
1 hour
HERBICIDE

THRASHER® II

SUPPORTED TANK MIXES:
Wheat (spring, durum) and barley:
  - Avenge®
  - Tralkoxydim (Bison® 400 L)
Wheat (spring, durum) only:
  - Clodinafop (Ladder® 240 EC)
  - Everest®

MIXING INSTRUCTIONS:
1. Fill the spray tank ½ full with water.
2. Add the required amount of Thrasher® II and agitate thoroughly.
3. Fill the tank with remaining water and agitate again before use.

CROP ROTATIONS:
No restrictions the year after application.

PRE-HARVEST INTERVAL:
30 days

GRAZING RESTRICTIONS:
- Do not permit livestock to graze fields within 30 days of application.
- Do not harvest, forage or cut for hay within 30 days of application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

STORAGE:
- Will solidify at temperatures below -20 C but will become usable at temperatures above 0 C.
- Shake well before using.

QUICK TIPS:
For best results when there is a heavy crop canopy, or when the majority of the weeds are cow cockle, smartweed or pigweed, use higher water volumes. Spray when weeds are in the seedling stage. Apply in good growing conditions. Application must be made before the crop canopy shields the weeds.

Always read and follow pesticide label directions.
**HERBICIDE**

**TOPLINE™**

It controls a wide spectrum of broadleaf weeds with excellent wild buckwheat, cleavers and chickweed control. It also gives you multiple modes of action in wheat, barley and oat crops.

**ACTIVE INGREDIENTS**
- Florasulam and MCPA ester

**CHEMISTRY GROUPS**
- Group 2 (florasulam) and Group 4 (MCPA ester)

**APPLICATION RATES AND PACKAGING**
- 40 ml/ac florasulam + 230 ml/ac MCPA ester, or 40 ac/case
- 1 x 1.6 L florasulam jug + 1 x 9.33 L MCPA ester jug/case

**REGISTERED CROPS:**
- Barley
- Oats
- Wheat (spring, durum)

**WEEDS CONTROLLED:**

### 1–4 leaf stage:
- Ball mustard
- Burdock
- Common chickweed
- Cleavers
- Cow cockle
- Flixweed
- Hempnettle¹
- Lamb’s quarters
- Redroot pigweed
- Russian pigweed
- Prickly lettuce
- Ragweed
- Shepherd’s purse
- Smartweed
- Stinkweed
- Sunflower (annual)
- Volunteer canola²
- Wild buckwheat
- Wild mustard
- Plantain⁴
- Perennial sow thistle
- Stork’s bill¹

### Suppressed:
- Annual sow thistle¹
- Canada thistle¹
- Dandelion¹,³
- Annual sow thistle
- Canada thistle
- Dandelion

¹ For heavy infestations, add 47 ml/ac of MCPA ester for improved control.
² Including all herbicide-resistant varieties.
³ Seedlings and overwintered rosettes less than 6 inches.
⁴ Top growth control only.

**HOW IT WORKS:**
The Group 2 herbicide inhibits the production of the ALS enzyme in plants. This enzyme is essential for the production of certain amino acids required for plant growth. The Group 4 herbicide disrupts normal plant growth regulation, resulting in death of susceptible plants.

**CROP STAGING:**
Expanded 2-leaf up to the 6-leaf stage.

**WATER VOLUME:**
Ground: 40 L/ac
RAINFASTNESS:
2 hours

SUPPORTED TANK MIXES:
Wheat and barley:
- Assert®
- Axial®

Wheat only:
- Everest®
- Simplicity™
- Clodinafop (Ladder® 240 EC)

MIXING INSTRUCTIONS:
1. After filling the spray tank ½ full with water, and with agitation running, add the required amount of florasulam, followed by the required amount of MCPA ester.
2. Fill tank with remaining water.

Note: Do not add a surfactant to this mixture.

CROP ROTATIONS:
Wheat, barley, oats, canola and peas may be grown the year following an application.

PRE-HARVEST INTERVAL:
60 days

GRAZING RESTRICTIONS:
- Do not cut for feed or hay or allow lactating dairy animals to graze treated crops or within 7 days of application.
- Withdraw meat animals from treated feed 3 days prior to marketing.

STORAGE:
- Store in dry, heated area.
- If frozen, bring to room temperature and agitate before use.

QUICK TIPS:
Topline™ is well suited to dark brown, black and grey soil zones where cleavers, hempnettle, wild buckwheat and volunteer canola are main concerns.
<table>
<thead>
<tr>
<th>INSECTICIDE</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PYRINEX® 480 EC</td>
<td>41</td>
</tr>
<tr>
<td>SILENCER® 120 EC</td>
<td>43</td>
</tr>
<tr>
<td>SOMBRERO™ 600 FS</td>
<td>45</td>
</tr>
</tbody>
</table>

Always read and follow pesticide label directions.
BUGS HAVE NOWHERE TO HIDE
INSECTICIDE

PYRINEX® 480 EC

Get flexible, broad-spectrum insect control in cereals, canola and many other field and specialty crops.

ACTIVE INGREDIENT
Chlorpyrifos

CHEMISTRY GROUP
Group 1B

APPLICATION RATES AND PACKAGING
Common field crop rates:
- 234 – 600 ml/ac or 42 – 17 ac/10 L jug: consult the label for specific application rates
- 2 x 10 L jugs/case
- 205 L drum (rates vary)

REGISTERED CROPS:
- Canola
- Cereals (wheat, barley, oats)
- Corn (field, sweet)
- Flax
- Lentils
- Potatoes
- Sunflowers
- Wide variety of specialty crops

PYRINEX® 480 EC is registered on almost 30 crops; refer to the label for more information.

KEY INSECTS CONTROLLED:
- Armyworm (including bertha armyworm)
- Cabbage maggot
- Cutworms
- Diamondback moth larvae
- Grasshoppers
- Lygus bugs
- Orange wheat blossom midge
- Potato flea beetle
- Wheat midge
- Colorado potato beetle (larvae)
- Seed weevil

Other insects:
- Alfalfa looper
- Brown wheat mite
- Russian wheat aphid
- Alfalfa looper
- Brown wheat mite
- Russian wheat aphid

For a complete listing of insects controlled, refer to the product label.

HOW IT WORKS:
An organophosphate insecticide that controls insects through contact, ingestion and vapour inhalation.

APPLICATION TIMING AND CROP STAGING:
The need and timing of an application should be based on the presence of pests at vulnerable developmental stages and significant populations, as determined by local monitoring. Consult the label for specific crop and insect timing.

WATER VOLUME:
- Ground: 20 – 80 L/ac
- Air: 4 – 12 L/ac

RAINFASTNESS:
4 – 6 hours
INSECTICIDE

PYRINEX® 480 EC

SUPPORTED TANK MIXES:
Pyrinex® 480 EC can be tank mixed with the herbicides listed for wheat, oats and barley. When tank mixing, first add the herbicide to the spray tank and then add Pyrinex 480 EC.

- 2,4-D amine
- 2,4-D ester
- Avenge®
- Banvel® + 2,4-D amine
- Bumper®
- Fenoxoprop-p-ethyl (Badge® II, Buctril® M)
- MCPA amine
- MCPA ester
- Overall® 240 SC

MIXING INSTRUCTIONS:
1. Fill spray tank with water to 2/3 of final spray volume.
2. If tank mixing, add required amount of herbicide or fungicide.
3. Add required amount of Pyrinex 480 EC with agitation.
4. Fill tank with water to the final desired volume.
5. Keep agitator running during mixing and application.

CROP ROTATIONS:
No restrictions the following year.

PRE-HARVEST INTERVALS:
- Canola: 21 days
- Cereals (wheat, barley, oats): 60 days
- Corn (field, sweet): 70 days
- Flax: 21 days
- Lentils: 21 days
- Potatoes: 70 days
- Sunflowers: 42 days

Consult label for further PHI on special crops.

GRAZING RESTRICTIONS:
Cereals grown as a cover crop and treated with Pyrinex 480 EC insecticide should not be harvested for human or animal consumption within 60 days of application.

STORAGE:
- Do not store near heat or open flame.
- Avoid storage at high temperatures.
- Do not freeze.

QUICK TIPS:
Avoid application under hot temperatures. Get the best control of wheat midge and cutworms by applying insecticide in the evening (after 7 p.m.) or morning (before 8 a.m.). Use enough water to get thorough coverage of the intended soil, plant or pest target. Wait 24 hours before re-entry.

Always read and follow pesticide label directions.
Silencer® 120 EC controls a wide range of insects in field, tree fruit and horticulture crops.

**ACTIVE INGREDIENT**  
Lambda-chyalothrin

**CHEMISTRY GROUP**  
Group 3

**APPLICATION RATES AND PACKAGING**
- 17 – 51 ml/ac or 220 – 74 ac/3.785 L jug; consult the label for specific application rates
- 4 x 3.785 L jugs per case

Silencer 120 EC is registered for use on more than 30 crops; refer to the label for more information.

**REGISTERED CROPS:**
- Alfalfa
- Beans
- Canola
- Cereals (wheat, barley, oats)
- Chickpeas
- Corn (field)
- Flax
- Lentils
- Peas
- Potatoes
- Soybeans
- Sunflowers
- Timothy
- Variety of specialty crops

**KEY INSECTS CONTROLLED:**
- Aphids
- Bertha armyworms
- Cabbage seedpod weevil
- Corn borers
- Cutworms
- Diamondback moth larvae
- Grasshoppers
- Lygus bugs
- Alfalfa weevil
- Bean leaf beetle
- Colorado potato beetle
- Flea beetles
- Potato leaf hopper
- Sunflower beetle
- Swede midge
- Tarnished plant bug

For a complete listing of insects controlled, refer to the product label.

**HOW IT WORKS:**
Fast-acting stomach and contact insecticide that is resistant to rain wash off.

**APPLICATION TIMING AND CROP STAGING:**
The need and timing of an application should be based on the presence of pests at vulnerable developmental stages and significant populations, as determined by local monitoring. Consult the label for specific crop and insect timing.

**WATER VOLUME:**
- Ground: 40 – 80 L/ac
- Aerial: 4 – 16 L/ac
RAINFASTNESS:
Not applicable.

SUPPORTED TANK MIXES:
Herbicides:
· Clodinafop (Ladder® 240 EC)
· Tralkoxydim (Bison® 400 L)
Fungicides:
· Propiconazole (Bumper®)
· Headline® EC

MIXING INSTRUCTIONS:
Confirm compatibility in advance by premixing small proportional quantities of water with Silencer® 120 EC and the tank-mix partner.

CROP ROTATIONS:
No restrictions the year following treatment.

PRE-HARVEST INTERVALS:
· Corn (silage, field): 14 days
· Legumes (soybeans, beans, peas, faba beans, chickpeas, lentils): 21 days
· Oilseeds: 7 days
· Potatoes: 7 days
· Sunflowers: 7 days
· Timothy: 14 days
· Wheat, barley, oats: 28 days
· Wheat for forage: 14 days

GRAZING RESTRICTIONS:
Do not graze livestock within 3 days of application.

STORAGE:
Store above 0 C.

QUICK TIPS:
Apply below temperatures of 25 C. Apply in the evening or early morning when temperatures are cool to get the best control. Wait 24 hours before re-entry.

⚠️ Always read and follow pesticide label directions.
This seed treatment gives you long-lasting, early season control of tough insect pests – including wireworms and flea beetles – in cereals, oilseeds, soybeans and corn.

**ACTIVE INGREDIENT**
Imidacloprid

**CHEMISTRY GROUP**
Group 4

**PACKAGING**
- 8 x 1.54 L

**REGISTERED CROPS:**
- Barley
- Canola
- Corn
- Mustard
- Oats
- Soybeans
- Wheat (durum, spring, winter)
- Wheat (durum, spring, winter)

*Registered for use on this seed in commercial seed treatment facilities only.

**KEY INSECTS CONTROLLED:**
- Bean leaf beetle
- Corn flea beetle
- Flea beetle
- Seedcorn maggot
- Soybean aphid
- Wireworms

**HOW IT WORKS:**
Sombrero™ 600 FS contains a proven, highly-effective seed treatment insecticide that gives you broad-spectrum control of above and below ground pests. Once treated seed is planted, the active ingredient in Sombrero 600 FS is released and forms a protective barrier around the seed. As the plant grows, systemic action transports Sombrero 600 FS throughout the developing stem and leaves, ensuring lasting insect control and giving the crop the defense to grow to its potential.

**APPLICATION RATES:**
A colourant MUST be added in accordance with the PCP Act and the Seeds Act Regulations.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Insect</th>
<th>Rate</th>
<th>Application Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn, Field corn for seed production</td>
<td>Wireworms</td>
<td>21.3 ml/80,000 seeds</td>
<td>Dilute in sufficient water to achieve uniform coverage on the seed. Ensure seed is adequately coloured. Other polymers and coating materials may be required.</td>
</tr>
<tr>
<td>Field corn for seed production</td>
<td>Corn flea beetle</td>
<td>80 ml/80,000 seeds</td>
<td></td>
</tr>
<tr>
<td>Wheat (durum, spring, winter), Barley, Oats</td>
<td>Wireworms</td>
<td>17 – 50 ml/100 kg seed</td>
<td>Dilute in sufficient liquid to achieve uniform coverage on the seed.</td>
</tr>
<tr>
<td>Soybeans</td>
<td>Soybean aphid, Bean leaf beetle, Seedcorn maggot, Wireworm</td>
<td>104 – 208 ml/100 kg seed</td>
<td>Use the higher rate for early seeding, when insect populations are expected to be high, and to extended control period for aphids. Dilute in sufficient liquid to achieve uniform coverage on the seed.</td>
</tr>
<tr>
<td>Canola/Mustard</td>
<td>Flea beetle</td>
<td>667 – 1333 ml/100 kg seed</td>
<td>In areas where flea beetle populations are high, use the higher application rate.</td>
</tr>
</tbody>
</table>
WATER VOLUME:
Dilute in sufficient liquid to achieve uniform coverage on the seed.

TANK MIXES WITH FUNGICIDES:
- Wheat (spring, winter, durum), barley, oats: Raxil® T – 225 ml/100 kg seed
- Wheat (spring, winter, durum), barley, oats: Raxil® MD – 300 ml/100 kg seed
- Soybeans: Apron Maxx® RTA® – 325 ml/100 kg seed
- Soybeans: Apron Maxx® RFC – 100 ml/100 kg seed

MIXING INSTRUCTIONS:
1. Add fungicide.
2. Add coating agents.
3. Add Sombrero™ 600 FS.

STORAGE:
- Do not store Sombrero 600 FS at low temperatures.
- Prior to and during application, Sombrero 600 FS must be thoroughly agitated to ensure uniform mixing of the product.
- Due to viscosity of the material, it should be kept at 10 C prior to and during application. Do not apply direct heat to container.

USE RESTRICTIONS:
1. Do not use treated seed for food, feed or oil processing.
2. Do not graze or feed livestock on treated areas for 4 weeks after seeding.
3. Mustard greens grown or harvested from Sombrero 600 FS treated seed can’t be used for human consumption.
4. Treated canola, rapeseed or mustard (condiment type only) seed stored for periods exceeding 6 months may decrease in germination at a faster rate than untreated seed. Treated seed stored for more than 6 months should be tested for germination before seeding. Do not store treated seed above 25 C or in direct sunlight.
5. This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. Using it in areas where soils are permeable, or the water table is shallow, may result in ground water contamination.

QUICK TIPS:
For optimal insect control, make sure to get good seed coverage.
For resistance management, rotate Sombrero 600 FS with different groups that control the same pests in a field.
Always read and follow pesticide label directions.
DISEASES ARE DONE FOR
**FUNGICIDE**

**BUMPER®**

This broad-spectrum systemic fungicide protects against yield and quality losses due to leaf disease.

**ACTIVE INGREDIENT**

Propiconazole

**CHEMISTRY GROUP**

Group 3

**APPLICATION RATES AND PACKAGING**

- 60 ml/ac or 80 ac/4.8 L jug in wheat and barley for early season control
- 120 ml/ac or 40 ac/4.8 L jug at the full rate
- 2 x 4.8 L jugs/case
- For fruit and specialty crops, see label for rates

**REGISTERED CROPS:**

- Barley
- Canary seed
- Canola
- Corn
- Dry edible beans
- Oats
- Soybeans
- Wheat (spring, winter, durum)
- Variety of specialty crops

**KEY DISEASES CONTROLLED:**

- Blackleg
- Frogeye leaf spot
- Net and spot blotches
- Powdery mildew
- Rusts
- Septoria spots and blotches
- Scalds
- Tan spots

**HOW IT WORKS:**

Broad-spectrum, systemic activity with excellent leaf surface protection and translocation within the plant for additional disease prevention.

**APPLICATION TIMING AND CROP STAGING:**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Diseases</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ rate at 60 ml/ac</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barley</td>
<td>Net blotch</td>
<td>Early: Growth stage 12 – 23, as early as the 2-leaf stage.</td>
</tr>
<tr>
<td>Wheat</td>
<td>Septoria leaf spot, Tan spot</td>
<td></td>
</tr>
<tr>
<td>Full rate at 120 ml/ac</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barley</td>
<td>Leaf and stem rust, Septoria leaf spot, Powdery mildew, Scald, Spot blotch</td>
<td>Early: Growth stage 29 – 37, at the first sign of disease, usually at the beginning of stem elongation.</td>
</tr>
<tr>
<td>Oats</td>
<td>Crown rust, Septoria leaf blotch</td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>Leaf and stem rust, Powdery mildew, Septoria glume blotch, Septoria leaf spot, Stripe rust, Tan spot</td>
<td>Later: Growth stage 49 – 55, before head is ½ emerged.</td>
</tr>
<tr>
<td>Canary seed</td>
<td>Septoria leaf mottle</td>
<td>At emergence of the flag leaf.</td>
</tr>
<tr>
<td>Canola</td>
<td>Blackleg</td>
<td>Rosette stage, between 2nd true leaf and bolting.</td>
</tr>
<tr>
<td>Corn</td>
<td>Eye spot, Grey leaf spot, Helminthosporium leaf spot, Northern corn leaf blight, Rusts, Southern corn leaf blight</td>
<td>When disease first appears.</td>
</tr>
<tr>
<td>Soybeans (for seed)</td>
<td>Frogeye leaf spot, Aerial web blight</td>
<td>When disease first appears. Under severe disease pressure, make a 2nd application 14 days after the first.</td>
</tr>
<tr>
<td>Dry edible beans</td>
<td>Rust</td>
<td>At the first detection of disease and a 2nd application 14 – 21 days later.</td>
</tr>
</tbody>
</table>
FRUIT AND SPECIALTY CROP USES:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranberries</td>
<td>Cottonball (<em>Monilinia oxycocci</em>)</td>
</tr>
<tr>
<td>Kentucky bluegrass grown for seed</td>
<td>Powdery mildew</td>
</tr>
<tr>
<td>Lowbush blueberries</td>
<td>Monilinia blight (mummy berry)</td>
</tr>
<tr>
<td>Highbush blueberries</td>
<td>Mummy berry (<em>Monilinia vaccinii-corymbosi</em>)</td>
</tr>
<tr>
<td>Peaches, Nectarines, Plums, Apricots</td>
<td>Brown rot blossom blight, Fruit brown rot, Cherry leaf spot (<em>Blumeriella jaapii</em>)</td>
</tr>
<tr>
<td>Sweet and sour cherries</td>
<td>Brown rot blossom blight, Fruit brown rot, Cherry leaf spot (<em>Blumeriella jaapii</em>)</td>
</tr>
<tr>
<td>Plums, Sour cherries</td>
<td>Black knot (<em>Apiosporina morbosa</em>) (suppression only)</td>
</tr>
<tr>
<td>Rutabagas</td>
<td>Powdery mildew</td>
</tr>
<tr>
<td>Asparagus</td>
<td>Rust (<em>Puccinia asparagi</em>)</td>
</tr>
<tr>
<td>Saskatoon berries</td>
<td>Entomosporium leaf and berry spot, Saskatoon juniper rust</td>
</tr>
<tr>
<td>Western red cedar</td>
<td>Keithia foliar blight</td>
</tr>
</tbody>
</table>

WATER VOLUME:
- Ground: minimum 80 L/ac
- Aerial: 16 – 20 L/ac

RAINFASTNESS: 1 hour

SUPPORTED TANK MIXES:

**Herbicides:**
- Wheat and barley: 2,4-D amine, 2,4-D ester, Bromoxynil + MCPA ester (*Badge*® II), Bromoxynil (*Bromotril*® II), MCPA amine, MCPA ester
- Wheat only: Clodinafop (*Ladder*® 240 EC)

**Insecticides:**
- Lambda-cyhalothrin (*Silencer*® 120 EC)
- Ripcord™

MIXING INSTRUCTIONS:
1. Fill spray tank ½ full with water and gently agitate.
2. Add the required amount of Bumper® and agitate thoroughly.
3. Continue filling the tank with water until the tank is ⅚ full and, if applicable, add the required amount of tank-mix partner.
4. Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.

CROP ROTATIONS: No restrictions.

PRE-HARVEST INTERVALS:
- Beans: 28 days
- Canola: 60 days
- Cereal crops (wheat, barley, oats): 45 days
- Corn: 14 days
- Soybeans: 50 days

GRAZING RESTRICTIONS:
Do not graze livestock within 3 days of spraying.

Storage: No temperature restrictions.

QUICK TIPS:
Bumper should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

Always read and follow pesticide label directions.
FUNGICIDE

OVERALL® 240 SC
Effective sclerotinia stem rot and alternaria black spot control in alfalfa and canola.

ACTIVE INGREDIENT  CHEMISTRY GROUP
Iprodione  Group 2

APPLICATION RATES AND PACKAGING
· 0.85 L/ac or 10 ac/8.4 L jug
· 1.25 L/ac or 6.72 ac/8.4 L jug
· 2 x 8.4 L jugs/case
· 100.8 L drum (rates vary)

REGISTERED CROPS:
· Alfalfa (grown for seed)
· Canola

KEY DISEASES CONTROLLED:
· Alternaria black spot
· Sclerotinia stem rot

HOW IT WORKS:
Systemic fungicide with contact activity that is used as a protective and eradicant fungicide.

APPLICATION TIMING AND CROP STAGING:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Diseases</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa (grown for seed)</td>
<td>Sclerotinia stem rot</td>
<td>Apply as a single application of 0.85 – 1.25 L/ac when the crop is in the 20 – 50% bloom stage.</td>
</tr>
<tr>
<td>Canola</td>
<td>Sclerotinia stem rot, Alternaria black spot (suppression)</td>
<td>Apply 0.85 – 1.25 L/ac at the 20 – 50% bloom stage. Best protection is achieved at 20 – 30% bloom. This will be prior to petals beginning to fall, and will allow for the maximum number of petals to be protected. Overall® 240 SC can be applied until the 50% bloom stage. This will be when the canola crop is at its maximum yellow colour, and prior to significant petal fall.</td>
</tr>
<tr>
<td>Canola</td>
<td>Alternaria black spot (control)</td>
<td>Apply at the early green pod stage with the 1.25 L/ac rate, or as split applications of 0.43 L/ac at 20 – 50% bloom followed by 0.43 L/ac at early green pod stage. If a spray of 0.85 – 1.25 L/ac has been applied at 20 – 50% bloom, this will also control sclerotinia stem rot.</td>
</tr>
</tbody>
</table>
OVERALL® 240 SC

**WATER VOLUME:**
- Ground: minimum 40 L/ac
- Aerial: minimum 18 L/ac

**RAINFASTNESS:**
- Delay spraying if rainfall is imminent.
- Do not apply immediately after a rainfall.

**SUPPORTED TANK MIXES:**
None registered.

**MIXING INSTRUCTIONS:**
1. Put ½ the required water volume in the tank.
2. Stir in Overall® 240 SC and add the remainder of the water.
3. Ensure mixing is complete.
4. Agitate thoroughly before each application and continue to agitate during spraying.
5. A prepared spray mixture should be used as soon as possible in the same day, especially if the water used for mixing is alkaline (greater than pH of 7). A pH reducer agent such as LI 700® at 0.125% v/v could be used.

**CROP ROTATIONS:**
No restrictions.

**PRE-HARVEST INTERVALS:**
- Alfalfa: 38 days
- Canola: 38 days

**GRAZING RESTRICTIONS:**
Do not use treated alfalfa for animal feed.

**STORAGE:**
Protect from frost.

**QUICK TIPS:**
Use forecasting tools to predict the need for fungicide applications.
FUNGICIDE

TOPNOTCH™

Unique azoxystrobin and propiconazole formulation to provide broad-spectrum protection against cereal leaf diseases.

ACTIVE INGREDIENTS
Azoxystrobin and propiconazole

CHEMISTRY GROUPS
Group 3 (propiconazole) and Group 11 (azoxystrobin)

PACKAGING
· 2 x 8.6 L jugs/case

REGISTERED AND SUPPORTED CROPS:
· Barley
· Oats
· Rye
· Triticale
· Wheat

KEY DISEASES CONTROLLED:
· Barley leaf rust
· Net and spot blotches
· Scald
· Septoria spot
· Stripe rust
· Tan spot
· Wheat leaf rust

HOW IT WORKS:
Used as both a curative and preventative fungicide, Topnotch™ has broad-spectrum, systemic and contact activity.

APPLICATION TIMING AND CROP STAGING:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Diseases</th>
<th>Application Timing</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td>Barley net blotch, Barley scald, Septoria leaf spot, Stripe rust, Barley leaf rust, Tan spot</td>
<td>Apply once between stem elongation and half-head emergence (Growth stage 29 – 55).</td>
<td>0.53 L/ha</td>
</tr>
<tr>
<td>Oats</td>
<td>Barley net blotch, Crown rust, Septoria leaf spot</td>
<td>Apply once between stem elongation and half-head emergence (Growth stage 29 – 55).</td>
<td>0.53 L/ha</td>
</tr>
<tr>
<td>Rye</td>
<td>Septoria leaf spot, Barley scald, Tan spot</td>
<td>Apply once between stem elongation and half-head emergence (Growth stage 29 – 55).</td>
<td>0.53 L/ha</td>
</tr>
<tr>
<td>Triticale</td>
<td>Septoria leaf spot, Tan spot</td>
<td>Apply once between stem elongation and half-head emergence (Growth stage 29 – 55).</td>
<td>0.53 L/ha</td>
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<tr>
<td>Wheat</td>
<td>Septoria leaf spot, Tan spot, Stripe rust, Wheat leaf rust</td>
<td>Apply once between stem elongation and half-head emergence (Growth stage 29 – 55).</td>
<td>0.53 L/ha</td>
</tr>
</tbody>
</table>
WATER VOLUME:
- Ground: minimum 40 L/ac
- Aerial: 18 L/ac

RAINFASTNESS:
None specified.

SUPPORTED TANK MIXES:
Herbicides:
- Axial®
- Broadband®
- Clodinafop-propargyl (Ladder® 240 EC, Horizon®)
- Sierra®
- Touchdown Total®
- Traxion™

Insecticides:
- Lambda-cyhalothrin (Silencer® 120 EC, Matador®)

Fungicides:
- Quadris®

MIXING INSTRUCTIONS:
1. Fill spray tank ½ – ¾ full with water.
2. With agitator running, add required amount of Topnotch™ and continue agitating while adding remainder of the water.
3. Begin application after Topnotch is completely dispersed into the mix water, and maintain agitation during spraying operation.

CROP ROTATIONS:
Do not plant any other crop intended for food, grazing or any component of animal feed or bedding within 105 days of application.

PRE-HARVEST INTERVAL:
45 days

GRAZING RESTRICTIONS:
No restrictions.

STORAGE:
Do not store below 0 C.

QUICK TIPS:
Good spray coverage and canopy penetration are important to achieve the best results.
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⚠️ Always read and follow pesticide label directions.
## CONTROL TIPS BY CROP

### AT A GLANCE

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<tr>
<th>WEEDS</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
<th>Barley</th>
<th>Oats</th>
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## WHEAT

### WEED CONTROL

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### DISEASE CONTROL

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<td>●</td>
</tr>
<tr>
<td>Topnotch™</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

¹ Fields treated with Priority + glyphosate in the spring may be seeded to wheat. Summerfallow fields treated with Priority + glyphosate may be seeded to wheat the following spring.

² Stubble treated with Priority + glyphosate may be seeded to wheat the following spring.
CONTROL TIPS BY CROP

DURUM WHEAT

<table>
<thead>
<tr>
<th>WEED CONTROL</th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badge® II</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bison® 400 L</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromotril® II</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forcefighter™ M</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotshot™ + glyphosate</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladder® 240 EC</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outshine™</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Priority® + glyphosate</td>
<td></td>
<td></td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Rush™ 24</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rush M™</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thrasher® II</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topline™</td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSECT CONTROL</th>
<th>Aphid</th>
<th>Armyworm</th>
<th>Bertha Armyworm</th>
<th>Cutworm</th>
<th>Grasshopper</th>
<th>Wheat Midge</th>
<th>Wireworm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Sombrero™ 600 FS</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISEASE CONTROL</th>
<th>Powdery Mildew</th>
<th>Septoria Leaf Spot</th>
<th>Septoria Glume Blotch</th>
<th>Stripe Rust</th>
<th>Tan Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

1 Fields treated with Priority + glyphosate in the spring may be seeded to durum wheat. Summerfallow fields treated with Priority + glyphosate may be seeded to durum wheat the following spring.

2 Stubble treated with Priority + glyphosate may be seeded to durum wheat the following spring.
## CONTROL TIPS BY CROP

### WINTER WHEAT

<table>
<thead>
<tr>
<th>WEED CONTROL</th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badge® II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bison® 400 L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromotril® II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromotril II + glyphosate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forcefighter™ M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squadron®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSECT CONTROL</th>
<th>Aphid</th>
<th>Armyworm</th>
<th>Bertha Armyworm</th>
<th>Cutworm</th>
<th>Grasshopper</th>
<th>Wheat Midge</th>
<th>Wireworm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Sombrero™ 600 FS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISEASE CONTROL</th>
<th>Powdery Mildew</th>
<th>Septoria Leaf Spot</th>
<th>Septoria Glume Blotch</th>
<th>Stripe Rust</th>
<th>Tan Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Topnotch™</td>
<td>•</td>
<td>•</td>
<td>•</td>
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<td></td>
</tr>
</tbody>
</table>

Always read and follow pesticide label directions.
## BARLEY

### WEED CONTROL

<table>
<thead>
<tr>
<th>Product</th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badge® II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bison® 400 L</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Bromotril® II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromotril II + glyphosate</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forcefighter™ M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotshot™ + glyphosate</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outshine™</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Priority® + glyphosate</td>
<td>•¹</td>
<td></td>
<td></td>
<td>•²</td>
<td></td>
</tr>
<tr>
<td>Rush™ 24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rush M™</td>
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</tr>
<tr>
<td>Squadron®</td>
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<td></td>
</tr>
<tr>
<td>Thrasher® II</td>
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<td></td>
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</tr>
<tr>
<td>Topline™</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### INSECT CONTROL

<table>
<thead>
<tr>
<th>Product</th>
<th>Aphid</th>
<th>Armyworm</th>
<th>Bertha Armyworm</th>
<th>Cutworm</th>
<th>Grasshopper</th>
<th>Wireworm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
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<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Sombrero™ 600 FS</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
</tr>
</tbody>
</table>

### DISEASE CONTROL

<table>
<thead>
<tr>
<th>Product</th>
<th>Powdery Mildew</th>
<th>Septoria Leaf Spot</th>
<th>Stripe Rust</th>
<th>Tan Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topnotch™</td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
</tbody>
</table>

¹ Fields treated with Priority + glyphosate in the spring may be seeded to barley. Summerfallow fields treated with Priority + glyphosate may be seeded to barley the following spring.

² Stubble treated with Priority + glyphosate may be seeded to barley the following spring.
# Control Tips by Crop

## Oats

### Weed Control

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badge® II</td>
<td></td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromotril® II</td>
<td></td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromotril II + glyphosate</td>
<td></td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotshot™ + glyphosate</td>
<td></td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Priority® + glyphosate</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topline™</td>
<td></td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Insect Control

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Aphid</th>
<th>Armyworm</th>
<th>Bertha Armyworm</th>
<th>Cutworm</th>
<th>Grashopper</th>
<th>Wireworm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sombrero™ 600 FS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
</tbody>
</table>

### Disease Control

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Septoria Leaf Spot</th>
<th>Septoria Leaf Blotch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Topnotch™</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

1. Fields treated with Priority + glyphosate in the spring may be seeded to oats. Summerfallow fields treated with Priority + glyphosate may be seeded to oats the following spring.
2. Stubble treated with Priority + glyphosate may be seeded to oats the following spring.

Always read and follow pesticide label directions.
## FIELD CORN

### WEED CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badge® II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromotril® II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### INSECT CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Armyworm</th>
<th>European Corn Borer</th>
<th>Corn Earworm</th>
<th>Cutworm</th>
<th>Flea Beetle</th>
<th>Wireworm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sombrero™ 600 FS (seed treatment)</td>
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### DISEASE CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Eyespot</th>
<th>Northern Corn Leaf Blight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper® (seed corn)</td>
<td></td>
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</tr>
</tbody>
</table>
## SOYBEANS

**WEED CONTROL**

<table>
<thead>
<tr>
<th>Product</th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow® 240 EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phantom® 240 SL (Manitoba only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squadron®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
</tbody>
</table>

**INSECT CONTROL**

<table>
<thead>
<tr>
<th>Product</th>
<th>Aphid</th>
<th>Cutworm</th>
<th>Grasshopper</th>
<th>Lygus Bug</th>
<th>Wireworm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silencer® 120 EC</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Sombrero™ 600 FS</td>
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<td></td>
<td></td>
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</tbody>
</table>

**DISEASE CONTROL**

<table>
<thead>
<tr>
<th>Product</th>
<th>Frogeye</th>
<th>Leaf Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td></td>
<td></td>
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</tbody>
</table>

Always read and follow pesticide label directions.
# CONTROL TIPS BY CROP

## DRY BEANS

### WEED CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow® 240 EC¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phantom® 240 SL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### INSECT CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Aphid</th>
<th>Cutworm</th>
<th>European Corn Borer</th>
<th>Lygus Bug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silencer® 120 EC</td>
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<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

¹For a listing of specific crops, refer to the product page.
## PEAS

### WEED CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow® 240 EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phantom® 240 SL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Priority® + glyphosate</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squadron®</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

1 Prior to August 1, summerfallow fields treated with Priority + glyphosate may be seeded to peas the following spring.

2 Tank mix with Treflan™ EC or Rival® EC. See label for details.

### INSECT CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Aphid</th>
<th>Cutworm</th>
<th>Grasshopper</th>
<th>Pea Weevil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silencer® 120 EC</td>
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</table>

Always read and follow pesticide label directions.
## LENTILS

### CONTROL TIPS BY CROP

#### WEED CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
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<tbody>
<tr>
<td>Arrow® 240 EC</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Squadron®</td>
<td>![^1]</td>
<td></td>
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</tr>
</tbody>
</table>

#### INSECT CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Aphid</th>
<th>Cutworm</th>
<th>Grasshopper</th>
<th>Lygus Bug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td></td>
<td>![^1]</td>
<td>![^1]</td>
<td>![^1]</td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
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[^1]: Tank mix with Treflan™ EC or Rival® EC. See label for details.
# CHICKPEAS

## WEED CONTROL

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Pre-seed</th>
<th>Pre-seed Incorporation</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow® 240 EC</td>
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<tr>
<td>Squadron®</td>
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</table>

## INSECT CONTROL

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Aphid</th>
<th>Cutworm</th>
<th>Grasshopper</th>
</tr>
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<tbody>
<tr>
<td>Silencer® 120 EC</td>
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Always read and follow pesticide label directions.
**CONTROL TIPS BY CROP**

**CANOLA**

### WEED CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
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<tr>
<td>Arrow® 240 EC</td>
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</tr>
<tr>
<td>Priority® + glyphosate</td>
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</table>

### INSECT CONTROL

<table>
<thead>
<tr>
<th>Insect Control</th>
<th>Armyworm</th>
<th>Bertha Armyworm</th>
<th>Cabbage Seedpod Weevil</th>
<th>Cutworm</th>
<th>Diamondback Moth</th>
<th>Flea Beetle</th>
<th>Grasshopper</th>
<th>Lygus Bug</th>
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<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
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<td>Sombrero™ 600 FS (seed treatment)</td>
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### DISEASE CONTROL

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<th>Alternaria Black Spot</th>
<th>Blackleg</th>
<th>Sclerotinia Stem Rot</th>
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<tr>
<td>Overall® 240 SC</td>
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</table>

1 Prior to August 1, summerfallow fields treated with Priority + glyphosate may be seeded to canola the following spring.
## CONTROL TIPS BY CROP

### FLAX

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<thead>
<tr>
<th>WEED CONTROL</th>
<th>Pre-seed</th>
<th>Pre-seed Incorporated</th>
<th>In-crop</th>
<th>Pre-harvest</th>
<th>Post-harvest</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Badge® II</td>
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<tr>
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<thead>
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<th>Cutworm</th>
<th>Grasshopper</th>
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<td>Silencer® 120 EC</td>
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### SUNFLOWERS

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<th>Pre-harvest</th>
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</thead>
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<tr>
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<table>
<thead>
<tr>
<th>INSECT CONTROL</th>
<th>Cutworm</th>
</tr>
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<tbody>
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### POTATOES

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<tbody>
<tr>
<td>Arrow® 240 EC</td>
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<table>
<thead>
<tr>
<th>INSECT CONTROL</th>
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<th>Colorado Potato Beetle</th>
<th>European Corn Borer</th>
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<th>Flea Beetle</th>
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</tbody>
</table>

¹ Mix with Eptam® 8-E emulsifiable herbicide. This tank mix can be applied pre-emergence, and it can also be applied through a sprinkler irrigation system.
CONTROL TIPS BY WEED

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Always read and follow pesticide label directions.
DETECT ADVANCING WEEDS
## CONTROL TIPS BY WEED

### AT A GLANCE

<table>
<thead>
<tr>
<th>REGISTERED HERBICIDES</th>
<th>Canada Fleabane</th>
<th>Canada Thistle</th>
<th>Cleavers</th>
<th>Common Ragweed</th>
<th>Dandelion</th>
<th>Green Foxtail</th>
<th>Lamb’s Quarters</th>
<th>Narrow-leaved Hawk’s Beard</th>
<th>Redroot Pigweed</th>
<th>Volunteer Canola</th>
<th>Wild Buckwheat</th>
<th>Wild Oats</th>
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<tbody>
<tr>
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</tbody>
</table>
CANADA FLEABANE

TYPE:
· Winter annual
· Broadleaf

IDENTIFICATION:
Plants can reach heights up to 5 feet. They have hairy, erect stems with few branches, and they range in size from 4 – 7 inches high. Seedlings begin as a basal rosette with leaves that are soft, hairy and bright green but becoming harsh on older leaves once the plant has bolted. Basal and lower stem leaves are narrowly oval, rarely more than a ½ inch wide and tapering to a narrow stalk, with a few, scattered, shallow teeth or without teeth. Middle and upper leaves are linear, very narrow and usually without teeth. Flower heads are ¼ inch across and very numerous on short branches near the top of the main stem. Ray florets are white while disc florets are yellowish and very fluffy at maturity.

CONTROL TIPS:
· Scouting is essential to controlling Canada fleabane.
· In no till systems, a pre-seed burn-off of glyphosate and an effective tank-mix partner is recommended.

REGISTERED HERBICIDES

<table>
<thead>
<tr>
<th>Registered Herbicides</th>
<th>Barley</th>
<th>Oats</th>
<th>Wheat</th>
<th>Durum Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority® + glyphosate</td>
<td>•</td>
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</tr>
</tbody>
</table>

Always read and follow pesticide label directions.
CONTROL TIPS BY WEED

CANADA THISTLE

TYPE:
· Perennial
· Broadleaf

IDENTIFICATION:
Plants are from 12 inches to 5 feet tall with several branches. Leaves are a shiny, deep green colour and arranged alternately on the stem and branches. Some biotypes have thin, flat leaves with short, fine spines, arranged sparsely around a slightly toothed edge. Most plants have leaves that are thick and leathery with deep and irregular serrated margins and long sturdy spines. Stems have few spines, if any.

CONTROL TIPS:
· Canada thistle is a persistent weed that requires a multi-year combination of chemical and cultural control practices. Root starvation is important to controlling plants. In addition, prevention of plant establishment and spread is essential.
· Use effective crop rotations with strong competitors to Canada thistle.
· Top growth can be suppressed in a number of crops by herbicides; however, roots and shoots can grow into new plants.

<table>
<thead>
<tr>
<th>REGISTERED HERBICIDES</th>
<th>Barley</th>
<th>Field Corn</th>
<th>Flax</th>
<th>Oats</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badge® II</td>
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<tr>
<td>Forcefighter™ M</td>
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</tbody>
</table>

Photo: R: CC BY SA Image courtesy of lostinfog bit.ly/2fNEHRD
CLEAVERS

TYPE:
· Winter annual
· Broadleaf

IDENTIFICATION:
The seedling has oblong cotyledons, a square stem with downward pointing hairs and true leaves in whorls. When mature, the stems are square with short, bristly, downward-pointing hooks growing on corners, and they are generally 24–47 inches long and trailing. The leaves are in whorls, in groups of 6–8. They are pointed at the tip, roughened and 1–3 inches long. The flowers are white, small and produced in axils of upper leaves.

CONTROL TIPS:
· Apply an effective herbicide tank mix at the 1–2 whorl stage. Past that point, cleavers will not be controlled consistently. Seed early or delay seeding until weeds emerge in cleaver-infested fields.
· Use herbicides and tillage after weed germination in the fall to control winter annual cleavers.
· Include cereals and annual and perennial forages in your rotation to reduce plant populations.

REGISTERED HERBICIDES

<table>
<thead>
<tr>
<th></th>
<th>Barley</th>
<th>Dry Beans</th>
<th>Oats</th>
<th>Peas</th>
<th>Soybeans</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forcefighter™ M</td>
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<tr>
<td>Hotshot™ + glyphosate</td>
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<td>Outshine™</td>
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<td>Phantom® 240 SL</td>
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<tr>
<td>Priority® + glyphosate</td>
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</table>

¹ For a listing of specific crops, refer to the product page.

Photo: L: CC BY SA 3.0 Image courtesy of Franz Xaver bit.ly/2fz8rTJ

Always read and follow pesticide label directions.
COMMON RAGWEED

TYPE:
· Annual
· Broadleaf

IDENTIFICATION:
Plants grow from 3 – 7 feet tall and branch frequently when population densities are low. It has a shallow taproot that produces a fibrous root system. Its hairy stems are green to light pinkish red. The leaves are up to 6 inches long and 4 inches across, and they have an opposite or alternate arrangement along the stem. The leaves are compound, deeply cut into a number of lobes and usually much wider at the base than the tip. Many of the upper stems terminate in one or more cylindrical flower spikes about ½ – 4 inches long. Flowers are initially green but turn yellowish green or brown as they mature and develop into seed clusters.

CONTROL TIPS:
· Control plants that emerge prior to seeding with tillage or pre-seed burn-off herbicide applications.
· Scout fields 2 weeks after the first post-emergence application. Control escapes or plants that emerge after the initial post-emergence application with a second application.
· Apply post-emergence herbicides before plants exceed 4 – 6 inches tall.

REGISTERED HERBICIDES

<table>
<thead>
<tr>
<th>Registered Herbicides</th>
<th>Barley</th>
<th>Field Corn</th>
<th>Flax</th>
<th>Oats</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
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</thead>
<tbody>
<tr>
<td>Badge® II</td>
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<td>Bromotril® II</td>
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<td>Bromotril II + glyphosate</td>
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<td>Forcefighter™ M</td>
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<td>Priority® + glyphosate</td>
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1 With tank-mix partner. See label for details.

Photo: L: CC BY SA 3.0 Image courtesy of Brunga bit.ly/2ggpeKe
DANDELION

TYPE:
- Perennial
- Broadleaf

IDENTIFICATION:
The plants are almost stemless with deep, fleshy taproots. The leaves are in a rosette, 3–10 inches long, variable in shape and lobed. The flowers are bright yellow and are produced on a hollow, upright stem that is 12–18 inches in height.

CONTROL TIPS:
- Because dandelion has a simple taproot, tillage can be effective for control. Tillage must be deep enough to cut the root 4 inches below the crown.
- Herbicide and a glyphosate partner can be applied pre-seed or post-harvest to control established dandelions, but pre-harvest treatments are the most effective.
- While dandelion grows best in moist areas in full sun, it can survive some shade and dry conditions once established.

REGISTERED HERBICIDES

<table>
<thead>
<tr>
<th></th>
<th>Barley</th>
<th>Oats</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
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<tbody>
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</table>

¹Spring rosette only.

Photo: R: CC BY 2.0 Image courtesy of Rpblk bit.ly/2gLv3w7

Always read and follow pesticide label directions.
GREEN FOXTAIL

TYPE:
- Annual
- Grassy

IDENTIFICATION:
Plants are 8 – 24 inches high. Look for green cylindrical heads that are 1 – 4 inches long and appear soft and bristly. Its leaf blades are hairless, rough and flat, with a pointed blade from 2 – 10 inches long. Stems are smooth and hairless. During seedling stage, look for fine, upward-pointing barbs on the leaf margins and surface. Flowers are densely grouped in a bristly, elongated panicle.

CONTROL TIPS:
- Scout fields frequently for this weed; under hot conditions, green foxtail can grow quickly and escape the herbicide application window.
- At approximately 34,000 seeds per plant, it’s a heavy seed producer; however, it’s a poor competitor. Healthy crop stand establishment due to proper fertilization and early seeding will help your crop outcompete this weed. Barley and canola compete well with green foxtail.
- Using slightly higher seeding rates will further reduce green foxtail’s competition. In addition, weed populations will generally decline with reduced or no-till systems.

<table>
<thead>
<tr>
<th>REGISTERED HERBICIDES</th>
<th>Barley</th>
<th>Dry Beans</th>
<th>Canola</th>
<th>Chickpeas</th>
<th>Flax</th>
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<th>Oats</th>
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\(^1\)For a listing of specific crops, refer to the product page.

LAMB’S QUARTERS

TYPE:
- Annual
- Broadleaf

IDENTIFICATION:
The stems are erect, 24 – 35 inches high, smooth and longitudinally grooved. They are often red or light green striped. The leaves are alternate, variable in shape, 1 – 3 inches long, stalked, coarsely toothed and covered with white mealy particles, especially on the lower surface. The flowers are small and green, and they are present in the leaf axils and at the top of the stems.

CONTROL TIPS:
- Late seeding can provide some control because the weed tends to germinate early in the season and its seedlings can be killed through soil preparation or with a burn-off herbicide prior to seeding.
- Plant to narrow rows and with higher seeding rates to increase crop competition.
- Because the plant’s seeds persist in the soil, removing escapes before seed set is useful for long-term management.

<table>
<thead>
<tr>
<th>REGISTERED HERBICIDES</th>
<th>Barley</th>
<th>Chickpeas</th>
<th>Field Corn</th>
<th>Dry Beans</th>
<th>Flax</th>
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1 With tank-mix partner. See label for details.
2 For a listing of specific crops, refer to the product page.

Always read and follow pesticide label directions.
NARROW-LEAVED HAWK’S BEARD

TYPE:
· Winter annual
· Broadleaf

IDENTIFICATION:
The stems are erect, up to 3 feet tall, branched and leafy. Basal leaves are up to 6 inches long and 2 inches wide, with leaf margins varying from a few small teeth to deep lobes. Stem leaves are long and narrow and less than \( \frac{1}{2} \) inch wide. Flower heads are bright yellow.

CONTROL TIPS:
· The plant is a prolific seed producer, capable of generating up to 50,000 seeds; therefore, it’s important to focus on the prevention of seed production and the establishment of a competitive crop stand.
· Seed a competitive crop into a warm, moist seedbed as soon as possible.
· Depending on the life cycle (whether summer annual or winter annual), this weed can be controlled by fall- or spring-applied herbicides.

### REGISTERED HERBICIDES

<table>
<thead>
<tr>
<th></th>
<th>Barley</th>
<th>Oats</th>
<th>Wheat</th>
<th>Durum Wheat</th>
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<td>Priority® + glyphosate</td>
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Photos: L: CC BY SA 3.0 Image courtesy of Julcatai bit.ly/2gG3sMV
R: CC BY SA 3.0 Image courtesy of Christian Fischer bit.ly/2gG5HQr
REDROOT PIGWEED

TYPE:
· Annual
· Broadleaf

IDENTIFICATION:
The plants have a long, fleshy, reddish to pink taproot and stems that are erect, light green, branched, 23 – 35 inches high, rough and angular. The leaves are alternate, stalked, dull green, oval-shaped, rough and 3 – 4 inches long. Plants have numerous flowers that are small, green and crowded into dense, finger-like spikes.

CONTROL TIPS:
· Crops established before soils warm and warm weather sets in are very competitive with this weed.
· Watch growth stages carefully under hot conditions because the plant can quickly advance beyond the recommended stages for herbicide application.

REGISTERED HERBICIDES

<table>
<thead>
<tr>
<th>Barley</th>
<th>Dry Beans</th>
<th>Field Corn</th>
<th>Lentils</th>
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1 For a listing of specific crops, refer to the product page.

Always read and follow pesticide label directions.
**VOLUNTEER CANOLA**

**TYPE:**
- Annual
- Broadleaf

**IDENTIFICATION:**
Both the *Brassica napus* and *Brassica rapa* varieties of volunteer canola have erect stems that grow up to 3 feet tall and are bluish green in colour. *B. napus* leaves are dark green, smooth, hairless and sessile, while *B. rapa* leaves are lighter green, clasping and hairy on the underside the petiole. Flowers are pale yellow, small and appear on the raceme.

**CONTROL TIPS:**
- The vast majority of seed in the canola seed bank is eliminated in the first 2 years after canola is grown, so growing at least 1 and preferably 2 or 3 crops between each canola crop can greatly reduce the volunteer population.
- Scout rotation fields for volunteer canola that are not controlled by herbicide application. Early detection allows time for control before seed set.
- Apply herbicides early. Spraying volunteer canola at the 2 – 4 leaf stage is much more effective than at the 5 – 6 leaf stage.

<table>
<thead>
<tr>
<th>REGISTERED HERBICIDES</th>
<th>Barley</th>
<th>Dry Beans</th>
<th>Chickpeas</th>
<th>Flax</th>
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1 For a listing of specific crops, refer to the product page.

Photo: L: CC BY SA 4.0 Image courtesy of Judgeflorio bit.ly/2gJDrNV
WILD BUCKWHEAT

TYPE:
- Annual
- Broadleaf

IDENTIFICATION:
The stems are slightly angular, 12 – 35 inches long, trailing on the ground or twining on other plants and freely branching at the base. The leaves are heart-shaped, pointed, ½ – 3 inches long, alternate and smooth. The flowers are greenish-white, small and appear in leaf axils or at the tips of branches.

CONTROL TIPS:
- When scouting, check moist, low-lying areas for patches of wild buckwheat.
- A pre-seed burn-off is recommended with no till systems.
- Scout fields early because this weed is most sensitive to herbicides during its initial growth stages.

### REGISTERED HERBICIDES

<table>
<thead>
<tr>
<th></th>
<th>Barley</th>
<th>Field Corn</th>
<th>Dry Beans</th>
<th>Flax</th>
<th>Lentils</th>
<th>Oats</th>
<th>Peas</th>
<th>Soybeans</th>
<th>Wheat</th>
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</table>

¹ For a listing of specific crops, refer to the product page.

Photo: L: CC BY SA 3.0 Image courtesy of Rasbak bit.ly/2gSPjAe; R: Public Domain

Always read and follow pesticide label directions.
CONTROL TIPS BY WEED

WILD OATS

TYPE:
· Annual
· Grassy

IDENTIFICATION:
Plants grow up to 5 feet tall with smooth, erect stems. The head is an open panicle with spikelets typically containing 2 – 3 florets (and occasionally up to 7). The panicle may contain up to 250 seeds, ranging from black, brown, grey, yellow to white. At the seedling stage, the plant has a counter-clockwise leaf twist and no auricles, with hairs on the leaf margins.

CONTROL TIPS:
· When scouting, check low spots in fields for wild oats, and an eye out for herbicide-resistant patches.
· Summerfallow increases the number of seeds that break dormancy, and weeds will emerge after each tillage operation. Fall tillage also helps reduce wild oat populations.

<table>
<thead>
<tr>
<th>REGISTERED HERBICIDES</th>
<th>Barley</th>
<th>Dry Beans</th>
<th>Canola</th>
<th>Chickpeas</th>
<th>Flax</th>
<th>Lentils</th>
<th>Oats</th>
<th>Peas</th>
<th>Potatoes</th>
<th>Soybeans</th>
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1 For a listing of specific crops, refer to the product page.

Photo: L: CC BY SA 3.0 Image courtesy of Eggmoon bit.ly/2fNMQWb
CONTROL TIPS BY INSECT

<table>
<thead>
<tr>
<th>Insect</th>
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<tbody>
<tr>
<td>APHID</td>
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<td>ARMYWORM</td>
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<td>BERTHA ARMYWORM</td>
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<tr>
<td>CABBAGE SEEDPOD WEEVIL</td>
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<tr>
<td>COLORADO POTATO BEETLE</td>
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<tr>
<td>CORN EARWORM</td>
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<td>DIAMONDBACK MOTH</td>
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<td>EUROPEAN CORN BORER</td>
<td>100</td>
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<tr>
<td>FLEA BEETLE</td>
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<td>GRASSHOPPER</td>
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<td>WIREWORM</td>
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Always read and follow pesticide label directions.
KNOW YOUR OPPONENT
## CONTROL TIPS BY INSECT
### AT A GLANCE

<table>
<thead>
<tr>
<th>REGISTERED INSECTICIDES</th>
<th>Aphid</th>
<th>Armyworm</th>
<th>Armyworm</th>
<th>Armyworm</th>
<th>Colorado Potato Beetle</th>
<th>Corn Earworm</th>
<th>Cutworm</th>
<th>Diamondback Moth</th>
<th>European Corn Borer</th>
<th>Fled Beetle</th>
<th>Grasshopper</th>
<th>Lygus Bug</th>
<th>Wheat Midge</th>
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</tbody>
</table>
IDENTIFICATION:
There are many different types of aphid. Contact provincial ag officials for assistance with identification.

CONTROL TIPS:
- Controlling volunteer wheat 2 – 3 weeks before seeding may help reduce aphid populations in the vicinity of cereal crops.
- Early seeding can help to avoid infestations because the crops mature before the pest levels exceed economic thresholds. As plants mature, they are less attractive to aphids.

<table>
<thead>
<tr>
<th>REGISTERED INSECTICIDES</th>
<th>Barley</th>
<th>Chickpeas</th>
<th>Dry Beans</th>
<th>Lentils</th>
<th>Oats</th>
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<th>Wheat</th>
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1 For a listing of specific crops, refer to the product page.

Always read and follow pesticide label directions.
ARMYWORM

IDENTIFICATION:
There are a number of different types of armyworms. Contact provincial ag officials for assistance with identification.

CONTROL TIPS:
· Treatment may be confined to infested areas. If armyworms are migrating from adjacent cereal or corn fields, spraying an insecticide along the field border may be sufficient.
· Insecticides should be applied in the evening since armyworms prefer to feed at night.

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th>Registered Insecticides</th>
<th>Barley</th>
<th>Canola</th>
<th>Corn</th>
<th>Oats</th>
<th>Potatoes</th>
<th>Wheat</th>
<th>Durum Wheat</th>
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Photo: Public Domain
IDENTIFICATION:
Eggs are the size of a pinhead and white in colour when laid. The eggs darken as the larvae develop inside. Young larvae are ¼ inch in size and pale green in colour. Older larvae may remain pale green, but most are brown to black with yellow stripes running the length of the body. Full-grown larvae are 1.5 inches long and resemble a black caterpillar.

CONTROL TIPS:
- Allow beneficial insects to prey on bertha armyworms by only spraying when economic thresholds are reached.
- Apply insecticide early in the morning or late evening when the larvae are actively feeding.
- Fall cultivation can kill many bertha armyworm pupae by mechanical damage.

<table>
<thead>
<tr>
<th>REGISTERED INSECTICIDES</th>
<th>Canola</th>
<th>Flax</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
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Photos: L: Image courtesy of Canola Council of Canada  
R: CC BY 3.0 “Mamestra Configurata” Image courtesy of David Gent, USDA  
bit.ly/2gpEB0v

Always read and follow pesticide label directions.
IDENTIFICATION:
The adults are ash-grey to black in colour and less than ¼ inch in length. Like all weevils, it has a snout that resembles an elephant’s trunk. The larvae are white, C-shaped and legless and can be found only within the pod.

CONTROL TIPS:
- Control cruciferous weeds (i.e. mustard, stinkweed) and volunteer canola plants that can act as hosts.
- The earliest flowering canola crops tend to have the highest risk from cabbage seedpod weevil and should be monitored very closely.
- Ensure that adults are actively feeding in the field prior to spraying.

Photos:
L: CC BY 2.0 “Ceutorhynchus obstrictus” Image courtesy of S. Rae bit.ly/2fJYMIf
R: CC BY 2.0 “Cabbage Seedpod Weevil – Ceutorhynchus obstrictus” Image courtesy of Line Sabroe bit.ly/2gzf0jW
COLORADO POTATO BEETLE

IDENTIFICATION:
Larvae are brick red in colour with a black head and legs. They become orange and develop two rows of black dots on the sides of their bodies when they are near maturity. Full-grown larvae are about a ½ inch long. The adult Colorado potato beetle is yellowish orange with 10 black stripes along the length of its yellow wing covers (5 black stripes on each wing cover). It has yellow with black markings on its head and thorax, and it is about a ½ inch long.

CONTROL TIPS:
- Look for orange-coloured eggs or newly-hatched larvae on the undersides of leaves. Older, bright orange larvae will be more visible near the top of the plant and on the upper surface of the leaves.
- Time the first treatment when 15 – 30% of the first egg masses have begun to hatch.

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Potatoes</th>
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<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
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<tr>
<td>Silencer® 120 EC</td>
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</table>

Always read and follow pesticide label directions.
IDENTIFICATION:
Eggs are dome-shaped and about ½ inch in diameter. Larvae vary in colour from bright green to pink, brown or black with a lighter underside. They have alternating light and dark bands along the body. The head is usually yellow but can also be brown to orange; legs are black and the skin is coarse with many thorn-like projections. Mature larvae reach a length of 1.5 – 2 inches.

CONTROL TIPS:
- Earlier-seeded corn may have a chance to escape the peak infestations of corn earworm if it silks early enough.
- Fields should be inspected for the presence of adults and larvae when the corn crop is flowering.

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th>Field Corn</th>
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<tr>
<td>Silencer® 120 EC</td>
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</table>

Photo: Public Domain
IDENTIFICATION:
There are many different types of cutworm. Contact provincial ag officials for assistance with identification.

CONTROL TIPS:
- The key to minimizing damage is early detection. Scout fields and inspect seedlings every 3–4 days during the first few weeks of crop development, looking for bare areas, holes or notches in foliage and plants that are wilting, toppling over or completely cut off.
- Foliar insecticide treatment is most effective when applied to the soil soon after cutworms have hatched.
- Cutworms are most active in the evening, so insecticides applied at night or in the evening are more effective.

<table>
<thead>
<tr>
<th>REGISTERED INSECTICIDES</th>
<th>Barley</th>
<th>Canola</th>
<th>Chickpeas</th>
<th>Field Corn</th>
<th>Dry Beans</th>
<th>Flax</th>
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1 For a listing of specific crops, refer to the product page.

Always read and follow pesticide label directions.
DIAMONDBACK MOTH

IDENTIFICATION:
Eggs are pale green or yellow in colour and very small and disc-shaped. Larvae are light green to yellowish-green with a brown head and are approximately ¼ inch long. The adult is a small, light greyish-brown moth about ½ inch long. It is best identified by the white, diamond-shaped markings along its back that are visible when the wings are at rest.

CONTROL TIPS:
- Eliminate volunteer canola and cruciferous weeds that act as the initial food source for the spring generation.
- The adult diamondback moth population can be monitored using pheromone traps to warn of a possible infestation.
- Beat the plants to dislodge the larvae when monitoring for this pest.

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Canola</th>
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Photos:
L: CC BY SA 2.5 “Plutella xylostella” Image courtesy of Olaf Leillinger bit.ly/2fYrNh9
R: Image courtesy of Canola Council of Canada
IDENTIFICATION:
Egg masses are flat, creamy white and layered over each other, making the egg mass appear similar to fish scales. Mature larvae are creamy white to pale grey with 2 small spots per abdominal segment. The spots are approximately 1 inch in length and have a black head. Adults are light-brown moths, approximately 1 inch long, with dark wavy lines running across each forewing. Male moths are darker and smaller than females.

CONTROL TIPS:
- Shredding debris after harvest is an effective way to destroy borers overwintering in stalks and stubble. Leave as little stalk as possible.
- Adult European corn borers hide in grass and weeds during the day, so a good herbicide program will keep many moths out of the fields. Keep weedy field edges and fencerows clipped to avoid harbouring the moths.
- Corn should be scouted for holes in the leaves during July. Use an economic threshold calculator to determine if you need to spray.

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th>Field Corn</th>
<th>Dry Beans</th>
<th>Potatoes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silencer® 120 EC</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

For a listing of specific crops, refer to the product page.

Photo: CC BY 2.0 “European Corn Borer” Image courtesy of NY State IPM Program, Cornell University, bit.ly/2fYw6cr

Always read and follow pesticide label directions.
IDENTIFICATION:
There are a number of different types of flea beetle. Contact provincial ag officials for assistance with identification.

CONTROL TIPS:
· Increasing seeding rates can help reduce the impact of flea beetle damage.
· Scout fields daily for signs of flea beetle feeding. Be especially vigilant when temperatures are above 14 C.
· Be aware that flea beetles can move long distances, especially under hot and windy conditions. Even if there was no previous canola in the immediate area, flea beetles can still become a problem.

<table>
<thead>
<tr>
<th>REGISTERED INSECTICIDES</th>
<th>Canola</th>
<th>Corn</th>
<th>Potatoes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Sombrero™ 600 FS</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

Photos: L: Image courtesy of Canola Council of Canada
R: Image courtesy of Canola Council of Canada
IDENTIFICATION:
There are a number of different types of grasshopper. Contact provincial ag officials for assistance with identification.

CONTROL TIPS:
- Crops should be seeded as early as possible. Older plants that are growing vigorously can withstand more grasshopper feeding than younger plants, which are not well established. Although early seeding will not prevent crop damage entirely, it will reduce the amount of damage and allow more time to obtain and apply insecticides.
- Look for grasshoppers after 2–3 years of hot, dry summers and dry falls, as this can often precede an outbreak. Dry weather increases the likelihood of egg and larva survival and development.
- Both nymphs and adults can be very damaging. Begin scouting along field margins in June and continue until the end of August.

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th>Barley</th>
<th>Canola</th>
<th>Chickpeas</th>
<th>Flax</th>
<th>Lentils</th>
<th>Oats</th>
<th>Peas</th>
<th>Soybeans</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Photo: CC BY 2.0 Image courtesy of Mike Bowler bit.ly/2gPRAfn

Always read and follow pesticide label directions.
LYGUS BUG

IDENTIFICATION:
Adult lygus bugs are about ¼ inch long. They have relatively long antennae and legs. They vary from pale green to reddish brown to black. They range from fairly uniform in colour to a mottled appearance. Lygus bugs have a distinctive triangle or V-shaped marking in the upper centre of their backs and membranous wing tips. Immature lygus bugs (nymphs) are approximately ¼ inch long and are light green and wingless.

CONTROL TIPS:
· Monitor fields closely, especially in areas where overwintering populations may be high. Since the oldest bugs are responsible for the most damage, it’s important to not only count numbers but also determine what part of the life cycle the majority are in.
· Keep an eye on fields adjacent to alfalfa fields, where overwintering lygus bug populations may be high.
· The best method for scouting for lygus bugs in canola is sweep net monitoring, which should be done under the right weather conditions (sunny, low wind and temperatures above 15 C).

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th></th>
<th>Canola</th>
<th>Dry Beans</th>
<th>Lentils</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silencer® 120 EC</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

Photos: L: CC BY 2.0 Image courtesy of Katja Schulz bit.ly/2gpOM5i
R: Public Domain
IDENTIFICATION:
The adult midge is a very small, fragile, orange-coloured fly about half the size of a mosquito and approximately 1/8 inch long. Two black eyes cover much of its head. The midge has three pairs of legs that are long relative to its body size. Its wings are oval-shaped, transparent and fringed with fine hairs. Larvae are orange and grow up to 1/8 inch in length.

CONTROL TIPS:
- Avoid continuous wheat cropping because it favours the buildup of midge populations.
- Late evening or early morning are the best times to control the adults, as the females are most active in cool nighttime temperatures (but above 15°C) and when the wind is less than 10 km/hr.
- Good coverage is critical for control, so make sure the water volume is adequate when spraying. Check the label for recommended water volumes.

<table>
<thead>
<tr>
<th>REGISTERED INSECTICIDES</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrinex® 480 EC</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

Photos:
L: CC BY SA 2.0 “Sitodiplosis mosellana” Image courtesy of Gilles San Martin bit.ly/2gQ0Yjm
R: CC BY SA 4.0 Image courtesy of srbernard bit.ly/2fYxITt

Always read and follow pesticide label directions.
IDENTIFICATION:
Larvae are slender with hard, smooth jointed bodies. They are usually reddish-brown, but can also be yellow or white. There are 3 pairs of legs behind the head, and you will notice a notch at the tail segment. Full-grown larvae range from ½ – 1.5 inches in length.

CONTROL TIPS:
- Seed treatments like Sombrero™ 600 FS protect seedlings when they are most vulnerable. It is also important for good seed bed preparation for quick, even germination.
- Early seeding, but not too early where cool temperatures could delay emergence.
- Recommended seeding rates to achieve optimal plant populations/square foot.
- Optimal seeding depth, seeds too deep will struggle to get out of the ground thus weakening them and leaving them vulnerable to wireworms.

REGISTERED INSECTICIDES

<table>
<thead>
<tr>
<th></th>
<th>Barley</th>
<th>Corn</th>
<th>Oats</th>
<th>Soybeans</th>
<th>Wheat</th>
<th>Durum Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sombrero™ 600 FS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Photo: CC BY 2.0 Image courtesy of Katja Schulz bit.ly/2g6ZBlV
CONTROL TIPS BY DISEASE

ALTERNARIA BLACK SPOT .................................. 110
BLACKLEG ......................................................... 111
EYESPOT .............................................................. 112
FROGEYE LEAF SPOT ...................................... 113
NORTHERN CORN LEAF BLIGHT .................. 114
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SCLEROTINIA STEM ROT/WHITE MOULD ........ 116
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Always read and follow pesticide label directions.
RECOGNIZE THE SIGNS
## CONTROL TIPS BY DISEASE

### AT A GLANCE

<table>
<thead>
<tr>
<th>REGISTERED FUNGICIDES</th>
<th>Alternaria Black Spot</th>
<th>Blackleg</th>
<th>Eyespot</th>
<th>Frogeye Leaf Spot</th>
<th>Northern Corn Leaf Blight</th>
<th>Powdery Mildew</th>
<th>Sclerotinia Stem Rot/White Mould</th>
<th>Septoria Leaf Spot</th>
<th>Stripe Rust</th>
<th>Tan Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
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<td>•</td>
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<td>•</td>
</tr>
<tr>
<td>Overall® 240 SC</td>
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<tr>
<td>Topnotch™</td>
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</tr>
</tbody>
</table>
CONTROL TIPS BY DISEASE

ALTERNARIA BLACK SPOT

IDENTIFICATION:
Black spots occur on leaves, stems and pods. As the spots enlarge, they may develop a greyish to white centre and may appear like a target. Spots vary from grey to purplish to black and are sometimes surrounded by a yellow zone.

CONTROL TIPS:
- An aerial fungicide application applied at 95% flowering provides economical control of this disease.
- Timely swathing will reduce damage when alterneria black spot is present in a crop.
- Not growing cruciferous crops for several years is recommended, but it may not be totally effective because of the widespread occurrence of the pathogens of this disease.

REGISTERED FUNGICIDES

<table>
<thead>
<tr>
<th>Canola</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall® 240 SC</td>
</tr>
</tbody>
</table>

Photos: Images courtesy of Canola Council of Canada

Always read and follow pesticide label directions.
IDENTIFICATION:
The first symptoms appear on the cotyledons or leaves as round-to-irregular (¼ – 1 inch) white to yellow-brown lesions that contain numerous small black dots (pycnidia). As the season progresses, the fungus may spread to the stem and crown of the plant, producing a canker that can girdle the stem. Severely infected plants ripen prematurely and have a black to grey discolouration at the base of the stem or crown.

CONTROL TIPS:
- Maintain a good crop rotation that has at least 3 years between canola crops.
- Plant less susceptible varieties of canola. Most varieties are rated on a 1–5 (resistant to highly susceptible) scale.
- Avoid confusing blackleg leaf lesions (which are speckled) with downy mildew lesions (which are not).

REGISTERED FUNGICIDES

<table>
<thead>
<tr>
<th>Canola</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
</tr>
</tbody>
</table>
EYESPOT

IDENTIFICATION:
The disease produces characteristic round or oval spots, less than ¼ inch wide with a tan/brown centre and a brown or purple margin. A translucent yellow halo forms around the margin, and when held to the sun, the lesions resemble an eye. Leaf blighting may occur when these lesions join, killing large portions of leaf tissue.

CONTROL TIPS:
· Clean plowing of crop debris can help to reduce disease severity.
· Select resistant hybrids when the disease has previously been severe in your area.
· Rotate corn with other non-host crops. Usually one year out of corn will reduce the inoculum adequately to grow another corn crop, but it may take longer under reduced tillage conditions.

REGISTERED FUNGICIDES

Field Corn

Bumper® (seed corn)

Photos:
L: CC BY 3.0 US Image courtesy of Mary Burrows, Montana State University bit.ly/2fzLT5f

⚠️ Always read and follow pesticide label directions.
**FROGEYE LEAF SPOT**

**IDENTIFICATION:**
Lesions are less than ¼ inch in diameter with a tan centre and a dark red/brown border. Older lesions coalesce, and leaves may appear ragged or with a slight slit in the centre of the lesion.

**CONTROL TIPS:**
- Use resistant soybean varieties to reduce disease severity.
- Rotate soybean crops with non-hosts, such as corn or wheat.

**REGISTERED FUNGICIDES**

<table>
<thead>
<tr>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
</tr>
</tbody>
</table>

Photos: L: CC BY 2.0 Image courtesy of Scot Nelson bit.ly/2gGoXgC  
R: Public Domain
**NORTHERN CORN LEAF BLIGHT**

**IDENTIFICATION:**
The disease appears as long, elliptical, 1 – 6 inches, greyish-green or tan streaks. Lesions most often begin on the lower leaves. As the disease develops, individual lesions may join, forming large blighted areas. In some cases, the entire leaf may become blighted or “burned.”

**CONTROL TIPS:**
- Good crop rotation is key to managing this disease.
- Use tillage to reduce in-field inoculum.
- In reduced tillage systems, use a diverse crop rotation and choose resistant corn hybrids.

**REGISTERED FUNGICIDES**

<table>
<thead>
<tr>
<th>Field Corn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper® (seed corn)</td>
</tr>
</tbody>
</table>
IDENTIFICATION:
The characteristic symptom of the disease is the production of a fluffy-white to grey fungal growth that often begins on the lower leaves and can move rapidly up the plant on leaves, sheaths, stems and heads under favourable conditions. Leaves develop elongated yellow streaks or areas that may turn brown and die prematurely. Severely diseased plants may lodge or result in poor grain fill. Older, light-grey areas of fungal growth often have small black spots.

CONTROL TIPS:
· Reduce disease risk by removing crop residue through tillage and using a crop rotation that limits wheat or other susceptible cereals from being seeded in the field for a minimum of 2 years.
· Thresholds for fungicide applications differ depending on the age of the crop. For example, early-season powdery mildew control is warranted when 5–10% of the lower leaves are infected, and taking action may limit later infection.
· Excess nitrogen levels can contribute to the development of mildew.

<table>
<thead>
<tr>
<th>REGISTERED FUNGICIDES</th>
<th>Barley</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Photos: L: CC BY SA 3.0 Image courtesy of Rude bit.ly/2g3kPaA
R: CC BY 3.0 Image courtesy of Clemson University bit.ly/2gT69Pn
IDENTIFICATION:
Sclerotinia stem rot is characterized by bleached stem lesions and hard black bodies (sclerotia) of white mould fungus inside the stems. Infections that start on dead blossoms spread to adjacent tissues, resulting in dead branches or dead plants. The rotted stems usually have a bleached appearance.

CONTROL TIPS:
- Use clean, certified seed and crop rotations of at least 4 years. Include non-host crops such as corn, wheat, barley or oats in fields with a history of sclerotinia.
- Row spacing has been shown to influence this disease in soybeans, with narrow rows resulting in more sclerotinia stem rot. Avoid seeding soybeans in narrow rows in fields with a history of this disease.
- Keep fields free of broadleaf weeds since many are alternate hosts for this disease.

REGISTERED FUNGICIDES

<table>
<thead>
<tr>
<th>Canola</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall® 240 SC</td>
</tr>
</tbody>
</table>

Photos: Images courtesy of Canola Council of Canada

Always read and follow pesticide label directions.
SEPTORIA LEAF SPOT

IDENTIFICATION:
Initial infections from Septoria leaf spot appear as small, light green-to-yellow spots between the veins of the lower leaves. These spots elongate to form irregular reddish-brown lesions. Embedded in these lesions are small, dark-brown to black fungal bodies (pycnidia) that can be seen with the use of a hand lens.

CONTROL TIPS:
- Ploughing down cereal residues and removing volunteer wheat will reduce the survivability of Septoria fungi.
- Balanced fertility programs are important since high rates of fertilizer and early seeding may result in dense foliage going into the winter, which can increase disease levels. Septoria leaf spot may develop under snow cover in winter wheat.
- Foliar-applied fungicides will reduce losses, but crops should be monitored closely around flag leaf emergence and sprayed when only small spots are present on upper leaves.

<table>
<thead>
<tr>
<th>REGISTERED FUNGICIDES</th>
<th>Barley</th>
<th>Oats</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Topnotch™</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

1 Also controls Septoria glume blotch.

Photos: L: CC BY 2.0 Image courtesy of Bayer CropScience bit.ly/2fJ72VR
R: CC BY 2.0 Image courtesy of Clemson University bit.ly/2gTazpq
IDENTIFICATION:
Stripe rust is characterized by small, round, blister-like lesions that are yellow-orange in colour and merge to form stripes. It commonly affects leaf blades and can occasionally be observed on heads when the disease is very severe. Infection of the leaf sheaths or stems is rare.

CONTROL TIPS:
- Early seeding of spring crops will allow them to ripen before major amounts of stripe rust inoculum typically become available in mid-summer.
- Once stripe rust is detected, a fungicide application is the only method to control the spread of the disease.
- Rotating out of cereal crops will help to break down the green bridge effect, reducing disease development considerably.

<table>
<thead>
<tr>
<th>REGISTERED FUNGICIDES</th>
<th>Barley</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Topnotch™</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

Always read and follow pesticide label directions.
IDENTIFICATION:
Tan spot begins on the lower leaves as small, tan-brown flecks that enlarge into oval- or lens-shaped tan lesions, ¼ – ⅜ inch wide with a small, dark brown centre. A bright yellow zone or halo surrounds the tan lesion.

CONTROL TIPS:
- Allow several years between susceptible crops.
- Foliar-applied fungicides will reduce losses, but crops should be monitored closely around flag leaf emergence and sprayed when only small spots are present on upper leaves.
- Burying crop residue may reduce disease severity.

<table>
<thead>
<tr>
<th>REGISTERED FUNGICIDES</th>
<th>Barley</th>
<th>Wheat</th>
<th>Durum Wheat</th>
<th>Winter Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumper®</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Topnotch™</td>
<td>•</td>
<td>•</td>
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</tr>
</tbody>
</table>

Photo: CC BY SA 3.0 Image courtesy of Agronom bit.ly/2fs1N9q
## METRIC CONVERSION

<table>
<thead>
<tr>
<th>Metric Unit</th>
<th>Imperial Unit</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINEAR</td>
<td>centimetre (cm)</td>
<td>x 2.54</td>
</tr>
<tr>
<td>AREA</td>
<td>square metre (m²)</td>
<td>x 1.2</td>
</tr>
<tr>
<td></td>
<td>hectare (ha)</td>
<td>x 0.84</td>
</tr>
<tr>
<td></td>
<td>square yard</td>
<td>x 2.5</td>
</tr>
<tr>
<td>VOLUME</td>
<td>litre (L)</td>
<td>x 0.22</td>
</tr>
<tr>
<td></td>
<td>U.S. gallon</td>
<td>x 0.27</td>
</tr>
<tr>
<td>PRESSURE</td>
<td>kilopascals (kPa)</td>
<td>x 0.14</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>gram (g)</td>
<td>x 0.04</td>
</tr>
<tr>
<td></td>
<td>kilogram (kg)</td>
<td>x 0.014</td>
</tr>
<tr>
<td>AGRICULTURAL</td>
<td>litres per hectare (L/ha)</td>
<td>x 0.09</td>
</tr>
<tr>
<td></td>
<td>millilitres per hectare (ml/ha)</td>
<td>x 0.011</td>
</tr>
<tr>
<td></td>
<td>kilograms per hectare (kg/ha)</td>
<td>x 0.01</td>
</tr>
</tbody>
</table>

### METRIC UNIT

- **Imperial**: Multiply by 0.39 to convert inches to centimetres, multiply by 2.54, conversely, to convert centimetres to inches.

### IMPERIAL UNIT

- **Metric**: Multiply by 1.2 to convert square yards to square metres, multiply by 0.84 to convert hectares to square metres, multiply by 2.54 to convert centimetres to inches, conversely, to convert inches to centimetres.

### AREA

- **Multiply by**: 1.2
- **Multiply by**: 0.84
- **Multiply by**: 2.5

### VOLUME

- **Multiply by**: 0.22
- **Multiply by**: 0.27

### PRESSURE

- **Multiply by**: 0.14

### WEIGHT

- **Multiply by**: 0.04
- **Multiply by**: 0.014

### AGRICULTURAL

- **Multiply by**: 0.09
- **Multiply by**: 0.011
- **Multiply by**: 0.01

### EXAMPLE:

To convert centimetres to inches, multiply by 0.39; conversely, to convert inches to centimetres, multiply by 2.54.
<table>
<thead>
<tr>
<th>Active Ounces per Acre</th>
<th>Formulation (ml per acre)</th>
<th>Acres Treated per 10 L jug</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td></td>
<td>300 400 500 600 700</td>
</tr>
<tr>
<td>1</td>
<td>94</td>
<td>47 81 107 142 212</td>
</tr>
<tr>
<td>2</td>
<td>187</td>
<td>113 142 142 202 351</td>
</tr>
<tr>
<td>3</td>
<td>281</td>
<td>170 21 283 351 421</td>
</tr>
<tr>
<td>4</td>
<td>374</td>
<td>281 340 378 453 562</td>
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<tr>
<td>5</td>
<td>468</td>
<td>351 421 453 562 749</td>
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<td>6</td>
<td>562</td>
<td>236 340 378 562 842</td>
</tr>
<tr>
<td>7</td>
<td>655</td>
<td>283 324 378 842 936</td>
</tr>
<tr>
<td>8</td>
<td>749</td>
<td>283 324 378 842 936</td>
</tr>
<tr>
<td>9</td>
<td>842</td>
<td>378 405 472 702 1078</td>
</tr>
<tr>
<td>10</td>
<td>936</td>
<td>472 702 1078 1078</td>
</tr>
</tbody>
</table>

Recommended rates have been rounded to whole numbers.
MAKE THE SWITCH TO ADAMA.

Focus on profit and agronomics, not rebates and bundles. Here’s our top quality lineup and a list of products it replaces. With us, you can focus on your business instead of somebody else’s program.

### INSECTICIDE

<table>
<thead>
<tr>
<th>PRODUCT WITH ACTIVE</th>
<th>PRODUCT REPLACED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PYRINEX® 480 EC</strong> Chlorpyrifos</td>
<td>Lorsban®, Nufos®, Citadel®, Pyrifos®, Warhawk®, MPower®, Krypton®</td>
</tr>
<tr>
<td><strong>SILENCER® 120 EC</strong> Lambda-cyhalothrin</td>
<td>Matador®, Pounce®</td>
</tr>
<tr>
<td><strong>SOMBRERO™ 600 FS</strong> Imidacloprid</td>
<td>Stress Shield®</td>
</tr>
</tbody>
</table>

### FUNGICIDE

<table>
<thead>
<tr>
<th>PRODUCT WITH ACTIVE</th>
<th>PRODUCT REPLACED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUMPER®</strong> Propiconazole</td>
<td>Tilt®, Pivot®, Propel®, Nufarm Propiconizole</td>
</tr>
<tr>
<td><strong>OVERALL® 240 SC</strong> Iprodione</td>
<td>Rovral®</td>
</tr>
<tr>
<td><strong>TOPNOTCH™</strong> Azoxystrobin &amp; Propiconazole</td>
<td>Unique to ADAMA</td>
</tr>
<tr>
<td>HERBICIDE</td>
<td>PRODUCT WITH ACTIVE</td>
</tr>
<tr>
<td>-----------</td>
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</tr>
<tr>
<td>ARROW® 240 EC</td>
<td>Clethodim</td>
</tr>
<tr>
<td>BADGE® II</td>
<td>Bromoxynil &amp; MCPA Ester</td>
</tr>
<tr>
<td>BISON® 400 L</td>
<td>Tralkoxydim</td>
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<tr>
<td>BROMOTRIL® II</td>
<td>Bromoxynil</td>
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<tr>
<td>FORCEFIGHTER™ M</td>
<td>MCPA + Fluroxypyr &amp; Bromoxynil</td>
</tr>
<tr>
<td>HOTSHOT™</td>
<td>Bromoxynil &amp; Florasulam</td>
</tr>
<tr>
<td>LADDER® 240 EC</td>
<td>Clodinafop-propargyl</td>
</tr>
<tr>
<td>OUTSHINE™</td>
<td>Florasulam, Fluroxypyr &amp; MCPA Ester</td>
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<tr>
<td>PHANTOM® 240 SL</td>
<td>Imazethapyr</td>
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<tr>
<td>PRIORITY®</td>
<td>Florasulam</td>
</tr>
<tr>
<td>RUSH™ 24</td>
<td>Fluroxypyr &amp; 2,4-D Ester</td>
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<tr>
<td>RUSH M™</td>
<td>Fluroxypyr &amp; MCPA Ester</td>
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<tr>
<td>SQUADRON®</td>
<td>Metribuzin</td>
</tr>
<tr>
<td>THRASHER® II</td>
<td>Bromoxynil &amp; 2,4-D Ester</td>
</tr>
<tr>
<td>TOPLINE™</td>
<td>Florasulam &amp; MCPA Ester</td>
</tr>
</tbody>
</table>
For more information, please contact your local Area Business Manager.

**BUCK PETERS**  
Western Business Manager  
Phone: 1.855.264.6262  
buck.peters@adama.com

**DENELL SPARROW**  
Area Business Manager  
Northern Alberta  
Phone: 1.855.264.6262  
denell.sparrow@adama.com

**GINELLE PIDWERBESKY**  
Area Business Manager  
Central Alberta  
Phone: 1.855.264.6262  
ginelle.pidwerbesky@adama.com

**DARRELL FLATLA**  
Area Business Manager  
Southern Alberta  
Phone: 1.855.264.6262  
darrell.flatla@adama.com

**GORD HOUNJET**  
Area Business Manager  
West Central Saskatchewan  
Phone: 1.855.264.6262  
gord.hounjet@adama.com

**KENT BURNETT**  
Area Business Manager  
Southern Saskatchewan  
Phone: 1.855.264.6262  
kent.burnett@adama.com

**GLEN DOUGLAS**  
Area Business Manager  
Northeast Saskatchewan  
Phone: 1.855.264.6262  
glen.douglas@adama.com

**STEVE LEPPER**  
Area Business Manager  
Southwest Manitoba & Southeast Saskatchewan  
Phone: 1.855.264.6262  
steve.lepper@adama.com

**COREY THORSTEINSON**  
Area Business Manager  
Eastern Manitoba  
Phone: 1.855.264.6262  
corey.thorsteinson@adama.com

**DON SURGEONER**  
Eastern Business Manager & Canadian Quali-Pro Manager  
Phone: 1.855.264.6262  
don.surgeoner@adama.com

**AMANDA WALSH**  
Area Business Manager  
Quebec & Maritimes  
Phone: 1.855.264.6262  
amanda.walsh@adama.com
OTHER USEFUL CONTACT INFO

PROSAR (U.S. & Canada):
1.800.331.3148

INFOTRAC:
1.800.535.5053

PROVINCIAL AG OFFICES:
Agriculture and Agri-Food Canada
1541 Baseline Road
Ottawa, ON K1A 0C5
Toll-free: 1.855.773.0241
Email: info@agr.gc.ca
agr.gc.ca

Alberta Agriculture and Forestry
Ag-Info Centre
7000-113th Street
Edmonton, AB T6H 5T6
Phone: 403.742.7901
Toll-free in Alberta:
310.FARM (3276)
Email: duke@gov.ab.ca
agric.gov.ab.ca

Manitoba Agriculture, Food and Rural Development
Find a GO Office at
gov.mb.ca/agriculture
Email: mafweb@gov.mb.ca

Saskatchewan Ministry of Agriculture
45 Thatcher Drive East
Moose Jaw, SK S6J 1L8
Agriculture Knowledge Centre
Toll-free: 1.866.457.2377
saskatchewan.ca/agriculture

ASSOCIATIONS AND COUNCILS:
Canola Council of Canada
400-167 Lombard Avenue
Winnipeg, MB R3B 0T6
Phone: 1.866.834.4378
canolacouncil.org

Canadian Canola Growers Association
400-1661 Portage Avenue
Winnipeg, MB R3J 3T7
Phone: 204.788.0090
Toll-free: 1.866.745.2256
cpga.ca

Manitoba Canola Growers
400-167 Lombard Avenue
Winnipeg, MB R3B 0T6
Phone: 204.982.2122
Email: info@canolagrowers.com
canolagrowers.com

SaskCanola
212-111 Research Drive
Saskatoon, SK S7N 3R2
Phone: 306.975.0262
Toll-free: 1.877.241.7044
Email: info@saskcanola.com
saskcanola.com

Alberta Canola Producers Commission
14560-116 Avenue NW
Edmonton, AB T5M 3E9
Phone: 780.454.0844
Email: web@albertacanola.com
albertacanola.com

Pulse Canada
1212-220 Portage Avenue
Winnipeg, MB R3C 0A5
Phone: 204.925.4455
Email: office@pulsecanada.com
pulsecanada.com

Alberta Pulse Growers
50078-49 Avenue
Leduc, AB T9E 6M6
Phone: 780.986.9398
Toll-free: 1.877.550.9398
pulse.ab.ca

Saskatchewan Pulse Growers
207-116 Research Drive
Saskatoon, SK S7N 3R3
Phone: 306.668.5556
Email: pulse@saskpulse.com
saskpulse.com

Manitoba Pulse & Soybean Growers
P.O. Box 1760
38-4th Avenue NE
Carman, MB R0G 0J0
Phone: 204.745.6488
Toll-free: 1.866.226.9442
manitobapulse.ca

Soy Canada
130 Albert Street, Suite 1607
Ottawa, ON K1P 5G4
Phone: 613.233.0500
Email: info@soycanada.ca
soycanada.ca

Canadian Special Crops Association
1215-200 Portage Avenue
Winnipeg, MB R3C 0A5
Phone: 204.925.3780
specialcrops.mb.ca
It’s that simple.