

# 2021

WESTERN CANADA

# PRODUCT GUIDE





An Agricultural  
Sciences Company

# BRINGING CHEMISTRY TO THE FARM GATE

2020 has been a year for the history books. Throughout the season our passion never wavered and we found different ways to communicate, to educate and to deliver. We strive to provide our best to our customers, whether that is in service, products or even delivery timelines, in a regular season or through extraordinary circumstances like 2020.

We continue to be dedicated to researching new chemistries in products, application options and technologies, bringing new solutions that will enable our end users to achieve higher yields more economically, more efficiently and more sustainably.

At FMC, we continue to listen to you. We want to be the leader in innovative products that make a difference in your business. We want you to be successful and we hope that FMC can be a part of your success today and in the future.

Thank you for making us a part of your success in 2020. We wish you a healthy, safe, productive and profitable 2021.





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## A flexible tank-mix partner for enhanced burnoff

- Effective, quick burnoff of hard-to-control weeds, including glyphosate-resistant biotypes
- Provides protection for a broad range of crops with flexible tank-mix options
- 🌿 **Crops: Pre-seed burnoff:** Barley, buckwheat, canola, chickpea, corn (field and sweet), dry bean, faba bean, field pea, flax, lentil, millet (pearl and proso), mustard, oats, potato, rye, safflower, soybean, sunflower, triticale, wheat (spring, durum, winter)  
**Fallow systems:** Same as above  
**Harvest aid:** Barley, dry beans, oats, field peas, potatoes, soybeans, wheat
- 🧪 **Chemical Group:** Group 14
- 📊 **Registered and Supported Tank-mixes:** Recommended to be tank-mixed with glyphosate, 2,4-D ester, Express® SG herbicide, Express® PRO herbicide, Express® FX herbicide, MCPA , Authority® 480 herbicide, Authority® Supreme herbicide, Command® 360 ME herbicide, PrecisionPac® NC-0050, Nufarm Koril® 235, IPCO Brotex® 240, 480 and 4AT, PrecisionPac® DB-878, PrecisionPac® NC-00439
- 🕒 **Timing:** Pre-seed or harvest aid application
- ❓ **Application Information:**

Product Use and Weed Control	Rate	1.2 L Jug (ac/jug)	4.8 L Jug (ac/jug)
<b>For newly emerged weeds or when using with a tank-mix partner:</b> Black nightshade (up to 5 cm tall) Eastern black nightshade (up to 5 cm tall) Lamb's-quarters (up to 7.5 cm tall) Morning glory (up to 3 leaf) Redroot pigweed Tall waterhemp (up to 5 cm tall) Velvetleaf	15 mL/ac	80	320
<b>For wider weed spectrum, moderate pressure and larger weeds:</b> <i>All the above weeds, plus</i> Flaxweed Hairy nightshade Lamb's-quarters Morning glory Pennsylvania smartweed (seedling) Pigweed (prostrate, smooth, tumble) Purslane Round-leaved mallow Stinkweed Tansy mustard Waterhemp (tall, common)	24 mL/ac	50	200
<b>For glyphosate-resistant weeds, large overwintering cleavers and heavy/larger weeds</b> <i>All the above weeds, plus</i> Black nightshade Carpetweed Cleavers Cocklebur Eastern black nightshade Jimsonweed Kochia Russian thistle (up to 5 cm tall) Shepherd's-purse Volunteer canola (up to 4 leaf stage)*	30 mL/ac	40	160

Product Use and Weed Control	Rate	1.2 L Jug (ac/jug)	4.8 L Jug (ac/jug)
<b>Tough to control weeds</b> All the above weeds, plus Burclover Corn spurry Prickly lettuce Venice mallow (up to 5 cm tall)	47 mL/ac	26	102
<b>Harvest-Aid</b>	47 mL/ac	26	102
* All herbicide-tolerant canola			

**Surfactant:** None required when tank-mixing with glyphosate. Use Agral® 90 or Ag-Surf® at 0.25% v/v or Merge® at 1% v/v if used alone.

**Water Volume:** 10 US gal/ac (100 L/ha).

**Rainfastness:** Aim® EC herbicide is rapidly absorbed through the foliage of plants. Rainfall soon after application may reduce efficacy.

**Mixing Instructions:** Spray equipment must be clean and free of existing pesticide deposits before using this product. Follow the spray tank clean-out procedures specified on the label of the previously applied product before adding Aim® EC herbicide to the spray tank.

For best results, fill the spray tank with one half the volume of clean water needed for the area to be treated. Make sure the agitation system is operating while adding products. Slowly add the required amount of Aim® EC herbicide to the spray tank. Carefully rinse the container, adding the rinsings to the spray tank. Complete filling the spray tank to the desired level. Spray tank agitation should be sufficient to ensure uniform spray mixture during application and must continue until the spray tank has been emptied.

**Tank-mixtures:** Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the **WAMLEGS** order. See page 66 of this guide.

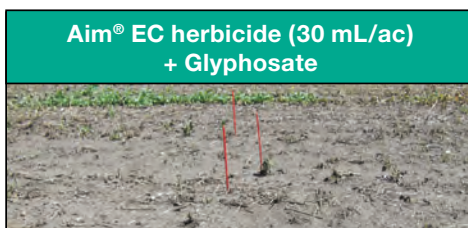
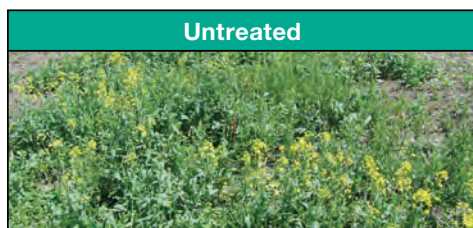
If sprayer has been stored or idle, purge the spray boom and nozzles with clean water before charging sprayer with products to be applied.

Avoid overnight storage of Aim® EC herbicide spray mixtures.

Premixing Aim® EC herbicide spray solutions in nurse tanks is not recommended.

Maintain continuous and adequate agitation until all spray solution has been used.

Do not use with tank additives that alter the pH of the spray solution.



Source: Olds, AB (2020)

Refer to the Aim® EC herbicide label for complete use instructions.



## Broadleaf control all season long

- Systemic activity with soil residual that lasts up to eight (8) weeks

- Controls late weed flushes

**Crops:** Spring wheat, durum wheat, barley, creeping red fescue, orchard grass, crested and intermediate wheat grass (seed or forage) and timothy (seed or forage).

**Chemical Group:** Group 2

### **Registered and Supported Tank-mixes:**

- 2,4-D (Amine/Ester): Barley, wheat
- Assure<sup>®</sup> II: Creeping red fescue
- Everest<sup>®</sup> 3.0 + 2,4-D (Amine/Ester): Spring and durum wheat
- Clodinafop: Spring wheat, durum wheat
- MCPA (Amine/Ester): Barley, wheat
- Puma<sup>®</sup> Advance: Spring wheat, durum wheat, barley

**Timing:** 2-leaf to flag-leaf stage

**Crop Rotation:** For black and grey wooded soils of pH 7.9 or lower, please refer to the re-cropping recommendations on the next page.

### **Application Information:**

**Packaging:** 122 g pouch

**Rates:** 3 g/ac (40 ac/pouch) used alone in barley, wheat and creeping red fescue

**Surfactant:** Add a registered non-ionic surfactant (NIS) at 2 L per 1000 L of spray solution (0.2% v/v).

**Water Volume:** 10 US gal/ac (100 L/ha)



Broadleaf Control		
Ball mustard	Hemp-nettle	Sow-thistle <sup>1</sup> (annual, perennial)
Bluebur	Kochia	Stinkweed
Canada thistle <sup>1</sup>	Lady's-thumb	Stork's-bill
Chickweed	Lamb's-quarters <sup>1</sup>	Tartary buckwheat
Common groundsel	Prostrate pigweed	Toadflax <sup>1</sup>
Corn spurry	Redroot pigweed	Volunteer canola (excluding Clearfield <sup>®</sup> canola)
Cow cockle	Russian thistle <sup>1</sup>	Wild buckwheat <sup>1</sup> (1-3 leaf)
Flixweed	Scentless chamomile	Wild mustard
Green smartweed	Shepherd's-purse	

<sup>1</sup> Suppression

Crop Rotation: Black and Grey Wooded Soils									
Soil pH	Interval prior to planting (months)								
	Barley	Canary Seed	Canola	Durum wheat	Flax	Lentils	Oats	Spring wheat	Yellow mustard
6.9 or lower	10	48	10	10	10	34	10	10	48
7.0 to 7.9	10	48	22	10	34	48	10	10	48

DO NOT USE ON SOILS WITH pH GREATER THAN 7.9.  
On black and grey wooded soils of pH 7.5 or lower, fescue may be planted in 10 months. Alfalfa, red clover, peas and flax may be planted 22 months following application of Ally<sup>®</sup> Toss-N-Go<sup>®</sup> herbicide.

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Refer to the Ally<sup>®</sup> Toss-N-Go<sup>®</sup> herbicide label for complete use instructions.

## Extended control of tough broadleaf weeds

- Pre-plant and pre-emergent extended control of tough broadleaf weeds in a wide range of crops
- Group 14 for resistance management
- Concentrated formulation for ease of use and mixing

 **Crops:** Chickpeas, field peas, flax, sunflower, soybeans, spring and durum wheat (low rate only), tame mustard (low rate only), asparagus, faba bean, mint, strawberry, horseradish, cabbage (transplants only), tomato (transplants only), tree nuts, grapes, berries and apples

 **Chemical Group:** Group 14

 **Registered and Supported Tank-Mix Options:**

Aim® EC herbicide + glyphosate

Aim® EC herbicide + MCPA amine + glyphosate (flax only)

Glyphosate

Express® SG herbicide

Engenia® herbicide

XtendiMax® herbicide

(Consult the tank-mix partner label for specific application use directions and restrictions.

Always follow the most restrictive label.)

 **Timing:**

Authority® 480 herbicide alone, or in recommended tank-mixes, may be applied to the soil surface as a broadcast spray prior to or after planting of the crop (no later than 3 days after seeding), but prior to weed or crop emergence.

Authority 480 herbicide requires 1/2" of moisture, at once, for activation, whether the total amount of moisture is supplied by rainfall or irrigation.

### Weed Control List:

Use rate ( ac/jug)	Weeds controlled		
43 acres / jug 89 mL/ac (0.219 L/ha)	Kochia		
32 acres / jug 118 mL/ac (0.292 L/ha)	Cleavers <sup>1</sup> Common groundsel Common purslane Common waterhemp Eastern black nightshade	Kochia Lamb's-quarters Large crabgrass Powell pigweed Redroot pigweed	Smooth crabgrass Wild buckwheat Yellow woodsorrel

<sup>1</sup> Suppression.

### 🕒 Crop Rotation:

Rotational Crop	Replant Interval (Months)
Winter wheat	4
Alfalfa Barley Canola Corn, field Spring and durum wheat (high rate)	12
Corn, sweet and pop Lentils Sorghum	24
Broccoli Cabbage Cauliflower Chickpea Faba bean Field pea Flax Horseradish Mint* Potatoes Soybeans Strawberry* Sunflowers Tomato (transplants)	Any time
Spring and durum wheat Tame mustard	Any time (low rate only)

\* Refer to label instructions

### ❓ Application Information:

Apply pre-plant or post-seed (up to 3 days after seeding).

Early application (pre-plant) increases activation potential via spring showers. Post-seed application should be considered in higher disturbance situations.

Clean out tank after using Authority<sup>®</sup> 480 herbicide. When spraying Authority<sup>®</sup> 480 herbicide for multiple days, at the end of each day, rinse tank with water and leave 1/3 full of water overnight.

Do not apply Authority<sup>®</sup> 480 herbicide to fields treated with products containing sulfentrazone in the previous year.

Do not apply to soils classified as coarse-textured soils.

Do not apply in fine textured soils with less than 1.5% organic matter.

Do not apply in any type of soils with an organic matter content greater than 6%.

Do not use on soils with a pH of 7.8 or greater.

**Rates and Packaging:** 4 x 3.79 L jugs per case.

Each 3.79 L jug treats 32 or 43 acres.

**Water Volume:** 10 US gal/ac (100 L/ha) provides best uniform soil coverage with medium to coarse droplet sizes.

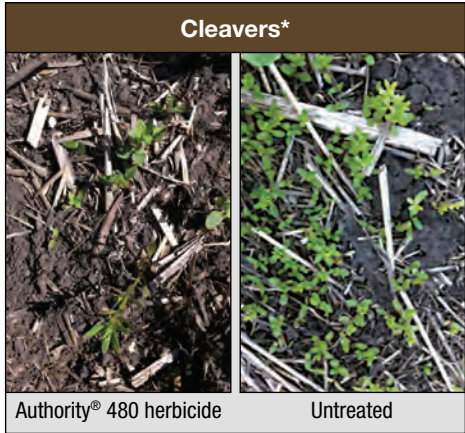
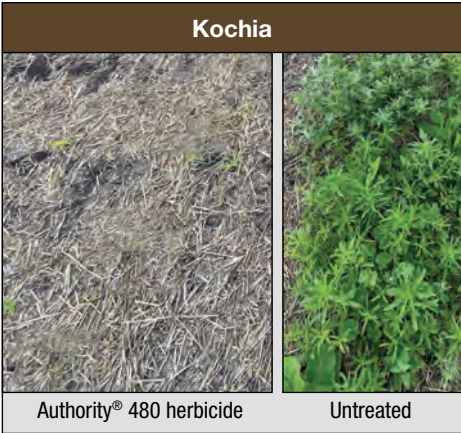
**Tank-mixtures:** Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the **WAMLEGS** order. See page 66.

#### Keep your flax field clean



Source: Sedley, SK (2019)





\* Suppression high rate



Source: Kincaid, SK (May 15, 2019). Application: April 26, 2019

Notes: \_\_\_\_\_

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Refer to the Authority<sup>®</sup> 480 herbicide label for complete use instructions.

## Get 2-in-1 pre-emergent protection against grassy and broadleaf weeds

- Pre-plant and pre-emergent extended weed control for grassy and broadleaf weeds in field peas, chickpeas, and soybeans
- Consistent grass and broadleaf performance on tough-to-control weeds
- Multiple modes of action for resistance management

 **Crops:** Field peas, chickpeas and soybeans

 **Chemical Groups:** Groups 14 & 15

 **Registered and Supported Tank-mix Options:**

Glyphosate

Aim® EC herbicide + glyphosate

Express® SG + glyphosate (soybeans and field peas only)

(Consult the tank-mix partner label for specific application use directions and restrictions.

Always follow the most restrictive label.)

 **Timing:**

Authority® Supreme herbicide can be applied pre-plant or pre-emergence up to three (3) days after planting. Crop seeds must be planted a minimum of 2.5 cm deep. **DO NOT** apply Authority® Supreme herbicide if crop has emerged. A minimum of 1/2" of rainfall and/or overhead sprinkler irrigation, at once, is necessary to move Authority® Supreme herbicide into the upper soil surface where weed seeds germinate.

Application Timing	Rate (mL/ac) of Authority® Supreme herbicide
Setup Treatment (pre-plant or pre-emergence)	162 mL/ac (50 ac/ jug) (early season control only)
Extended Treatment (pre-plant or pre-emergence)	202 mL/ac (40 ac/jug) (medium texture, O.M. 1 – 3%)
	243 mL/ac (33 ac/jug) (medium-fine/fine texture, O.M. 3 - 6%)
<p><b>Do not apply to soils classified as coarse-textured soils.</b></p> <p><b>Do not use on peat or muck soils.</b></p> <p><b>Do not apply on any type of soils with an organic matter content greater than 6%.</b></p> <p><b>Do not use on soils with a pH of 7.8 or greater.</b></p>	

 **Crop Rotation:**

Rotational Crop	Replant Interval (Months)
Winter wheat	4
Field corn, spring and durum wheat, barley, canola, mustard, oats, sunflowers	12
Lentils	24
Sugar beets	36
Chickpeas, field peas, soybeans	Any time

### Application Information:

Early application (pre-plant) increases activation potential by spring showers. Post-seed application should be considered in higher disturbance situations.

Apply at 10 US gal/ac (100 L/ha) for maximum soil coverage, using medium to coarse droplets.

For extended control, apply at 33 or 40 acres per jug based on timing and soil characteristics.

Apply with or without glyphosate. Apply with glyphosate if weeds are emerged and actively growing.

Authority<sup>®</sup> Supreme herbicide controls weeds germinating within the soil barrier.

Do not apply Authority<sup>®</sup> Supreme herbicide to fields treated with products containing sulfentrazone in the previous year.

**Rates and Packaging:** 2 x 8 L jugs per case. Each 8 L jug treats 33 or 40 acres per jug when applied for extended control.

**Surfactant:** Not required.

**Water Volume:** 10 US gal/ac provides best uniform soil coverage with medium to coarse droplet sizes.

**Tank-mixtures:** Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the **WAMLEGS** order. See page 66.

Grass Weed Control		
Barnyard grass	Crabgrass (large, smooth)	Witchgrass
Brome (downy, Japanese)	Foxtail (green, yellow, giant)	Wild oats <sup>1</sup>
Broadleaf Weed Control		
Cleavers	Eastern black nightshade	Waterhemp, common
Common groundsel	Kochia	Wild buckwheat
Common purslane	Lamb's-quarters	Wild mustard <sup>1</sup>
Common ragweed <sup>1</sup>	Pigweed (green, redroot, Powell)	Yellow woodsorrel
Cowcockle	Stinkweed	
<sup>1</sup> Suppression		




Source: Hanley, SK, 2020

Refer to the Authority<sup>®</sup> Supreme herbicide label for complete use instructions.

## Tough on weeds, gentle on crops


- Consistent performance on the toughest broadleaf weeds, yet gentle on crops
- Leverages the strengths of three (3) active ingredients to provide consistent and powerful control of a broad range of broadleaf weeds
- Excellent control of narrow-leaved hawk's-beard, cleavers and kochia
- Contains actives from two groups (Groups 2 & 4) to help with resistance management


 **Crops:** Spring wheat, durum wheat, winter wheat, spring barley, oats (when mixed with MCPA Ester)

 **Chemical Groups:** Groups 2 & 4

### Registered and Supported Tank-mix Options:

- Acapela<sup>®</sup>
- Assert<sup>®</sup>
- Axial<sup>®</sup>
- Banvel<sup>®</sup>
- Clodinafop
- Everest<sup>®</sup> 3.0
- MCPA Ester
- 2,4-D Ester
- Puma<sup>®</sup> Advance
- Simplicity<sup>™</sup> / Simplicity<sup>™</sup> GoDi
- Traxos<sup>®</sup>
- Varro<sup>®</sup>

 **Timing:** Wheat: 2-leaf to flag-leaf stage; oats: 3-leaf to flag-leaf stage; winter wheat: 3-tiller to just before the flag leaf (spring application)

 **Crop Rotation: Following year:** Alfalfa, barley, canola, dry beans, faba beans, field corn, flax, forage grasses, lentils, mustard, oats, peas, potatoes, rye, wheat, soybeans, sugar beets, sunflowers or fields can be summer fallowed.

### Application Information:

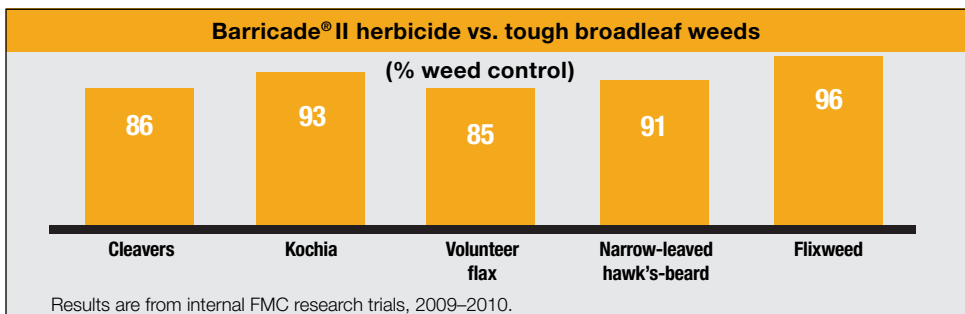
**Rates and Packaging:** One (1) case treats 40 acres

**Surfactant:** Add a registered non-ionic surfactant (NIS) at 2 L per 1000 L of spray solution (0.2% v/v). When tank-mixing with a grass herbicide, use the surfactant provided with that product. Do not use an additional surfactant unless otherwise indicated on the label.

**Water Volume:** Ground application - 5 US gal/ac (50 L/ha)  
Can be aerial applied.

**Rainfastness:** One (1) hour

**Mixing Instructions:** See page 66.





### Broadleaf control

Canada thistle<sup>1</sup>

**Cleavers** (1 to 6 whorls), (1 to 9 whorls)<sup>3</sup>

Common chickweed

Cow cockle

Dandelion<sup>3</sup> (spring and fall rosettes up to 15 cm)

Flixweed

Hemp-nettle (control <10cm); (1 to 8 leaf)<sup>3</sup>

**Kochia** (seedling to 8-leaf stage including Group 2 resistant biotypes)

Lamb's-quarters

**Narrow-leaved hawk's-beard** (<10cm)

Night-flowering catchfly (<10cm)

Redroot pigweed

Round-leaved mallow (1-5 leaf)

Russian thistle

Scentless chamomile<sup>3</sup>

Shepherd's purse

Smartweed (Lady's-thumb)

Sow thistle (perennial)

Stinkweed

Stork's-bill (1-6 leaf)

Volunteer canola<sup>2</sup>

Volunteer flax (12 cm in height)

White cockle<sup>3</sup>

Wild buckwheat

Wild mustard

<sup>1</sup> Suppression.

<sup>2</sup> Excluding Group 2 herbicide tolerant varieties, unless Barricade<sup>®</sup> II herbicide is tank-mixed with MCPA Ester

<sup>3</sup> When tank-mixed with MCPA Ester

Unless otherwise noted, apply to young and actively growing weeds that are less than 10 cm in height or width.

### Barricade<sup>®</sup> II herbicide efficacy on narrow-leaved hawk's-beard



Source: Dammann Farms, Creelman, SK

Notes: \_\_\_\_\_

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Refer to the Barricade<sup>®</sup> II herbicide labels for complete use instructions.

## Your first line of defense against cleavers in canola

- Early, extended control of cleavers in front of canola
- Unique Group 13 mode of action for resistance management
- Does not require incorporation and is taken up by the roots of germinating cleavers upon activation

 **Crops:** Canola

 **Chemical Group:** Group 13


 **Registered and Supported Tank-mix Options:**

- Glyphosate
- Aim<sup>®</sup> EC herbicide
- Aim<sup>®</sup> EC herbicide + glyphosate
- Aim<sup>®</sup> EC herbicide + glyphosate + bromoxynil

 **Timing:** Pre-seed in front of canola

 **Crop Rotation:** Prior to canola only

Plant-Back Interval	Rotational Crop
Immediately	Canola
4 months	Winter wheat
Following spring	Beans (white, kidney, snap), corn (field, sweet), peas, potatoes, spring & durum wheat, spring barley, oats, lentils
16 months	All other crops

 **Application Information:** Early-season control only. An in-crop herbicide application will be required. Can be used in front of any variety of herbicide-tolerant canola. Requires 1/4" of rain for activation.

**Rates and Packaging:** 135 mL/ac (330 mL/ha or 40 acres per jug). 2 x 5.4 L jugs/case

**Surfactant:** None required

**Water Volume:** 10 US gal/ac (100 L/ha)

**Tank-mixtures:** Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the **WAMLEGS** order. See page 66.


**Weeds Controlled:** Extended control of cleavers (cleavers not emerged at application)



Rowatt, SK. Photo taken July 14, 2019

## A stronger, more complete burnoff before canola plus weeks of extended cleaver control.

- Differentiated broad spectrum burnoff
- Extended control of early-season cleavers
- Multiple modes of action to battle weed resistance

 **Crops:** All herbicide tolerant canola

 **Chemical Group:** 13 & 14


 **Registered and Supported Tank-mix Options:**

Glyphosate

 **Timing:** Pre-seed in front of canola

 **Crop Rotation:** Prior to canola only

Plant-Back Interval	Rotational Crop
Immediately	Canola
4 months	Winter wheat
Following spring	Beans (white, kidney, snap), corn (field, sweet), peas, potatoes, spring & durum wheat, spring barley, oats, lentils
16 months	All other crops

 **Application information:** Extensive burnoff of wide range of weeds plus extended control of cleavers. Can be used in front of any variety of herbicide-tolerant canola. Requires 1/4" of rain for activation.

**Rates and Packaging:** 2 x 5.4 L jugs of Command® Charge A Herbicide – 135 mL/acre  
2 x 1.2 L jugs of Command® Charge B Herbicide – 30 mL/acre  
**80 acres / case**

**Surfactant:** None required if tank-mixed with glyphosate. If sprayed without glyphosate, add a non-ionic surfactant at 0.25% v/v or Merge® at 1% v/v.

**Water Volume:** 10 US gal/ac (100 L/ha)

**Rainfastness:**

Command® Charge A herbicide – Requires 1/4" of rain at once for activation in the soil

Command® Charge B herbicide – Rainfall soon after application may reduce efficacy

**Tank-mixtures:** Fill spray tank one-half to two-thirds full of water. With agitator operating add the recommended amount of ingredients using the **WAMLEGS** order. See page 66.

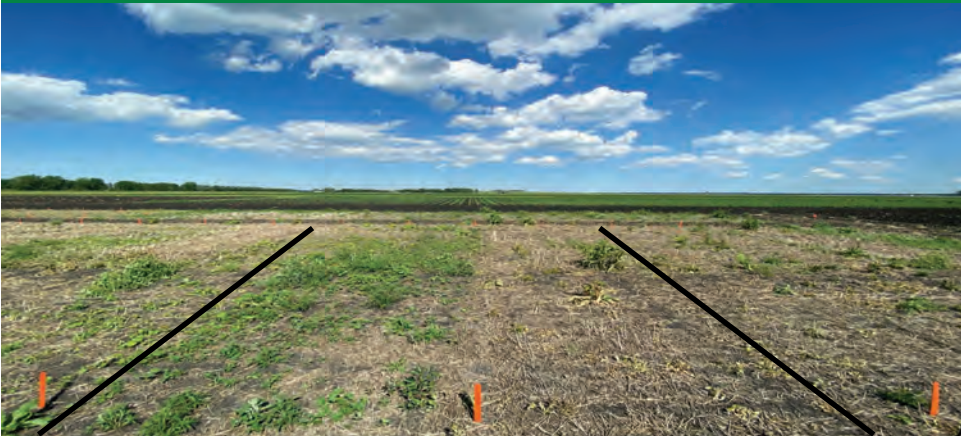
### WEEDS AND CROP USES

When used as directed, Command® Charge A herbicide will provide extended control of cleavers for up to 4 weeks. Command® Charge B herbicide will provide burnoff control of the listed, emerged weeds up to ten (10) cm in height, or as specified.

**Weeds Controlled at 80 acres/case rate**

Canola, volunteer, including glyphosate-tolerant	Nightshade, hairy
Carpetweed	Pennycress, field (stinkweed)
Cleavers	Pigweed, prostrate
Cocklebur	Pigweed, redroot
Flixweed	Pigweed, smooth
Jimsonweed	Pigweed, tumble
Kochia	Purslane, common
Lamb's-quarters, common	Shepherd's purse
Mallow, round-leaved	Smartweed, Pennsylvania (seedling)
Morning glory	Thistle, Russian (up to 5 cm tall)
Mustard, tansy	Velvetleaf
Nightshade, black	Waterhemp, common
Nightshade, Eastern black	Waterhemp, tall

**Command<sup>®</sup> Charge herbicide versus untreated**



Untreated

Command<sup>®</sup> Charge herbicide

Source - FMC Internal Trials, Portage la Prairie, MB, 2020



# Eliminate your toughest weeds from shoots to roots

## Express® herbicides - One trusted brand, multiple options

Select pre-seed weed control based on:

- Agronomic requirements
- Weed control
- Cropping plans

	Express® SG herbicide	Express® PRO herbicide	Express® FX herbicide
<b>Chemical Groups</b> (tank-mixed with glyphosate)	Groups 2 & 9	Groups 2 & 9	Groups 2, 4 & 9
<b>Pre-Seed</b> Crop Flexibility	Cereal crops, chickpeas <sup>†</sup> , lentils <sup>†</sup> , lupin <sup>†</sup> , soybeans <sup>†</sup> , alfalfa <sup>†</sup> , grasses <sup>†</sup> , canary seed, peas <sup>†</sup> , dry beans <sup>†</sup> and faba beans <sup>†</sup>	Wheat (spring, durum, winter), barley	Wheat (spring, durum, winter), barley, oats
<b>Key Weeds</b> (tank-mixed with glyphosate)	Dandelion, flixweed, narrow-leaved hawk's-beard, stinkweed, volunteer canola*, wild buckwheat (3-leaf)	Up to 15 days of extended control of cleavers, dandelion, narrow-leaved hawk's-beard, volunteer canola*	<b>Kochia</b> (Group 2 & 9 resistant biotypes) dandelion, flixweed, narrow-leaved hawk's-beard, stinkweed, volunteer canola*
<b>Timing</b>	- Pre-seed burnoff - Chemfallow - Post-harvest	- Pre-seed burnoff - Chemfallow - Post-harvest prior to seeding cereals	- Pre-seed burnoff - Chemfallow - Post-harvest
<b>Fit</b>	Maximum cropping flexibility & application timing	Extended control in cereals	- Proactive resistance management - Control of Group 2 & 9 resistant kochia


<sup>†</sup> Injury to pulse crops, soybeans, grasses and alfalfa may occur on coarse textured soils, low in organic matter (less than 3%), or in fields with variable soils, gravelly areas, sandy areas or eroded knolls.


\* Will not provide extended control of volunteer Group 2 herbicide tolerant canola.

Refer to the Express® Brand herbicide labels for complete use instructions.


## Proactive resistance management with uncompromising burnoff performance

- Three modes of action when tank-mixed with glyphosate
- Enhanced control of key weeds like kochia, dandelion, narrow-leaved hawk's-beard, volunteer canola
- Systemic activity all the way down to the root, so weeds won't grow back

 **Crops:** Wheat (spring, durum, winter), barley, oats

 **Chemical Groups:** 2, 4 & 9 when tank-mixed with glyphosate

 **Registered and Supported Tank-mixes:** Must be tank-mixed with glyphosate.

 **Timing:** Pre-seed burnoff, chemfallow and post-harvest.

 **Crop Rotation:**

**After 24 hours:** Wheat (spring, durum, winter), barley, oats

**Following year: Pre-seed:** Any crop

**Chemfallow:** Any crop

**Post-harvest:** Canola, corn, lentils, oats, spring barley, soybeans, wheat (spring or durum), white bean

 **Application Information**

**Rates and Packaging:** One (1) case treats 80 acres

**Surfactant:** No additional surfactant is required when tank-mixed with 0.5 REL glyphosate/acre

**Water Volume:** 5 US gal/ac (50 L/ha)

Weeds Controlled (Express <sup>®</sup> FX herbicide plus 0.5 L/ac glyphosate equivalent) <sup>†</sup> :		Stage
Canada fleabane Common ragweed Kochia (including Gr. 2 & 9 resistant biotypes)	Narrow-leaved hawk's-beard Scentless chamomile <sup>1</sup>	Up to 8 cm
Cleavers Dandelion Downy brome Flixweed Giant foxtail Green foxtail Hemp-nettle Lady's-thumb Lamb's-quarters Persian darnel	Redroot pigweed Russian thistle Stinkweed Volunteer barley Volunteer canola (including glyphosate-tolerant varieties) Volunteer flax Volunteer wheat Wild mustard Wild oats	Up to 15 cm
Cow cockle		Up to 3 leaf
Wild buckwheat		Up to 8 leaf
Canada thistle <sup>1</sup>	White cockle <sup>1</sup>	Rosette
<sup>1</sup> Suppression.		
<sup>†</sup> Original 360 g/L formulation.		

Refer to the Express<sup>®</sup> FX herbicide label for complete use instructions.

## Professional strength burnoff with extended control

- Provides up to 15 days of extended control<sup>†</sup> on key broadleaf weeds, including cleavers, dandelion, narrow-leaved hawk's-beard and volunteer canola
- 🌾 **Crops:** Pre-seed burnoff application prior to seeding wheat (spring, winter, durum) and spring barley. Also used in chemfallow and post-harvest applications prior to seeding wheat or barley the following spring.
- 🧪 **Chemical Group:** Groups 2 & 9 when tank-mixed with glyphosate
- 📊 **Registered and Supported Tank-mixes:** Express<sup>®</sup> PRO herbicide must be tank-mixed with glyphosate.
- 🕒 **Timing: Pre-seed:** Wait a minimum of 24 hours after applying Express<sup>®</sup> PRO herbicide and glyphosate before planting wheat (spring, durum, winter) or barley.

*Note: Do not use on highly variable soils that have gravelly or sandy areas, eroded knolls or calcium deposits. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury.*

**Chemfallow:** Allow at least 10 days after treatment before tillage.

**Post-harvest:** Apply to fields where wheat, barley or oats will be seeded next spring.

*Note: Limit of one (1) application of metsulfuron products per growing season.*

### 🔄 **Crop Rotation:**

**24 hours:** Wheat (spring, durum and winter) and spring barley.

**10 months:** Canola, peas, faba beans, field corn, soybeans, lentils, dry beans and flax. Oats, wheat (spring or durum), barley or winter wheat may be seeded any time in the following season.

### ❓ **Application Information:**

**Rates and Packaging:** 7 g/ac (17.5 g/ha) One (1) jug treats 80 acres

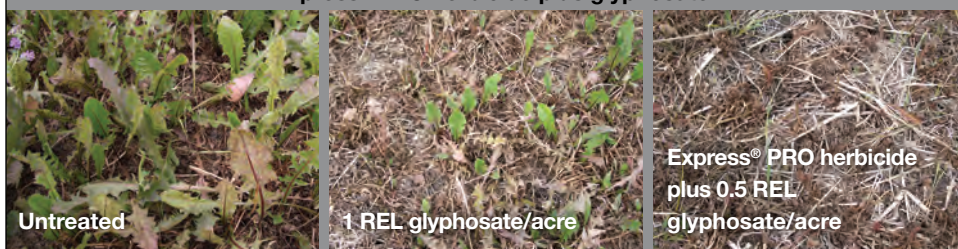
**Water Volume:** 5 US gal/ac (50 L/ha)

**Mixing Instructions:** See page 66.

<sup>†</sup> Degree and duration of extended control is dependent on weed infestation levels, and on environmental conditions at and following treatment.

<b>Weeds Controlled</b> (Express <sup>®</sup> PRO herbicide plus 0.5 L/ac glyphosate equivalent) <sup>†</sup> :		<b>Stage</b>
Canada fleabane <b>Cleavers<sup>E</sup></b> Common ragweed	<b>Narrow-leaved hawk's-beard<sup>E</sup></b> Scentless chamomile Night flowering catchfly <sup>1</sup>	Up to 8 cm
Chickweed		1 - 6 leaf
<b>Dandelion<sup>E</sup></b> Downy brome Flixweed Giant foxtail Green foxtail Hemp-nettle Kochia (except Group 2 & 9 resistant biotypes) Lady's-thumb Lamb's-quarters Persian darnel	Redroot pigweed Russian thistle Stinkweed Volunteer barley <b>Volunteer canola<sup>E*</sup></b> (including glyphosate tolerant) Volunteer flax Volunteer wheat Wild mustard Wild oats	Up to 15 cm
Cow cockle	Wild buckwheat	Up to 3 leaf
White cockle	Canada thistle <sup>1</sup>	Rosette
<sup>1</sup> Suppression. <sup>†</sup> Original 360 g/L formulation. <sup>E</sup> = Extended control. <sup>E*</sup> = Will not provide extended control of Group 2 herbicide tolerant canola.		

### Express<sup>®</sup> PRO herbicide plus glyphosate



Location: Kelburn Farm, MB

Notes: \_\_\_\_\_

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Refer to the Express<sup>®</sup> PRO herbicide label for complete use instructions.



## Excellent burnoff weed control with maximum cropping flexibility

- When added to glyphosate, it provides enhanced control of hard-to-kill broadleaf weeds while providing maximum cropping flexibility.
- Gets right to the root of your weed problems with powerful systemic activity.

 **Timing:** Pre-seed burnoff, chemfallow and post-harvest applications.

 **Chemical Group:** Groups 2 & 9 when tank-mixed with glyphosate

 **Registered and Supported Tank-mixes:**

Express<sup>®</sup> SG herbicide must be tank-mixed with glyphosate.

May also be tank-mixed with Aim<sup>®</sup> EC herbicide, Authority<sup>®</sup> 480 herbicide, Authority<sup>®</sup> Supreme herbicide and Focus<sup>®</sup> herbicide.

 **Crop Rotation:**

**Pre-seed burnoff:** 24 hours after application – can seed spring wheat, winter wheat, durum, barley, oats, lentils\*, chickpeas\*, alfalfa\*, red clover\*, alsike clover\* (seed or forage production), smooth brome grass\*, meadow brome grass\*, timothy\*, creeping red fescue\*, canary seed, dry bean, faba bean, field peas, lupin and soybean. Any crop may be seeded the year following a pre-seed burnoff.

**Chemfallow:** Allow at least 10 days after treatment before tillage. Any of the above crops can be seeded 24 hours after application. Canola and flax can be seeded two (2) months after application.

**In-crop:** Provides control or suppression of broadleaf weeds in sunflowers with the ExpressSun<sup>®</sup> herbicide tolerant trait.

**Fall Application:** Seed winter wheat a minimum of 24 hours after application.

Next spring you can seed alfalfa, alsike clover (seed or forage production), canary seed, any cereal crop, canola, chickpeas, creeping red fescue, field corn, flax, lentils, meadow brome grass, pulse crops (including dry bean, faba bean, field pea, lupin and soybean), red clover, smooth brome grass, timothy.

 **Application Information:**

**Rates and Packaging:** One jug treats 80 acres

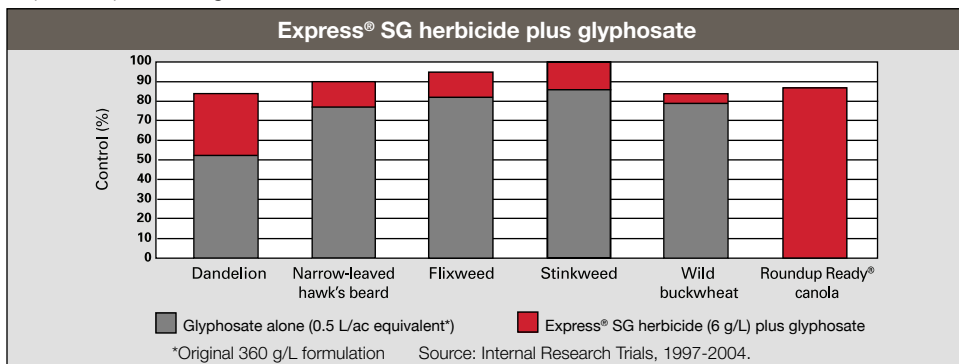
**Water Volume:** 5 US gal/ac (50 L/ha)

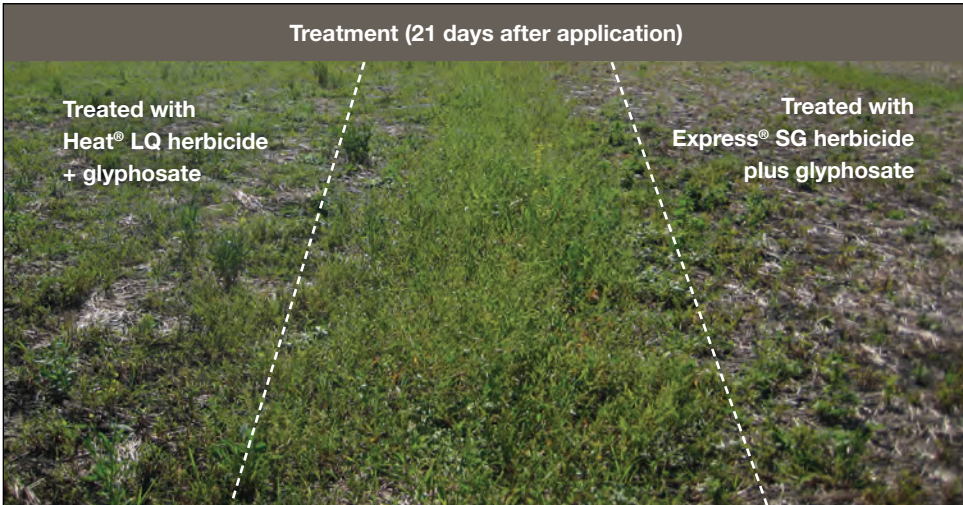
**Mixing Instructions:** See below and page 66.

\*Note: Injury to certain crops may occur on coarse-textured soils, low in organic matter (less than 3%) or in fields with variable soils, gravelly areas, sandy areas or eroded knolls. Avoid planting pulse crops in soils containing more than 50% sand.

Weeds Controlled (Express <sup>®</sup> SG herbicide plus 0.5 L/ac glyphosate equivalent) <sup>1</sup> :		Stage
Canada fleabane Common ragweed	<b>Narrow-leaved hawk's-beard</b> Scentless chamomile <sup>1</sup>	Up to 8 cm
<b>Dandelion</b> Downy brome Flixweed Giant foxtail Green foxtail Hemp-nettle Kochia (except Group 2 & 9 resistant biotypes) Lady's-thumb Lamb's-quarters Persian darnel	Redroot pigweed Russian thistle Stinkweed Volunteer barley <b>Volunteer canola</b> (including glyphosate tolerant) Volunteer flax Volunteer wheat Wild mustard Wild oats	Up to 15 cm
Cow cockle	Wild buckwheat	Up to 3-leaf
White cockle <sup>1</sup>	Canada thistle <sup>1</sup>	Rosette
Common chickweed		Up to 8-leaf
<sup>1</sup> Suppression. <sup>†</sup> Original 360 g/L formulation		

1. Start with a clean, empty sprayer. Ensure sprayer is equipped with 50 mesh screens or filters.
  2. Fill sprayer tank 1/4 to 1/3 full with clean water.
  3. With agitator running, add Express<sup>®</sup> SG herbicide slowly. Ensure agitation reaches all parts of the tank.
  4. If using a mix & fill tank, add Express<sup>®</sup> SG herbicide to as large a volume of water as possible.
  5. Let dissolve for five **(5) minutes minimum** while agitating and adding more water.
  6. After five (5) minutes of agitation, complete filling with water and then add glyphosate.
  7. For repeat tank loads, ensure spray solution is reduced to 10% or less of the original volume OR pre-slurry Express<sup>®</sup> SG herbicide in a minimum 20L of water per 80 acres prior to going to step 2. Dissolving may take longer in low water volumes.
  8. **(Optional)** For the last load of the day, add 10L of household ammonia (containing at least 3% ammonia) to the tank heel PRIOR to the addition of Express<sup>®</sup> SG herbicide, water and glyphosate.
- Repeat steps 2 through 5.





Notes: \_\_\_\_\_

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Refer to the Express<sup>®</sup> SG herbicide label for complete use instructions.

## Extended control of the toughest grassy and broadleaf weeds. Helps speed up the activity that glyphosate offers for a more complete burnoff.

- A unique combination of actives in one product providing comprehensive broadleaf and grassy weed control
  - Multiple modes of action for resistance management
  - 🌾 **Crops:** Spring wheat (except durum), winter wheat, lentils, field corn, soybeans.
  - 🧪 **Chemical Groups:** Groups 14 & 15
  - 📊 **Registered and Supported Tank-Mix Options:**
    - Glyphosate
    - 2,4-D Amine/Ester (spring and winter wheat, except durum)
    - Express<sup>®</sup> SG herbicide (soybean, spring and winter wheat, except durum)
    - Express<sup>®</sup> FX herbicide (spring and winter wheat, except durum)
    - Express<sup>®</sup> PRO herbicide (spring and winter wheat, except durum)
  - 🕒 **Timing:** Focus<sup>®</sup> herbicide can be applied pre-plant or pre-emergence. Requires a minimum 1/2" of moisture, at once, for activation. Should be planted a minimum 2.5 cm deep for wheat, corn and lentils; 4 cm deep for soybeans.
- NEW FALL APPLICATION** - Focus<sup>®</sup> herbicide may be applied with glyphosate in the fall to control emerged winter annuals such as stinkweed and mustard. A fall application of Focus<sup>®</sup> herbicide will also provide early season control of wild oats the following spring.

### 🔄 Crop Rotation:

Rotational Crop	Replant Interval (Months)
Field corn, lentils, soybeans, wheat (winter and spring, except durum)	0
Barley, canola, chickpeas, durum wheat, field peas, flax, mustard, oats, safflower, sunflower	12
Sugar beets	24



- Application Information:** Apply pre-plant or post-seed (up to three (3) days after seeding). Application early (pre-plant) increases activation potential by spring showers. Post-seed application should be considered in higher disturbance seeding operations.
- Apply at 33 or 40 ac/jug, based on soil characteristics

Acres/jug	Soil Texture	O.M.
33	medium-fine/fine	> 3-7%
40	coarse/medium	1-3%

- Apply with or without glyphosate. Apply with glyphosate if weeds are emerged and actively growing.
- Apply only once per 12-month period.
- Focus<sup>®</sup> herbicide controls weeds germinating within the soil barrier.

**Rates and Packaging:** 4 x 4.5 L jugs per case. Each 4.5 L jug treats 33 acres / jug at 136 mL/ac (336 mL/ha) or 40 acres / jug at 113 mL/ac (280 mL/ha).

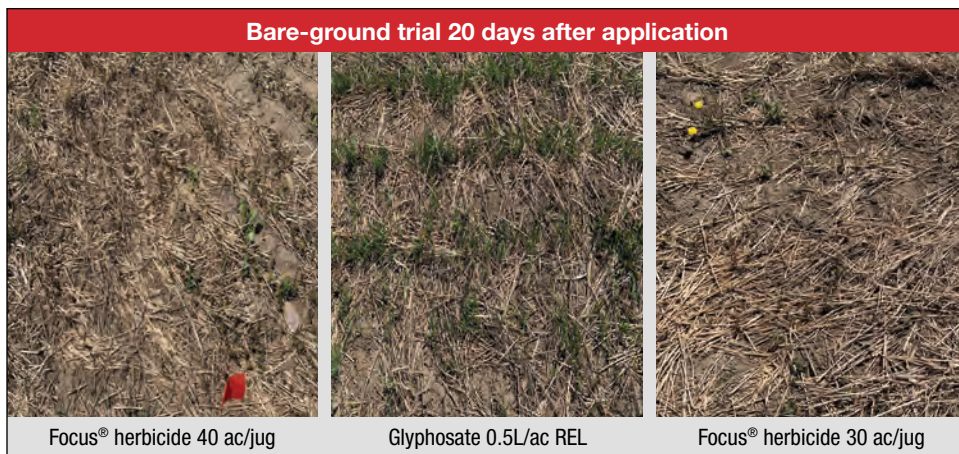
**Surfactant:** Surfactant is not needed when mixed with glyphosate.

**Water Volume:** 10 US gal/ac (100 L/ha)

**Tank-mixtures:** Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the **WAMLEGS** order. See page 66.

Weeds Controlled		
Barnyard grass	Foxtail barley <sup>1</sup>	Redroot pigweed
Cleavers	Green pigweed	Stinkweed <sup>1</sup>
Common waterhemp	Italian ryegrass	Velvetleaf
Downy brome	Japanese brome	Wild buckwheat <sup>1</sup>
Foxtail, green	Kochia <sup>1</sup>	Wild mustard <sup>1</sup>
Foxtail, yellow	Lamb's-quarters <sup>1</sup>	Wild oats <sup>1</sup>
Foxtail, giant <sup>1</sup>	Large crabgrass	Wormseed mustard

<sup>1</sup> Suppression





Source: Lethbridge, AB, 2020

Refer to the Focus<sup>®</sup> herbicide label for complete use instructions.


## Intruvix™ herbicide with glyphosate is the only cereal burnoff product that provides 4 modes of action to battle resistant weeds

- Fast burning activity with the power of systemic action on broadleaf weeds
- Extensive burnoff of over 30 broadleaf weeds in front of cereal crops
- Cleaner fields without the worry of resistant weed escapes
- Multiple modes of action to battle weed resistance

 **Crops:** Wheat (spring, durum, winter), barley, oats

 **Chemical Group:** Groups 2, 4, 14 & 9 when tank-mixed with glyphosate

 **Registered and Supported Tank-mix Options:** Glyphosate

 **Timing:** Pre-seed burnoff, chem-fallow and post-harvest

 **Crop Rotation:**

**After 24 hours:** Wheat (spring, durum, winter), barley, oats

**Following year: Pre-seed:** Any crop **Chemfallow:** Any crop **Post-harvest:** Canola, corn, lentils, oats, spring barley, soybeans, wheat (spring or durum), white bean

 **Application information:**

**Rates and Packaging:** One (1) case treats 80 acres. Co-Pack (3.72 kg Intruvix™ A herbicide + 1.2 L Intruvix™ B herbicide)

**Surfactant:** No additional surfactant is required when tank-mixed with 0.5 REL glyphosate/acre

**Water Volume:** 10 US gal/ac (100 L/ha)

**Tank-mixtures:** Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the **WAMLEGS** order. See page 66.

**Rainfastness:** Rainfall soon after application may reduce efficacy.

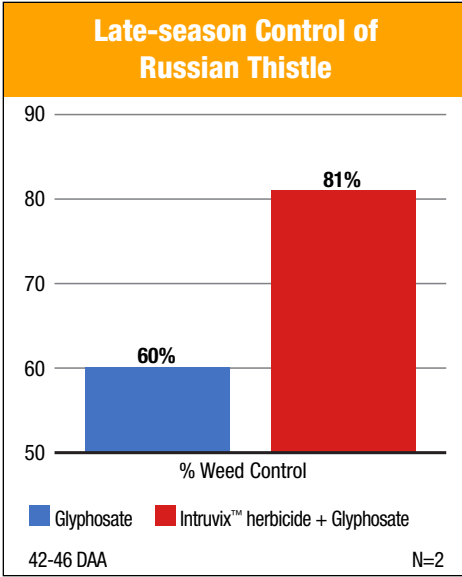
**Mixing Instructions:** Recommended mixing order is as follows:

1. Intruvix™ A herbicide
2. Intruvix™ B herbicide
3. Glyphosate

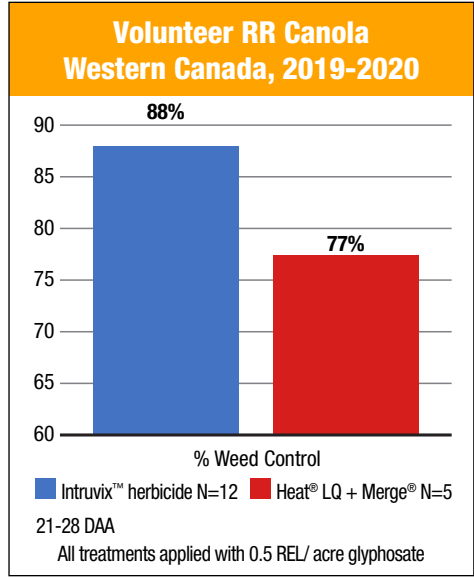
<b>Weeds Controlled</b> (Intruvix™ herbicide plus 0.5 L/ac glyphosate equivalent):		
Canada fleabane (up to 8 cm)	Lamb's-quarters	Velvetleaf
Canada thistle (rosette) <sup>1</sup>	Morning glory	Volunteer canola
Common ragweed (up to 8 cm)	Narrow-leaved hawk's-beard	(Including glyphosate tolerant)
Cow cockle (up to 3 leaf)	(up to 8 cm)	Volunteer flax
Dandelion	Nightshade (Eastern black, black) (up to 5 cm)	Volunteer barley
Downy brome	Persian darnel	Volunteer wheat
Flaxweed	Redroot pigweed	Waterhemp (tall) (up to 5 cm)
Foxtail (giant, green)	Russian thistle	White cockle (rosette) <sup>1</sup>
Hemp-nettle	Scentless chamomile (up to 8 cm) <sup>1</sup>	Wild oats
Kochia (up to 8 cm)(Incl. Gp 2 & 9 biotypes)	Stinkweed	Wild buckwheat (up to 8 leaf)
Lady's thumb		Wild mustard

<sup>1</sup> Suppression.

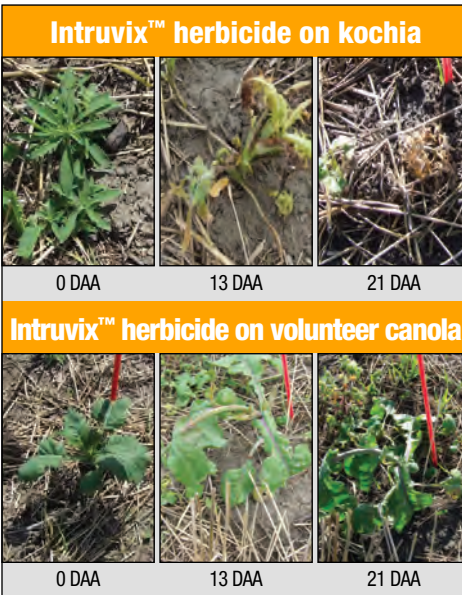
<sup>†</sup> Original 360 g/L formulation



Source: 2019 FMC Canada Field Trials.



Source: 2019-2020 FMC Canada Internal Trials



Source: 2020 FMC Canada Field Trials, Lethbridge, AB



Source: 2019 FMC Canada Field Trials, Vegreville, AB

Refer to the Intruvix™ herbicide label for complete use instructions.

# MUSTER®

TOSS-N-GO®  
HERBICIDE

- Proven broadleaf control for mustard, canola and sunflowers
- Control of wild mustard
- Registered for minor use on *Brassica carinata*

 **Crops:** Canola, *Brassica carinata*, brown mustard, oriental mustard, sunflowers

 **Chemical Group:** Group 2

 **Tank-mix Options:** For grass and broadleaf control in canola only, tank-mix Assure® II, Poast® Ultra or Lontrel®.

 **Timing:**

**Canola:** 2-leaf stage up to the initiation of bolting and before crop canopy closure.

**Brown and Oriental mustard, *Brassica carinata*:** 4-leaf to late rosette stage.

**Sunflower:** 2-leaf to 8-leaf stage.

**Weeds:** Apply early when weeds are actively growing.

 **Crop Rotation:**

**Ten (10) months:** Spring wheat, durum, barley, oats, flax

**Twenty-two (22) months:** Alfalfa, canary grass, canola, dry beans, faba beans, fescue, lentils, peas, red clover, tame mustard

 **Application Information:**

**Rates:** 8 g/ac (20 g/ha) or 12 g/ac (30 g/ha). Use 8 g/ac (20 g/ha) on brown and oriental mustard.

**Surfactant:** Add a registered non-ionic surfactant (NIS) at 2 L per 1000 L of spray solution (0.2% v/v). If tank-mixing with Assure® II, use Sure-Mix™ at 5 L per 1000 L of spray solution (0.5% v/v) or Merge® at 5 –10 L per 1000 L of spray solution (0.5 –1.0% v/v).

**Water Volume:** 10 US gal/ac (100 L/ha)

## Broadleaf control

Flixweed (spring seedlings)

Redroot pigweed<sup>2</sup>

Green smartweed

Stinkweed<sup>1</sup> (1–4 leaf)

Hemp-nettle

Wild mustard

<sup>1</sup> Controlled at high rate of Muster® Toss-N-Go® herbicide – 12 g/ac or 8 g/ac when tank-mixed with Assure® II.

<sup>2</sup> Suppressed at high rate of Muster® Toss-N-Go® herbicide – 12 g/ac.

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Refer to the Muster® Toss-N-Go® herbicide label for complete use instructions.



## Custom herbicides as unique as your fields

Every farm is unique. Every field is different. Now, you can choose from 17 different PrecisionPac® herbicides to customize your weed control program for each individual field, based on your agronomic needs. Thanks to a revolutionary new dispensing system, your crop protection retailer can create high-performing PrecisionPac® herbicides that match your agronomic needs, in exactly the right amount for your field size or sprayer tank. No more left-over herbicide, no more measuring or guesswork. PrecisionPac® herbicides can save time and money while enhancing your weed control.

**How it works:** After scouting the field, identifying key weeds and evaluating other important agronomic factors, your retailer will help you choose the appropriate PrecisionPac® herbicide solution. Each system can hold up to 6 different active ingredients that can be combined in various ratios to create the PrecisionPac® herbicide blend that best meets the agronomic needs of a specific field. The exact amount of herbicide is dispensed into a grower bag and labeled for easy identification.

### PrecisionPac® herbicides are:

- |   |   |
|---|---|
|    |    |
| High Performing Weed Control  | Completely Customized Weed Control  |
|   |  |
| Easy to Use   | Right Product, Right Rate, Right Acre   |
|  |  |
| Multiple Modes of Action  | Pick Length Of Herbicide Activity   |
|  |  |
| Reduced Waste   | Constantly Evolving   |



Thanks to the revolutionary dispensing technology of PrecisionPac® herbicides, you'll experience:

- Less time mixing and more time spraying
- Less risk of errors; each bag is custom built for your field or sprayer tank size
- Less herbicide and packaging, with single bags able to treat up to 320 acres
- **17** high-performing herbicides to match with your weed spectrum, including blends with both grassy and broadleaf weed control all in one bag

**Cross-Spectrum Grassy and Broadleaf Weed Control**

- CS-100-12
- CS-100-2525
- CS-75-12
- CS-75-2525
- CS-100-23235
- CS-75-23235

**Burnoff Weed Control**

- NC-00439
- NC-0050
- DB-878

**Extended Weed Control**

- SZ-75

**Post-Emergent Broadleaf Weed Control**

- PP-2525
- PP-23235
- PP-3317
- DB-8454
- Triton™ C
- Ally®

**Other Products / Tank-mix Options**

- Perimeter® II
- MCPA Ester
- 2,4-D Ester

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Refer to the PrecisionPac® herbicide labels for complete use instructions.

# PREDICADE®


HERBICIDE

## All-in-one grass and broadleaf weed control for wheat

- Predicade® herbicide is an all-in-one solution that excels at controlling the most challenging grass and broadleaf weeds, including Group 1 resistant wild oats
- Multiple modes of action for proactive resistance management
- Offers excellent control while still providing flexible re-crop options


 **Crops:** Spring, durum and winter wheat

 **Chemical Groups:** Groups 2 & 4

 **Timing: Spring wheat and durum:** 3-leaf to 6-leaf with 3 tillers, but prior to jointing (presence of first node)

**Winter Wheat:** Spring application from the 3 tiller stage and before the first node can be felt in the stem. DO NOT apply after the presence of the first node as crop injury may occur.

Under drought conditions, do NOT apply Predicade® herbicide if time between seeding and spraying exceeds 35 days.

 **Crop Rotation:** Fields treated with Predicade® herbicide may be seeded the following year to alfalfa, barley, canola, field corn, flax, dry beans, lentils, mustard, oats, peas, soybeans, spring and durum wheat or sunflowers.

### Broadleaf Weed Control: 26 species

Annual smartweed (green smartweed, lady's-thumb)	<b>Kochia</b> (including Groups 2 & 9 resistant biotypes; seedling to 8 leaf)	Shepherd's-purse (1-6 leaf)
Canada thistle <sup>1</sup> (top growth control)	Lamb's-quarters	Sow thistle, perennial
<b>Cleavers</b> (1-6 whorls)	<b>Narrow-leaved hawk's-beard</b>	Stinkweed
Common chickweed (1-6 leaf)	Night flowering catchfly	Stork's-bill (1-6 leaf)
Cow cockle	Pale smartweed (1-6 leaf)	<b>Volunteer canola</b> (2-4 leaf) including Group 2 herbicide tolerant varieties
<b>Dandelion</b> (< 15 cm in diameter)	Redroot pigweed	Volunteer flax (< 12 cm)
Flixweed	Round-leaved mallow (1-5 leaf)	<b>White cockle</b> (< 10 cm)
Hemp-nettle	Russian thistle	Wild buckwheat
	Scentless chamomile (< 10 cm)	Wild mustard

### Grassy Weed Control: 7 species

Barnyard grass	Persian darnel <sup>1</sup>	Wild oats
Green foxtail	Volunteer canary seed	Yellow foxtail <sup>1</sup>
Japanese brome <sup>2</sup> (1-6 leaf)		

<sup>1</sup> Suppression.

<sup>2</sup> Control of spring-germinated Japanese brome. Suppression of overwintered Japanese brome. Best results are obtained after a pre-seed or burnoff application with a glyphosate herbicide.

# PREDICADE®

HERBICIDE

## ② Application Information:

**Rates and Packaging:** One (1) case treats 40 acres

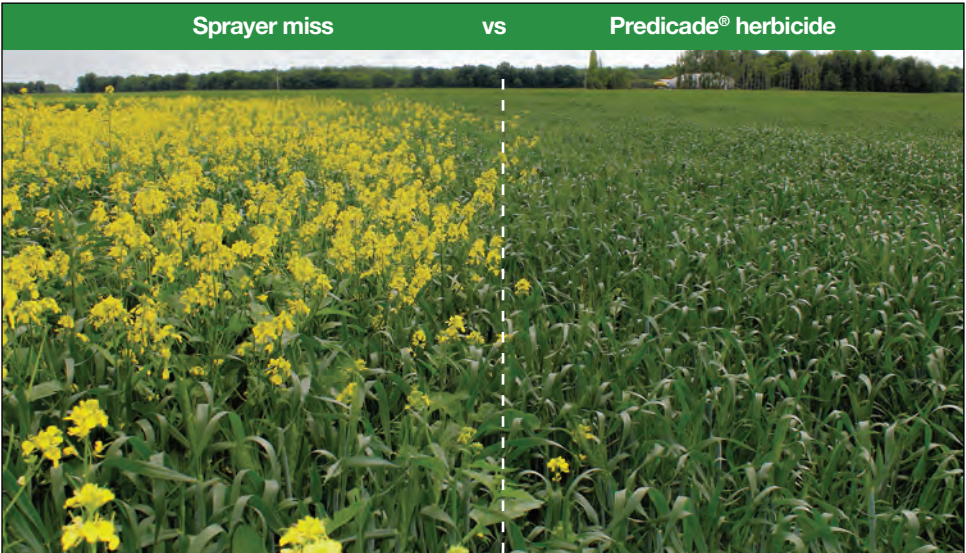
**Water Volume:** Minimum 5 US gal/ac (50 L/ha)

**Rainfastness:** Two (2) hours

Can be applied by ground or air

**Mixing Order:** Recommended mixing order is as follows:

1. Predicade® Broadleaf herbicide
2. Predicade® Grass herbicide
3. Perimeter® II herbicide
4. MCPA Ester 600 Liquid herbicide



Predicade® herbicide sprayed June 5th, 2015, Oakville, MB  
Photo taken 21 DAA

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Refer to the Predicade® herbicide label for complete use instructions.



## Proven control of annual and perennial broadleaf weeds


- Controls dandelion, wild buckwheat and all types of volunteer canola, including Roundup Ready<sup>®</sup> and Group 2 herbicide tolerant varieties
- Contains both Group 2 and Group 4 herbicides to help manage weed resistance


 **Crops:** Barley, oats, wheat (durum, spring, winter)

 **Chemical Groups:** Groups 2 & 4

 **Registered and Supported Tank-mix Options:**

- Assert<sup>®</sup>
- Axial<sup>®</sup>
- Axial<sup>®</sup> Xtreme
- Clodinafop
- Everest<sup>®</sup> 3.0
- Lontrel<sup>™</sup> XC
- Puma<sup>®</sup> Advance
- Simplicity<sup>™</sup>/ Simplicity<sup>™</sup> GoDri
- Traxos<sup>®</sup>
- Varro<sup>®</sup>

 **Timing:** 3-leaf stage to just prior to flag-leaf stage

 **Crop Rotation:**  
**Following year:** No re-cropping restrictions

 **Application Information:**

**Rates and Packaging:** One (1) case treats 40 acres

**Surfactant:** Not required when used alone. When tank-mixing with grass herbicides, use the surfactant provided with that product (follow label instructions if surfactant is not provided).

**Water Volume:** 5-10 US gal/ac (50-100 L/ha)

**Rainfastness:** Two (2) hours

**Mixing Instructions:** See page 66.

<b>Broadleaf control</b>	
Ball mustard Canada thistle* (≤15 cm, before budding) Chickweed (1–6 leaf) Cleavers* <sup>1</sup> (1–3 whorls) Common groundsel Corn spurry Cow cockle <b>Dandelion<sup>2</sup></b> Flixweed Green smartweed Hemp-nettle Kochia <sup>3</sup> Lady's-thumb Lamb's-quarters Narrow-leaved hawk's-beard Redroot pigweed	Round-leaved mallow* <sup>1</sup> (2–6 leaf) Russian thistle Scentless chamomile* Shepherd's purse Sow-thistle* <sup>1</sup> (≤15 cm, before budding) Stinkweed Stork's-bill* <sup>1</sup> (2–6 leaf) Tartary buckwheat Toadflax* (≤15 cm in height) <b>Volunteer canola</b> <b>Volunteer Group 2 herbicide tolerant canola</b> <b>Volunteer Roundup Ready<sup>®</sup> canola</b> Volunteer sunflower <b>Wild buckwheat</b> (up to 5-leaf) Wild mustard
<p>* Suppression.  <sup>1</sup> Use Barricade<sup>®</sup> II herbicide, Predicade<sup>®</sup> herbicide or Triton<sup>®</sup> C herbicide for control.  <sup>2</sup> Spring or fall rosettes, less than 15 cm in diameter.  <sup>3</sup> Most effective control with early application. Use Barricade<sup>®</sup> II herbicide or Predicade<sup>®</sup> herbicide for enhanced results and control of Group 2-resistant kochia.</p>	

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Refer to the Refine<sup>®</sup> M herbicide label for complete use instructions.

## Count on Refine<sup>®</sup> SG herbicide for broad spectrum broadleaf weed control

- Controls broadleaf weeds, including hemp-nettle, chickweed, narrow-leaved hawk's-beard and flixweed
- One of the most broad spectrum broadleaf herbicides on the market
- Wide window of application and excellent crop safety

 **Crops:** Wheat (spring, durum, winter), barley, oats


### Seedling or established grasses for forages or seed production:

Meadow brome grass, smooth brome grass, creeping red fescue, tall fescue (seedling only), Kentucky bluegrass (established stand only), orchard grass, crested wheatgrass, intermediate wheatgrass, northern wheatgrass, pubescent wheatgrass, slender wheatgrass, streambank wheatgrass, tall wheatgrass, western wheatgrass

 **Chemical Group:** Group 2

### Registered & Supported Tank-mix Options:

- 2,4-D
- Axial<sup>®</sup> Xtreme
- Everest<sup>®</sup> 3.0
- Simplicity<sup>™</sup>/Simplicity<sup>™</sup> GoDri
- Attain<sup>®</sup>
- Banvel<sup>®</sup> II
- MCPA
- Traxos<sup>®</sup>
- Assert<sup>®</sup>
- Clodinafop
- Puma<sup>®</sup> Advance
- Varro<sup>®</sup>
- Axial<sup>®</sup>

 **Timing:** 2-leaf to the full flag-leaf stage

### Crop Rotation:

**Two (2) months:** Alfalfa, canola, flax, lentils

**Following year:** No re-cropping restrictions

### Application Information:

**Rates and Packaging:** 12 g/ac. One (1) jug treats 40 acres

**Surfactant:** Add a registered non-ionic surfactant (NIS) at 2 L per 1000 L of spray solution (0.2% v/v). When tank-mixing with grass herbicides use the surfactant provided with that product. Do not use an additional surfactant unless otherwise indicated on the label.

**Water Volume:** 5-10 US gal/ac (50-100 L/ha)

**Rainfastness:** One (1) hour

Can be applied by ground or air

**Mixing Instructions:** See page 66.

<b>Broadleaf control</b>	
<p>Ball mustard</p> <p>Canada thistle* (≤15 cm, before budding)</p> <p><b>Chickweed</b> (1–6 leaf)</p> <p>Cleavers<sup>1</sup> (1–3 whorls)*</p> <p>Common groundsel</p> <p>Corn spurry</p> <p><b>Cow cockle</b></p> <p><b>Flixweed</b></p> <p><b>Green smartweed</b></p> <p><b>Hemp-nettle</b></p> <p>Kochia<sup>2</sup></p> <p>Lady's-thumb</p> <p>Lamb's-quarters</p> <p><b>Narrow-leaved hawk's-beard</b></p>	<p>Redroot pigweed</p> <p>Round-leaved mallow<sup>1</sup> (2–6 leaf)*</p> <p><b>Russian thistle</b></p> <p>Scentsless chamomile*</p> <p><b>Shepherd's purse</b></p> <p>Sow-thistle<sup>1</sup> (≤15 cm, before budding)*</p> <p><b>Stinkweed</b></p> <p>Stork's-bill<sup>1</sup> (2–6 leaf)*</p> <p>Tartary buckwheat</p> <p>Toadflax* (≤15 cm in height)</p> <p><b>Volunteer canola</b><sup>3</sup> (excluding Group 2 herbicide tolerant canola)</p> <p>Volunteer sunflower (excluding ExpressSun<sup>®</sup> herbicide tolerant sunflowers)</p> <p><b>Wild buckwheat</b> (up to the 5-leaf stage)</p> <p>Wild mustard</p>
<p>*Suppression.</p> <p><sup>1</sup> Use Barricade<sup>®</sup> II herbicide, Predicade<sup>®</sup> herbicide or Triton<sup>®</sup> C herbicide for control.</p> <p><sup>2</sup> Most effective control with early application. Use Barricade<sup>®</sup> II herbicide or Predicade<sup>®</sup> herbicide for enhanced results and control of Group 2-resistant kochia.</p> <p><sup>3</sup> For control of Group 2 herbicide tolerant canola, tank-mix with MCPA or use Refine<sup>®</sup> M herbicide.</p>	

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Refer to the Refine<sup>®</sup> SG herbicide label for complete use instructions.




## Lightweight package, heavyweight liquid weed control

- Commanding performance on key weeds like Canada thistle<sup>1</sup>, cleavers, narrow-leaved hawk's-beard, wild buckwheat, dandelion, scentless chamomile, hemp-nettle and kochia
- Simple to use and easy to handle
- High performance on large weeds (i.e. up to 9 whorl cleavers)
- Excellent crop safety over a wide application window
- Multiple modes of action built in (2 different groups, 3 active ingredients)

 **Crops:** Spring wheat, durum wheat, winter wheat, barley

 **Chemical Groups:** Groups 2 & 4

 **Timing:** 2-leaf to flag-leaf

 **Crop Rotation:**

**10 months after application:** Canola, flax, dry beans, faba beans, field corn, lentils, oats, peas, soybeans, spring barley, wheat (spring, including durum, winter).

 **Registered & Supported Tank-mix Options:**

- Acapela<sup>®</sup>
- Axial<sup>®</sup>
- Everest<sup>®</sup> 3.0
- Clodinafop
- MCPA Ester
- Puma<sup>®</sup> Advance
- Simplicity<sup>™</sup> /Simplicity<sup>™</sup> GoDri
- Traxos<sup>®</sup>
- Varro<sup>®</sup>

 **Application Information:**

**Rates and Packaging:** One 8 L jug treats 40 acres (202 mL/ac)

**Rainfastness:** Two (2) hours




**Water Volume:** 5 US gal/ac (55 L/ha)

### Powerful control of key weeds like dandelion:



<sup>1</sup>Suppression

## Wild buckwheat comparison:

Untreated	Travallas® herbicide	Premium competitive product
		
<b>Wild buckwheat</b> Three Hills, AB	<b>30 days after application</b> Three Hills, AB	<b>30 days after application</b> Three Hills, AB

Weeds Controlled	
Annual smartweed (green smartweed, lady's thumb) Annual sow thistle <sup>2</sup> <b>Canada thistle</b> <sup>1</sup> (top growth control) Chickweed (1-6 leaf) <b>Cleavers</b> (1-9 whorl) Corn spurry Cow cockle Dandelion (spring or fall rosettes up to 25 cm in diameter) Flixweed <b>Hemp-nettle</b> (up to 8 leaf) Kochia (including Group 2-resistant) Lamb's-quarters <b>Narrow-leaved hawk's-beard</b>	Night-flowering catchfly (up to 10 cm) Redroot pigweed Round-leaved mallow <sup>2</sup> Russian thistle Scentless chamomile (up to 10 cm) Shepherd's purse (up to 20 cm) Stinkweed Stork's-bill <b>Volunteer canola</b> <sup>3</sup> Volunteer flax White cockle (less than 10 cm) Wild buckwheat (1-8 leaf) Wild mustard
<sup>1</sup> Suppression <sup>2</sup> When tank-mixed with MCPA Ester <sup>3</sup> Including Group 2 herbicide-tolerant varieties when tank-mixed with MCPA Ester *Excluding Group 2 herbicide-tolerant varieties	

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Refer to the Travallas® herbicide label for complete use instructions.

## Broadleaf weed control for sugar beets

 **Crop:** Sugar beets

 **Chemical Group:** Group 2

 **Registered and Supported Tank-mixes:** UpBeet® herbicide may be applied alone with a NIS. If tank-mixing, may be mixed with Betamix® B EC herbicide. Do not add a surfactant when tank-mixing.

 **Crop Rotation:**

**Thirty (30) days:** Sugar beets

**Following year:** Spring wheat, durum, winter wheat, barley, sugar beets

 **Application Information:**

**Rates and Packaging:** Broadcast at 14 g/ac to 28 g/ac. Do not exceed 40 g/ac per growing season.

**Surfactant:** If applied alone, add a registered non-ionic surfactant (Agral® 90, Ag Surf®, Citowett® Plus or Sure-Mix™ at 0.25% v/v or 2.5 L per 1000 L of spray solution).

**Water Volume:** 10 US gal/ac (100 L/ha)

**Rainfastness:** Six (6) hours

Weeds Controlled	
Velvetleaf <sup>1</sup>	
When tank-mixed with Betamix® B EC herbicide, UpBeet® herbicide will control the following additional weeds:	
Green foxtail <sup>2</sup>	Lamb's-quarters
Kochia (rosette stage)	Redroot pigweed
<sup>1</sup> Two (2) applications necessary. <sup>2</sup> Suppression.	

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Refer to the UpBeet® herbicide label for complete use instructions.







# Insecticide

Beleaf® 50SG.....	47
Coragen® .....	50
Cygon® 480-AG .....	55
Pounce® 384EC.....	58




# Insecticide


Beleaf® 50SG.....	47
Coragen® .....	50
Cygon® 480-AG .....	55
Pounce® 384EC.....	58


## Aphid control in potatoes, alfalfa and other fruit and vegetable crops


- Unique anti-feeding action. Targets piercing and sucking pests effectively, so that both immature and adult stages begin to stop feeding within 30 minutes of application.

 **Crops:** Alfalfa (seed production), cucurbits, brassica (cole) leafy vegetables, dry beans, faba beans, non-grass animal feeds (alfalfa, clover, lespedeza, lupin, sainfoin, trefoil, vetch, crown vetch, milk vetch), fruiting vegetables, root vegetables (except sugar beets), leafy vegetables, potatoes, pome fruit, stone fruits and strawberry

 **Chemical Group:** IRAC Group 29

 **Registered and Supported Tank-mix Options:** Can be tank-mixed with other products. Please refer to tank-mix partner label for directions or limitations.

 **Timing:** Application should be made when economic threshold of pests have been met.

 **Crop Rotation:** Following application any crop listed on the label may be planted at any time. All other crops may be planted 30 days after the last application.

### **Application Information:**

Beleaf<sup>®</sup> 50SG insecticide applications can be made any time before the pre-harvest interval. Minimum 7 days between spray applications.

**Packaging:** 6 x 0.68 kg/case

**Surfactant:** Not required

**Water Volume:** Minimum 10 US gal/ac (100 L/ha)

**Rainfastness:** When dry on the leaf surface

**Mixing Instructions:** Ensure the spray system is clean and free of residues from previous applications. Fill the spray tank half full with clean water. Ensure the agitation system is operating and sufficient to provide uniform spray mixing during application and until the spray tank has been emptied. Complete filling the spray tank to the desired level. Avoid overnight storage of Beleaf<sup>®</sup> 50SG insecticide spray mixtures.

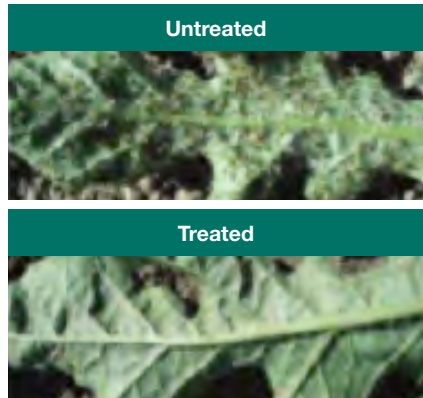
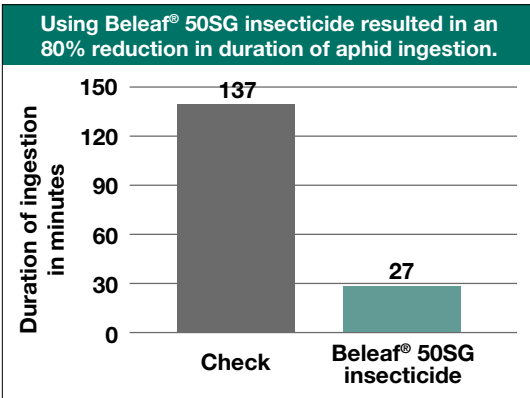
## Control List:

Crop	Pest	Rate	PHI
Alfalfa (seed production)	Aphids	49-65 g/ac	7
	Tarnished plant bug	3 apps @ 81 g/ac 2 apps @ 121 g/ac	
Apples, pears, etc. (all Pome Crop Group 11-09)	Aphids	49-65 g/ac	21
	Suppression of tarnished plant bug	81 g/ac	
Low growing berry (lowbush blueberry, cranberry, strawberry, etc.) (Crop Subgroup 13-07G)	Aphids	49-65 g/ac	0
	Suppression of lygus bug including tarnished plant bug	81 g/ac	
Brussels sprouts, kale, kohlrabi, etc. (Cole Crop Group 5-13)	Aphids	49-65 g/ac	0
Cucurbits (cucumbers, melons, pumpkin, squash, etc.) (All Cucurbits Crop Group 9)	Aphids	49-65 g/ac	0
Dry beans, faba beans, legume vegetables, succulent or dried, except soybeans (Crop Group 6)	Aphids	49-65 g/ac	7
	Reduces the number of lygus bugs, including tarnished plant bug	81 g/ac	
Fruiting vegetables (eggplant, okra pepper, tomato, etc. – All fruiting vegetables Crop Group 8-09)	Aphids	49-65 g/ac	0
Greenhouse cucumber	Aphid, thrips, lygus bugs whiteflies (suppression only for foliar application)	0.3 g/L	0
Greenhouse tomato	Whiteflies	0.2 g/L	0
Greenhouse strawberry	Aphids, lygus bugs including tarnished plant bug	0.3 g/L	0
Greenhouse peppers	Aphids, thrips, lygus bugs	0.3 g/L	0
Leafy vegetables (celery, lettuce, parsley, rhubarb, spinach – all Crop Group 4 and Subgroup 22B)	Aphids	49-65 g/ac	0
	Suppression of tarnished plant bug	81 g/ac (3 applications) 121 g/ac (2 applications)	





Crop	Pest	Rate	PHI
Hops	Aphids	49-65 g/ac	31
Non-grass animal feed (alfalfa, clover, lespedeza, lupin, sainfoin, trefoil, vetch, crown vetch, milk vetch)	Aphids	49-65 g/ac	7
	Tarnished plant bug	3 apps @ 81 g/ac 2 apps @ 121 g/ac	
Mint (spearmint, peppermint)	Aphids	49-65 g/ac	7
Potatoes, etc. (other tuberous and corm vegetables – all Crop Subgroup 1C)	Aphids	49-65 g/ac	7
	Psyllids (suppression)	81 g/ac	7
Root vegetable group (carrot, garden beet, radish, turnip – all Crop Subgroup 1B)	Aphids	49-65 g/ac	3
Stone fruit group (apricot, cherries, nectarines, plum, peaches – Crop Group 12-09)	Aphids	49-81 g/ac	14
	Suppression of tarnished plant bug	81 g/ac	



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Refer to the Beleaf<sup>®</sup> 50SG insecticide label for complete use instructions.

## Innovative, targeted insect control you can count on

- Powered by the Rynaxypyr<sup>®</sup> active, Coragen<sup>®</sup> insecticide is an **innovative insecticide** providing broad spectrum, extended control of many pests
- Active ingredient from a **novel group of chemistry** with no cross-resistance to other chemistries
- Controls hatching insects all the way through to adult stages of development
- **Fast acting!** Insect feeding stops in as little as 7 minutes
- **Coragen<sup>®</sup> insecticide** has minimal impact on beneficial insects and pollinators when applied according to the label.<sup>1</sup> This unique environmental and toxicological profile makes Coragen<sup>®</sup> insecticide a sound choice for growers and applicators.

### Crops:

Brassica vegetables	Fodder and hay	Okra
Canola	Fruiting vegetables	Peas
Cereals (wheat, barley, rye, oats, triticale)	Grass forage	Potatoes
Chickpeas	Leafy vegetables	Soybeans
Cucurbit vegetables	Legume vegetables	Sunflowers
Corn (field, sweet, seed, pop)	Lentils	Tame mustard
Flax	Mint	Tuberous and corm vegetables
	Non-grass animal feeds	

 **Chemical Group: Group 28, Anthranilic Diamide.** Coragen<sup>®</sup> insecticide controls pests through a novel mode of action – the activation of insect ryanodine receptors (RyRs). These receptors play a critical role in muscle function. Applying Coragen<sup>®</sup> insecticide produces rapid cessation of feeding, lethargy, regurgitation, muscle paralysis and ultimately death in target insects.

**Resistance Management** - DO NOT make a foliar application of Coragen<sup>®</sup> insecticide for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide.

### Application Information:

**Packaging:** 2 x 6 L jugs/case

**Rainfast:** 1 hour

**Water Volume (Ground):** 10 US gal/ac (100 L/ha)

**Aerial Application:** 5 US gal/ac (50 L/ha) for cereals, corn, legume vegetables (dry edible beans, soybeans, lupine, faba bean, chickpeas, lentils, peas, sugar beets), oilseeds (canola, mustard, flax, sunflower, safflower, etc.) and potatoes

**Re-entry Period:** 12 hours

<sup>1</sup> In line with Integrated Pest Management and good agricultural practices, insecticide applications should be made when pollinators are not foraging to avoid unnecessary exposure.

**Coragen<sup>®</sup> insecticide provides excellent control of bertha armyworm. Canola after 4 days - approximately 75% defoliation in untreated.**



Source: Research Facility, Ardrossan, AB, 2014

<b>Provides Extended Control:</b>	7 to 21 days (depending on rate and when weather and temperature are optimal).
<b>Staging:</b>	Controls hatching insects all the way through to adult stages.
<b>Tank-Mixing:</b>	Very stable in the tank and very tank-mixable.
<b>Temperature:</b>	Can be applied in a wide range of temperatures (between 4°C and 40°C).

Pests Controlled and Application timing				
Crop	Pest	Rate	PHI	Application Information
<b>OILSEEDS GROUP (Crop Group 20)</b> <b>Canola</b> , rape seed, <b>mustard seed, flax</b> , linseed, <b>sunflower seed</b> , safflower, borage, calendula, castor oil plant, Chinese tallowtree, cottonseed, crambe, cuphea, echium, euphorbia, evening primrose, gold of pleasure, hare's ear mustard, jojoba, lesquerella, lunaria, meadowfoam, milkweed, niger seed, oil radish, poppy seed, rose hip, stokes aster, sweet rocket, tea oil plant	<b>Diamondback moth</b>	50 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.  For cutworm control, apply to smaller plants or when lower portions of plant can receive adequate coverage.  Do not make more than 2 applications per season. Do not apply more than once every 5 days.  Do not exceed a total of 1.125 litres of Coragen <sup>®</sup> insecticide per ha per season. *Reduces damage caused by banded sunflower moth
	Cabbage looper <b>Cutworms</b> Imported cabbage worm Swede midge	101 mL/ac		
	<b>Bertha armyworm</b> <b>50 mL/acre</b> recommended when the bertha armyworms are less than 1 inch in length, and populations are low. <b>101 mL/ac</b> recommended when the bertha armyworms are approximately 1 inch in length and populations are increasing. <b>151 mL/ac</b> recommended when the bertha armyworms are greater than 1 inch in length and populations are high. <b>Rates on the higher end of the range will result in longer length of extended control.</b>	50 to 151 mL/ac		

Pests Controlled and Application timing				
Crop	Pest	Rate	PHI	Application Information
<b>OILSEEDS GROUP (Continued)</b>	<b>Grasshoppers</b>	50 to 101 mL/ac	1 day	
	Reduces damage caused by banded sunflower moth. Sunflower head moth	101 to 151 mL/ac		
<b>CEREAL GRAINS Crop Groups 15 and 16 (except corn and wild rice) Barley, buckwheat, millet - pearl, millet - proso, oats, rye, sorghum, teosinte, triticale, wheat</b>	<b>Grasshoppers</b>	50 to 101 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	<b>Cutworms</b>	101 mL/ac		
<b>LEGUME VEGETABLES (Crop Group 6) Bean (lupinus) (includes grain lupin, sweet lupin, white lupin and white sweet lupin), bean (phaseolus) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean), bean (vigna) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, chinese longbean, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean), broad bean (fava), chickpea (garbanzo), guar, jackbean, lablab bean, lentil, pea (Pisum) (includes dwarf pea, edible-podded pea, English pea, field pea, garden pea, green pea, snowpea, sugar snap pea), pigeon pea, sword bean, soybean</b>	<b>Grasshoppers</b>	50 to 101 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.  For cutworm control, apply to smaller plants or when lower portions of plant can receive adequate coverage.
	Cabbage looper <b>Cutworms</b>	101 mL/ac		
	Armyworm Fall armyworm Beet armyworm Corn earworm European corn borer Western bean cutworm	101 to 151 mL/ac		



Pests Controlled and Application timing				
Crop	Pest	Rate	PHI	Application Information
<b>CORN</b> Field corn, popcorn, seed corn, sweet corn	Black cutworm	101 mL/ac	1 day (sweet and seed corn) 14 days (field corn and popcorn)	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. For black cutworm control, apply to smaller plants or when lower portions of plant can receive adequate coverage. For <u>corn earworm</u> , <u>European corn borer</u> and <u>Western bean cutworm</u> control, time the applications to coincide with peak egg hatch. Scout by monitoring egg laying and egg hatch to determine application timing. Thorough coverage is essential for optimum control. Reapply if monitoring indicates it is necessary.
	Armyworm Fall armyworm Beet armyworm Variegated cutworm Corn earworm/Tomato fruitworm European corn borer Western bean cutworm	101 to 151 mL/ac		
<b>POTATOES (Crop Group 1)</b>	Colorado potato beetle	101 to 202 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control. For <u>Colorado potato beetle</u> , application made at larval stages provides optimal control. For all pests, use the high rate under heavy pest pressure. For control of <u>European corn borer</u> , time the application to coincide with peak egg hatch. Scout for European corn borer by monitoring egg laying and egg hatch to determine application timing. Registered for aerial application.
	European corn borer Variegated cutworm	101 to 151 mL/ac		
<b>GRASS FORAGE, FODDER AND HAY (Crop Group 17)</b> Any grass, Gramineae family (either green or cured) except sugarcane and those included in the cereal grains group, that will be fed to or grazed by livestock, all pasture and range grasses and grasses grown for hay or silage.	<b>Grasshoppers</b>	50 to 101 mL/ac	0 days	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Armyworm Fall armyworm Beet armyworm Corn earworm	101 to 151 mL/ac		

Pests Controlled and Application timing				
Crop	Pest	Rate	PHI	Application Information
<b>NON-GRASS ANIMAL FEEDS (Crop Group 18)</b> <b>Alfalfa</b> , bean (velvet), clover (trifolium, melilotus), kudzu, lespedeza, lupin, sainfoin, trefoil, vetch; vetch (crown), vetch (milk)	Beet armyworm	101 to 151 mL/ac	0 days	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
	Alfalfa weevil (Suppression)	151 to 202 mL/ac		
	Grasshoppers	50 to 101 mL/ac		

Notes: \_\_\_\_\_

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Refer to the Coragen<sup>®</sup> insecticide label for complete use instructions.

## Reliable aphid and spider mite control in your soybean crop

- Systemic insecticide for the control of insects on listed field crops
- 🕒 **Crops:** Soybeans, beans, potatoes, alfalfa, cereals, canola, asparagus, pastures, forage crops and strawberry
- 🧪 **Insecticide Group:** Group 1B
- 📦 **Packaging:** 2 x 10 L jugs per case
- 🕒 **Re-entry Period:** 12 hours (unless otherwise indicated on label)



Two-spotted spider mite



Adult nymph soybean aphid

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Potatoes	Aphids Leafhoppers	223-405 mL/ac	7 days	Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging.
Alfalfa	Aphids, Leafhoppers, Lygus bugs, reduction of alfalfa weevil larvae	172 mL/ac	2 days	
	Blotch leaf miners	223 mL/ac	2 days	
	Grasshoppers - nymphs	223 mL/ac	2 days	
	Grasshoppers - adults	344-364 mL/ac	28 days	
Alfalfa (seed)	Lygus bugs Plant bugs	445 mL/ac	10 days	
Forage crops (grain)	Lygus bugs Plant bugs	172 mL/ac	2 days	
	Grasshoppers – Low infestations	172-223 mL/ac	2 days	
	Grasshoppers- nymphs	223 mL/ac	2 days	
	Grasshoppers- adults	344-405 mL/ac	28 days	
Sweet clover, red clover, alsike clover	Sweet clover weevils	344-445 mL/ac	28 days	
Pastures	Grasshoppers- nymphs	223 mL/ac	2 days	
	Grasshoppers- adults	344-405 mL/ac	28 days	



### Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Canola	Aphids Leafhoppers Grasshoppers	344-364 mL/ac	21 days	Repeat application only when necessary. Toxic to bees. Do not apply during the crop blooming period or during the 5-day period before the crop blooms.
Peas	Aphids	111-154 mL/ac	3 days	May be applied by air or ground equipment. Do not feed or allow livestock to graze treated vines within 21 days after application. Do not apply when bees are foraging.
Asparagus	Asparagus aphid	931 mL/ac	Apply post harvest only	For mature asparagus, sprays begin July 1, after crop has been harvested, and continue at 3 to 4 week intervals until defoliation in October. For immature asparagus, begin application mid-May. If applied on immature asparagus do not harvest for feed or food.
Beans	Aphids Bean beetles Leafhoppers Leaf miners Lygus bugs Mites Tarnished plant bugs	283-405 mL/ac	7 days	Do not feed or allow livestock to graze treated forage. Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging.
Soybean	Spider mites	405 mL/ac	30 days	
Wheat	Orange blossom wheat midges Say's stink bug (For Say's stink bug must use a water volume of at least 10 gal/ac (100 L/Ha) for ground or 5 gal/ac (50 L/Ha) for air).	405 mL/ac	35 days	If adult midges are present, sprays should be applied when 25% of the wheat head has fully emerged but before flowering. Applications should be made in the late afternoon or evening when temperatures exceed 15°C and the wind speed is less than 10 km/h. High volume sprays will improve penetration of the crop.
Wheat, oats, barley	Thrips	405 mL/ac	35 days	
	Aphids Russian wheat aphid <sup>1</sup>	172 mL/ac		






## Economical insecticide for crucifer and striped flea beetles and cutworm control

- **Now registered for control of striped flea beetle**

- Synthetic pyrethroid
- Stable in sunlight resulting in longer control versus other pyrethroids
- Cost-effective choice with great performance

 **Crops:** Canola, cereals (barley, wheat, oats), cole crops (cabbage, cauliflower, broccoli, brussels sprouts), corn, flax, lentils, peas, potato, sunflower, sweet corn


 **Chemical Group:** Group 3


 **Registered and Supported Tank-Mix Options:** For tank-mixing with other products, please perform a jar test for compatibility.

Liberty<sup>®</sup> 150 SN (up to 5 leaf stage canola)

Liberty<sup>®</sup> 150 SN + Centurion<sup>®</sup> (up to 5 leaf stage canola)

Glyphosate (up to 5 leaf stage canola)

 **Timing:** Depends on the crop. Please refer to the application chart.

 **Crop Rotation:** No recropping restrictions

 **Application Information:** Please refer to the application chart.

**Rates and Packaging:** 2 x 10 L jug/case

**Surfactant:** Specific to pest and crop

**Water Volume:** Ground - 10 US gal/ac (100 L/ha) Air - 3 US gal/ac (30 L/ha)

**Rainfastness:** Once dry on the leaf surface. Do not apply if rain is imminent in forecast.

**Mixing Instructions:** Please check with the label for complete mixing instructions based on crop and application.



Striped flea beetle (left) and crucifer flea beetle (right)



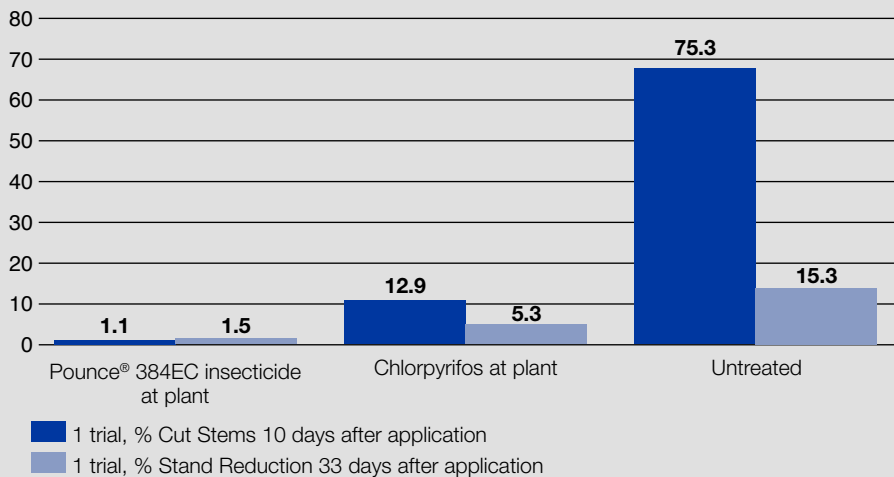
Cutworms

Pests Controlled and Application timing				
Crop	Pest	Recommended Rate*	PHI	Application Information
Canola	Crucifer flea beetle  <b>Striped flea beetle</b>	62 mL/ac (160 ac/10 L jug)	Apply only up to 5 leaf stage	<b>Crop Staging:</b> Up to 5 leaf <b>Ground application:</b> Apply in sufficient water for good coverage when insects are present. Application should be made when the beetles are actively feeding. For severe infestations, use 73 mL/ac. <b>Aerial application:</b> Apply in 1- 4 gal/ac (11-35 L/Ha) spray water. Can only be applied by air once per season.
Canola, cereals, corn, flax, lentils, peas, potatoes, sugar beets, sunflowers	<b>Cutworms:</b> army, black, dark-sided, pale western, red-backed, white	125 mL/ac (80 ac/10 L jug)	Apply only up to 5 leaf stage	<b>Crop Staging:</b> Up to 5 leaf <b>Ground application</b> should be made under warm, moist conditions in the evening or at night when cutworm activity is highest. Do not disturb soil surface for 5 days after treatment.
Cole Crops (cabbage, cauliflower, broccoli, brussels sprouts)	Cabbage looper, diamondback moth, imported cabbage worm, diamondback moth larvae, crucifer flea beetle	71 mL/ac (140 ac/10 L jug)	Broccoli – 7 days PHI Remaining crops – 3 days PHI	<b>Ground application:</b> Apply in 40-70 gal/ac (400-650 L/ Ha) spray water on a 7-10 day schedule when insects or insect damage first appears. Add Agral® 90 wetting agent at 300 mL per 1000 L of water to improve wetting and coverage. Do not apply by air.
Corn (sweet only)	European corn borer Corn earworm	143 mL/ac (70 ac/10 L jug)	1 day PHI	<b>Ground application:</b> Apply specified dosage in 35-50 gal of water/ac. Spray when first feeding is observed. For second brood borers in plantings, apply before tassels show. For control of corn earworm, direct the spray to ensure coverage of ears and silks. <b>Aerial application:</b> Application by air is permitted. Apply specified rate in 1- 4 gal/ac (11-35 L/Ha) spray water. Do not apply more than twice per year by air.
	Fall armyworm	71 mL/ac (140 ac/10L jug)		

Pests Controlled and Application timing				
Crop	Pest	Recommended Rate*	PHI	Application Information
Potato	Colorado potato beetle, potato flea beetle, potato leafhopper, tarnished plant bug (lygus bug)	100 mL/ac (100 ac/10 L jug)	1 day PHI	<p><b>Ground application:</b> Apply in sufficient water for thorough coverage. Repeat as necessary.</p> <p><b>Aerial application:</b> Application by air is permitted, provided there is no hazard of drift to other crops or to areas occupied by people or livestock. Apply specified rate in 1- 4 gal/ac (11-35 L/Ha) spray water. Can be applied by air once per season.</p>
	Cutworms, European corn borer	73 mL/ac (137 ac/10L jug)		<p>Variegated cutworm <b>Ground application:</b> Apply when insects or damage appears - usually late July or during August, depending on location. Good control is dependent on spray penetration of dense foliage.</p> <p>European corn borer <b>Ground application:</b> Apply in sufficient water for good coverage. Apply when egg masses begin to hatch.</p> <p><b>Aerial application:</b> Application by air is permitted. Apply specified rate in 1-4 gal/ac (11-35 L/Ha) spray water. Can be applied by air once per season.</p>

\* For complete crop and insect listing, with application rate ranges, refer to label.

### % Cut Stems and Stand Reduction at Emergence (Canola)



### Pounce<sup>®</sup> 384EC insecticide control of striped flea beetles in canola



Photo taken at Arborg, MB on June 12, 2020 (10 DAT)

Pounce<sup>®</sup> 384EC insecticide applied at the 10 L/160 ac recommended rate on June 2, 2020. The swath in the centre of the photo was a sprayer miss. The decimated area was primarily due to striped flea beetle infestation.

Refer to the Pounce<sup>®</sup> 384EC insecticide label for complete use instructions.







# Other

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# Other

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# The Benefits of Solumax® Soluble Granules

## The convenience and benefits of a dry herbicide, that works like a liquid

Many sulfonylurea herbicides from FMC are formulated, using Solumax® soluble granules, which deliver active ingredients that completely dissolve in water, creating a clear solution. This unique technology gives you all the convenience and benefits of a dry herbicide that works just like a liquid.

Here are the three (3) key benefits:

### 1. Solumax® will save you time, money and water with easier sprayer cleanout.

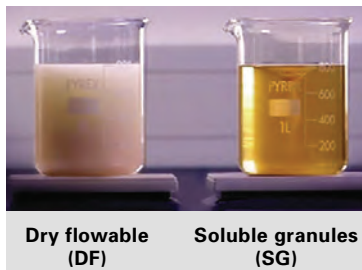
Products powered by Solumax® fully dissolve into solution so less active ingredient adheres to the sides of the tank, and particles won't clog nozzles or become trapped in filters or other pinch points. In tests, cleanout times were reduced by up to 70% when compared to a dry flowable herbicide.

### 2. Lower risk to sensitive crops.

Removing product residue from spray tanks is easier, which minimizes the potential impact to subsequently sprayed crops, like peas or canola.

### 3. Consistent weed control.

Solumax® increases the bioavailability of the active ingredient to the weed. The active is rapidly absorbed into the weed, which provides fast, effective and consistent weed control.



*Remember, not all dry herbicides are alike! If your dry herbicide isn't powered by Solumax®, you may not be maximizing your weed control and may be putting your operation at risk.*



*The clear liquid on the leaf surface is a herbicide powered by Solumax®. It is completely dissolved into a clear solution. The DF herbicide is cloudy because its particles are merely in suspension.*



# Herbicide Mixing Instructions

1. Start with a clean empty sprayer. Ensure sprayer is equipped with 50 mesh screens or filters.
2. Fill sprayer tank half-full with clean water.
3. With agitator running, add the FMC products according to their formulation as shown below in the **WAMLEGS** chart. Add the products slowly. Ensure agitation reaches all parts of the tank.
4. If using a mix and fill tank, add the FMC product to as large a volume of water as possible in a chemical handler.
5. Add product to tank and agitate for 10 minutes.
6. Proceed with adding additional products as per the **WAMLEGS** chart and water while maintaining agitation. Ensure each product is agitated sufficiently before proceeding to the next tank-mix partner.
7. For repeat tank loads, start off with an empty tank or ensure spray solution is reduced to 10% or less of the original volume.
8. (Recommended) For the last load of the day, add 10 L of household ammonia (containing at least 3% ammonia) to the tank heel PRIOR to the addition of the FMC product, water and glyphosate. Follow steps 2 through 6.
9. (Recommended) When spraying an FMC product for multiple days in a row, it is important at the end of each day to fill the sprayer with water, overnight, to prevent any film from developing on the tank walls.

**W**ettable powders, dispersible granules, soluble granules (WG, DF, SG, WP, SP)

**A**gitate tank-mix thoroughly

**M**icro-encapsulated suspensions (ME)

**L**iquid flowables and suspensions (SC, SL, SN, Li, SU, SE)

**E**mulsifiable concentrate formulations (EC)

- Fill spray tank nearly full with water

**G**lyphosate formulations

**S**urfactants

- Complete filling the spray tank to the desired level

## Special mixing instructions for soluble granule (SG) herbicides when using a CHEM HANDLER:

1. Ensure the chem handler is clean (rinsed with ammonia).
2. For best results, add the SG herbicide to the top of the sprayer tank.
3. If you do use a chem handler, make sure that all of the SG herbicide is completely dissolved and injected into the main tank with agitation, before adding other chemicals.
4. Low water volumes in some chem handlers can cause the water to become saturated with soluble granules, leaving undissolved granules. In that case, rinse the chem handler with clean water before adding any other chemicals.
5. Always dissolve the soluble granules with agitation in the main tank before adding a tank-mix partner.

*Note: Follow the clean-out procedure recommended for sprayer tanks for the chem handler.*



# Assessing the Performance of FMC Herbicides

**Establishing a check strip and answering these key questions will help with the performance evaluation of a burnoff, pre-emergent extended weed control or post-emergent in-crop herbicide.**

## **For Pre-Emergent Extended Control Herbicide Performance Assessment**

- How much rainfall was received after application and when did it occur?
- What is the soil texture, soil organic matter and pH level?
- What amount of soil disturbance occurred during seeding?
- What was the product application rate?

## **For Burnoff Herbicide Assessment**

- What was the weed stage at time of application?
- What was the temperature 1-2 days prior to application and day of application?
- What was the weed condition at the time of application?
- What is the soil texture, soil organic matter and pH level?

## **For Post-Emergent In-Crop Control Herbicide Assessment**

- What was the crop stage at time of application?
- What was the weed stage at time of application?
- What was the temperature 1-2 days prior to application and day of application?
- What was the crop/weed condition at the time of application?

## **THERE IS VALUE IN A CHECK STRIP**

Untreated check strips are required to determine and easily show the value of the application.

They can help with:

- Conveying the value of an early pre-seed application
- Showing the degree of control against a baseline
- Developing a clearer discussion to evaluate what has or has not occurred

## **Guidelines for Establishing a Check Strip**

Here are some key points to keep in mind when establishing a check strip:

- Is it an area representative of the field for weeds and crops?
- Is there easy access for follow-up?
- How should the check strip be established?
  - By shutting the boom off for 1 - 2 seconds
  - By placing a tarp on the ground prior to spraying
  - Mark the area with flags to find the check strip

# Product Storage

Storage requirements		
<b>Heated storage required</b>	Aim® EC	Cygon® 480-AG
	Ally® Toss-N-Go	Focus®
	Authority® 480	Intruvix™
	Authority® Supreme	Muster® Toss-N-Go
	Barricade® II	Pinnacle® SG Toss-N-Go
	Command® Charge	Pounce® 384 EC
	Command® 360 ME	Predicade®
	Coragen®	Travallas®
<b>Heated storage NOT required</b>	Beleaf® 50SG	Refine® M
	Express® FX	Refine® SG
	Express® PRO	UpBeet®
	Express® SG	





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