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ADAMA



**WE ARE**

# **All In on** **Canadian** **Agriculture**

**2024 PRODUCT GUIDE | EASTERN CANADA**

**Listen • Learn • Deliver**

**ADAMA.COM**



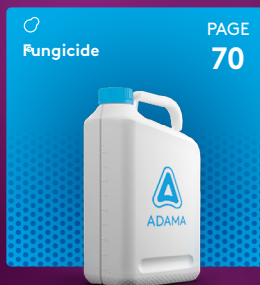
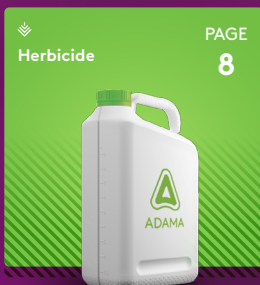
WE ARE

All In  
on you

We proudly offer a suite of ever-evolving herbicide, fungicide and insecticide options you can customize to create easy-to-use solutions that protect your ROI and deliver results.

**Crop protection, built for you.**

**CLICK** the images  
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Our team has continued to expand our engagement with farmers and retailers across the country. Most exciting for us is that these conversations are increasingly happening in the field where we are demonstrating our new products and getting feedback on formulations in development. This interaction is the foundation of ADAMA's focus of being "All in on You".

Being 'All In' means we are investing in expanding our Canadian team, increasing our local research and development and adding resiliency to our supply chain.

We know growers need a full toolbox to meet the needs of a growing world and we are responding to those challenges by incorporating what we've learned from you into our portfolio. We are active in the field in all areas of Eastern Canada and have dozens of new products and formulations, optimized for local conditions, and being screened for launch in the next five years. This is our innovation commitment and it starts with your input. That is what it means to ADAMA to be **All In on You**.

Sincerely,

**Cornie Thiessen**

*General Manager, Canada  
ADAMA Agricultural Solutions*





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# 2,4-D ESTER 700

Provides reliable post-emergent control of broadleaf weeds and great tank-mix flexibility in wheat, barley, rye, corn and other crops.



## ACTIVE INGREDIENT

2,4-D Ester 660 g/L = EC

## PACKAGING

Case: 2 x 10 L jugs

Tote: 1000 L

## APPLICATION RATES & ACRES TREATED

Rate: 200 – 600 ml/ac

Acres Treated:

- 17 – 50 ac/jug
- 1665 – 5000 ac/tote

## WATER VOLUME

Ground: 12.5 – 50 L/ac (5–15 US gal/ac)

Aerial: Minimum 12 L/ac (3 US gal/ac)

## RAINFASTNESS

2 hours

## REGISTERED CROPS

- Barley
- Field corn
- Rye (spring, fall)
- Wheat (spring, winter)

## WEEDS CONTROLLED

Susceptible Weeds	Leaf Stage	Rate
Annual sow thistle		<p>Small seedlings (2–4 leaf), growing rapidly, good growing conditions: 200–300 ml/ac</p> <p>Large weeds, dry or cold weather, heavy infestations: 300 ml/ac</p> <p>Larger weeds are more difficult to control and require higher rates.</p>
Bluebur	Before 4	
Burdock	Before 4	
Cocklebur, Daisy fleabane, False flax, False ragweed, Flixweed, Giant ragweed, Goat's beard, Kochia, Lamb's quarters, Mustards (except dog and tansy)		
Narrow-leaved hawk's beard	In the fall, and at the 1- to 2-leaf stage in the spring	
Plantain, Prickly lettuce, Ragweeds, Redroot pigweed, Russian pigweed, Russian thistle, Shepherd's purse, Stinging nettle, Stinkweed, Sweet clover (seedling), Thyme-leaved spurge		
Volunteer canola <sup>1</sup>	1–4	
Wild radish, Wild (prairie) sunflower		

<sup>1</sup> All types



# 2,4-D ESTER 700

## WEEDS CONTROLLED (CONT'D)

Harder-to-Control Weeds	Leaf Stage	Rate
Curled dock	1 – 4	Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 400–500 ml/ac
Dog mustard, Field pepper-grass, Flixweed (if treated before bolting in spring), Groundsel, Hairy galinsoga, Hawkweed, Heal-all		
Knotweed	1 – 4	Large weeds, dry or cold weather, heavy infestations: 500 ml/ac  Larger weeds are more difficult to control and require higher rates.
Narrow-leaved hawk's beard (if treated before bolting in spring), Oak-leaved goosefoot, Pineappleweed, Prostrate pigweed, Purslane, Sheep sorrel, Tansy mustard, Tumble pigweed, Velvetleaf		
Volunteer canola <sup>1</sup>	4 – 6	

<sup>1</sup>All types

Very-Hard-to-Control Weeds	Leaf Stage	Rate
Biennial wormwood, Blue lettuce, Bull thistle, Burdock, Buttercup, Canada thistle, Chicory, Curled dock, Dandelion, Field bindweed, Field chickweed <sup>2</sup> , Field horsetail <sup>2</sup> , Gumweed, Hedge bindweed		Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 400–500 ml/ac
Hemp-nettle <sup>2</sup>	1 – 4	
Hoary cress, Lady's thumb <sup>2</sup> , Leafy spurge, Mouse-eared chickweed <sup>2</sup> , Perennial sow thistle, Russian knapweed, Scentless mayweed, Smartweed <sup>2</sup> , Tartary buckwheat, Teasel, Volunteer sunflower, Wild buckwheat <sup>2</sup>		Large weeds, dry or cold weather, heavy infestations: 500 ml/ac  Larger weeds are more difficult to control and require higher rates.
Yellow rocket	1 – 4	

<sup>2</sup>Use highest listed rate for suppression.



# 2,4-D ESTER 700

## HOW IT WORKS

Systemic activity hinders plant cell growth in newly forming stems and leaves promoting uncontrolled, unsustainable growth, causing stem curl-over, leaf withering and eventual plant death.

## CROP STAGING

Crop	Timing	Rate
Barley, Rye, Wheat (spring, winter)	Pre-plant or pre-emergent	200–500 ml/ac
Barley, Rye, Wheat (spring, winter)	4-leaf to flag leaf	Up to 500 ml/ac
Winter wheat, Fall rye	Pre-plant or pre-emergent	200–500 ml/ac
Winter wheat, Fall rye	In spring, from full tillering to shot blade stage. Do not apply during and after flag leaf stage. Do not apply to seedling cereals in fall.	Up to 300 ml/ac
Field corn	Before the 6-leaf stage. Application at later stages will damage corn. If applying at later stage, use a shielded spray, keep spray off corn foliage. Do not apply within 2 weeks of silking and tasseling.	Up to 300 ml/ac

## REGISTERED AND SUPPORTED TANK MIXES

- BISON® 400 L
- BROMOTRIL®
- BUMPER® 432 EC
- Glyphosate
- INVOLVE® 50 WDG

## MIXING INSTRUCTIONS

1. ½ fill the tank with clean water.
2. Add the required amount of 2,4-D ESTER 700 and agitate thoroughly.
3. Add any tank-mix partners.
4. Fill the tank and agitate again before use.

## CROP ROTATIONS

No restrictions

## PRE-HARVEST INTERVAL

90 days

## GRAZING RESTRICTIONS

30 days

## STORAGE

May be stored at any temperature. Shake well before using.

## QUICK TIPS:

Avoid spray drift to any off-target vegetation. Coarse sprays are less likely to drift. Do not spray during periods of high winds.



# ARMORY® 240

Provides fast drydown of crops, protecting yield and grade, and reducing disease transmission late in the season.



## ACTIVE INGREDIENT

Diquat 240 g/L = EC

## PACKAGING

**Case:** 2 x 10 L jugs

**Tote:** 450 L

**Bulk:** 120 L drum

**Tote Max:** 1000 L

## APPLICATION RATES & ACRES TREATED

**Ground:** 360–1860 ml/ac

**Aerial:** 690–1090 ml/ac

**Acres Treated:**

- 7–28 ac/jug
- 83–333 ac/drum
- 320–1250 ac/tote
- 700–2775 ac/tote max

**Potatoes:**

- Ground: 510–1420 ml/ac
- Aerial: 690–930 ml/ac

**Vegetables:**

- Ground: 930–1860 ml/ac
- Aerial: Do not apply by air.

**Beans, canola, chickpeas, lentils, field peas, sunflowers:**

- Ground: 500–690 ml/ac
- Aerial: 690–930 ml/ac

**Legumes:**

- Ground: 690–1090 ml/ac
- Aerial: 690–1090 ml/ac

**Oats:**

- Ground: 360–510 ml/ac
- Aerial: Do not apply by air.

## WATER VOLUME

**Ground:** 90–200 L/ac (24–53 US gal/ac)

**Aerial:** Minimum 18 L/ac (5 US gal/ac)

## RAINFASTNESS

30 minutes

## REGISTERED CROPS

This is only a partial list of crops registered for use with ARMORY® 240.

For the full list, please refer to the ARMORY® 240 label.

- Alfalfa
- Beans (white and red kidney, adzuki)
- Birdsfoot trefoil
- Canola
- Chickpeas
- Lentils
- Peas (field and dry)
- Potatoes
- Red and white clover
- Soybeans
- Sunflowers

## OTHER USES AND WEEDS CONTROLLED

- Potato vines
- Corn spurry in oats
- Desiccation for beans, and legume forage seed crops
- Weeds in stale seedbeds (vegetables and field crops)
- Weeds in vegetables (inter-row directed)
- Suppression of perennial grasses under apple trees





# ARMORY® 240

## HOW IT WORKS

ARMORY® 240 works on contact to disrupt plant cells and is rainfast in 30 minutes, leading to more rapid drydown of plants and weeds when compared to systemic herbicides. Harvesting can typically begin within 4–10 days, depending on crop and weather conditions.

## REGISTERED AND SUPPORTED TANK MIXES

- Agraval® 90, LI 700, Liberate® and other non-ionic surfactants
- Carfentrazone

## MIXING INSTRUCTIONS

1. Fill the spray tank  $\frac{3}{4}$  full with water.
2. Add the required amount of ARMORY® 240 into the sprayer.
3. Agitate until the herbicide is thoroughly mixed.
4. Continue agitation while adding the required amount of recommended registered surfactant at 0.10% v/v non-ionic surfactant (NIS) or 0.25% v/v Li700.
5. Complete filling the tank to the desired level with water.

## ADJUVANT RATE

- LI 700® @ 0.25% v/v
- Non-ionic surfactant (NIS) @ 0.10% v/v

## GRAZING RESTRICTIONS

Crop waste remaining after harvest (e.g. pea vines, alfalfa stems) may be used as a feed supplement for livestock.

## STORAGE

Do not freeze.

### QUICK TIPS:

Best results under cloudy conditions or in the evening. Suggested conditions for aerial applications are a temperature below 25°C, humidity above 50% and wind speed below 9 km/hr at flying height.



HERBICIDE  
IN-CROP • GRASS

GROUP 1

# ARROW ALL IN®

Grassy weed control for soybeans and a variety of specialty crops with the convenience of a built-in surfactant



## ACTIVE INGREDIENT

Clethodim 120 g/L = EC

## PACKAGING

Case: 2 x 6 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 100 – 300 ml/ac

Acres Treated: 20 – 60 ac/jug

## WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)

Aerial: Do not apply by air.

## RAINFASTNESS

1 hour

## REGISTERED CROPS

- Alfalfa, seedling
- Beans, dry (pinto, black, great northern, red, pink, navy)
- Canola
- Carnations
- Chickpeas (desi, kabuli)
- Coriander
- Cranberries
- Fenugreek
- Field peas
- Highbush blueberries
- Lentils
- Onions, dry
- Potatoes
- Soybeans
- Spinach
- Sunflowers

## WEEDS CONTROLLED

Grassy Weeds	Leaf Stage	Application Rate
Foxtail (green, yellow), wild oats, volunteer cereals (wheat, barley, oats)	2 – 4	100 ml/ac*
Barnyard grass, fall panicum, proso millet, volunteer corn, volunteer canarygrass, witchgrass	2 – 6	
Crabgrass (smooth, large), foxtail (green, yellow), persian dandel, quackgrass (suppression), volunteer cereals (wheat, barley, oats), wild oats		150 ml/ac
Quackgrass (control)		300 ml/ac

\*ARROW ALL IN® applied at 100 ml/ac for the control of weeds listed in this section of the table should only be applied under the following conditions: good crop stand, early application (prior to tillering), light to moderate weed infestation, adequate moisture and fertility, absence of stress, good growing conditions. Do not apply to volunteer winter cereals. If any one of the above is not present at the time of application, apply the 150 ml/ac rate of ARROW ALL IN®.



# ARROW ALL IN®

## 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.

## REGISTERED AND SUPPORTED TANK MIXES

- Glyphosate-tolerant soybeans: glyphosate
- Canola: Lontrel™ XC or Muster®
- Clearfield® canola only: PHANTOM® 240 SL
- LibertyLink® canola only: glufosinate
- Field peas: PHANTOM® 240 SL

## MIXING INSTRUCTIONS

1. Fill clean tank ½ full with water and agitation on.
2. Add the required amount of tank-mix partner.
3. Add ARROW ALL IN® and agitate¹.
4. OPTIONAL: For use of ARROW ALL IN® alone (not in a tank mixture), add the correct amount of adjuvant.
5. Fill the remainder of tank with water and continue agitating.
6. Agitate thoroughly after prolonged pauses.

¹When mixing with glufosinate, first add ARROW ALL IN®, followed by glufosinate.

## PRE-HARVEST INTERVALS

- Highbush blueberries, Spinach: 14 days
- Alfalfa (seedling), Cranberries, Fenugreek: 30 days
- Onions, dry: 45 days
- Canola, Chickpeas (desi, kabuli), Coriander, Dry beans (pinto, black, great northern, red, pink, navy), Lentils, Potatoes: 60 days
- Sunflowers: 72 days
- Field peas, Soybeans: 75 days

## ADJUVANT RATE

An optional additional adjuvant may be used under circumstances of heavy weed pressure or when environmental conditions (e.g., drought) are not ideal for weed control.

- 30% phosphate ester surfactant @ 0.5% v/v
- Methylated Seed Oil (MSO) @ 0.5% v/v
- Non-ionic surfactant (NIS) @ 0.25% v/v

## CROP ROTATIONS

No restrictions

## STORAGE

Do not freeze.

## GRAZING RESTRICTIONS

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

### QUICK TIPS:

Most effective control is achieved when application is made prior to tillering when annual grasses are small and actively growing.



# BADGE®

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



## ACTIVE INGREDIENT

Bromoxynil 225 g/L and MCPA 2 EH Ester 600 225 g/L = EC

## PACKAGING

Case: 2 x 10 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 500 ml/ac

Acres Treated: 20 ac/jug

## WATER VOLUME

### Ground:

- Cereals: 20–40 L/ac (5–10 US gal/ac)
- Corn: 80–120 L/ac (20–30 US gal/ac)
- Forages: 60 L/ac (15 US gal/ac)

Aerial: 8–20 L/ac (2–5 US gal/ac)

## RAINFASTNESS

1 hour

## REGISTERED CROPS

### Field crops:

- |          |            |                          |
|----------|------------|--------------------------|
| • Barley | • Fall rye | • Wheat (spring, winter) |
| • Corn   | • Oats     |                          |

## WEEDS CONTROLLED

- |                               |                                      |                                |
|-------------------------------|--------------------------------------|--------------------------------|
| • American nightshade         | • Lady's thumb                       | • Tartary buckwheat            |
| • Ball mustard                | • Lamb's quarters                    | • Velvetleaf <sup>5</sup>      |
| • Bluebur                     | • Night-flowering catchfly           | • Volunteer canola (all types) |
| • Canada thistle <sup>1</sup> | • Pale smartweed                     | • Volunteer sunflower          |
| • Cocklebur                   | • Perennial sow thistle <sup>1</sup> | • Wild buckwheat               |
| • Common buckwheat            | • Redroot pigweed                    | • Wild mustard                 |
| • Common groundsel            | • Russian thistle <sup>3</sup>       | • Wild tomato                  |
| • Common ragweed              | • Scentless chamomile <sup>4</sup>   | • Wormseed mustard             |
| • Cow cockle <sup>2</sup>     | • Shepherd's purse                   |                                |
| • Flixweed                    | • Stinkweed                          |                                |
| • Green smartweed             |                                      |                                |
| • Kochia <sup>3</sup>         |                                      |                                |

<sup>1</sup>Top growth control

<sup>2</sup>Up to 4-leaf stage

<sup>3</sup>When sprayed before plants are 2 inches high

<sup>4</sup>Spring annual only

<sup>5</sup>When sprayed before plants are 3 inches high

## 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**

Crop	Timing
Barley, Oats, Spring wheat	2-leaf to early flag
Corn	4- to 6-leaf
Fall rye	When growth commences in spring to early flag leaf
Timothy (established for seed production)	Prior to shot blade in the seed production year
Winter wheat (includes underseeded with red clover)	2- to 4-leaf stage in the fall or after growth resumes up to early flag leaf

**REGISTERED AND SUPPORTED TANK MIXES**

- Corn: atrazine
- Oats: MCPA ESTER 600
- Spring wheat and barley: Avenge®, MCPA ESTER 600, Refine Extra®, BISON® 400 L
- Winter wheat: MCPA ESTER 600, Refine Extra®

**MIXING INSTRUCTIONS**

1. Fill clean spray tank ½ full with water.
2. Add the required amount of BADGE® and agitate thoroughly.
3. Fill the tank and agitate again before use.
4. If tank-mixing with a grassy weed herbicide, read both labels and follow the more stringent directions for tank-mixing.

**CROP ROTATIONS**

No re-cropping restrictions the year after treatment

**STORAGE**

Do not freeze.

**GRAZING RESTRICTIONS**

Do not graze treated grain or established timothy crops or cut for feed within 30 days of application.

**QUICK TIPS:**

BADGE® herbicide is well known for being gentle on the crop.  
Avoid spraying if temperatures are above 25°C.



HERBICIDE  
IN-CROP • GRASS

GROUP 1

# BISON® 400 L

Get a wide window of application and excellent control of annual grasses in cereals and seedling forage grasses grown for seed.



## ACTIVE INGREDIENT

Tralkoxydim 400 g/L = SC

## PACKAGING

One case includes:

- 1 x 8 L jug of BISON® 400 L
- 1 x 8 L jug of Addit® adjuvant

## APPLICATION RATES & ACRES TREATED

Rate: 200 ml/ac

Acres Treated: 40 ac/case

## WATER VOLUME

Ground: 20–40 L/ac (5–10 US gal/ac)

Aerial: 12–18 L/ac (3–5 US gal/ac)

## RAINFASTNESS

1 hour

## REGISTERED CROPS

Field crops:

- Barley
- Rye (spring, winter)
- Triticale
- Wheat (spring, winter)

Cereal crops underseeded to forage legumes:

- Alfalfa
- Birdsfoot trefoil
- Clovers
- Sainfoin

## WEEDS CONTROLLED

Weed	Leaf Stage
Wild oats, Volunteer oats	1–6

## 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.



# BISON® 400 L

## REGISTERED AND SUPPORTED TANK MIXES

Do not apply any broadleaf herbicide tank mixes to underseeded forage legumes.

### Herbicides:

- 2,4-D ESTER 700
- Attain®
- BADGE®
- BROMOTRIL®
- Bromoxynil + 2,4-D ESTER 700
- Dichlorprop + 2,4-D ESTER 700
- Infinity®
- Lontrel™ XC
- MCPA ESTER 600
- Pixxaro™
- Prominex™
- Trophy®

### Insecticides:

- Decis®
- SILENCER® 120 EC
- ZIVATA™

### Fungicides:

- BUMPER® 432 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  $\frac{3}{4}$  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 tank-mix partner(s).
5. Add Addit® adjuvant at 0.5% v/v, and continue to fill tank to desired level with water.

## ADJUVANT RATE

Addit® adjuvant @ 0.5% v/v

Adjust accordingly if reducing water volume.

## CROP ROTATIONS

Do not replant 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

- Shake well before use.
- Do not freeze.

### 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.



# BROMOTRIL®

Tough broadleaf weed control with tank-mix flexibility and excellent crop safety.



## ACTIVE INGREDIENT

Bromoxynil Octanoate Ester 240 g/L = EC

## PACKAGING

Case: 2 x 9.7 L jugs

## APPLICATION RATES & ACRES TREATED

### PRE-PLANT:

- Rate: 490 ml/ac
- Acres Treated: 20 ac/jug

### IN-CROP BROADLEAF:

- Rate: 490 – 570 ml/ac
- Acres Treated: 17 – 20 ac/jug

## WATER VOLUME

Ground: 20 – 80 L/ac (5 – 20 US gal/ac)

### Aerial (in-crop only):

- 8 – 16 L/ac (3 – 5 US gal/ac)
- Wheat and barley only
- Do not apply pre-plant

## RAINFASTNESS

30 minutes

## REGISTERED CROPS

Crop	Timing
Barley, Canola, Oats, Wheat	Pre-plant burn-off with glyphosate

Crop	Crop Stage
Alfalfa (seedling)	2 – 6 trifoliolate
Alfalfa (established for seed production only)	Spring: before the crop begins to shield the weeds
Barley, Oats, Triticale, Wheat (spring)	2-leaf to early flag
Winter wheat	Fall: 2- to 4-leaf Spring: first growth to early flag
Corn (field, sweet)	4- to 8-leaf (beyond 8-leaf requires drop pipes)
Fall rye	Spring: from first growth to early flag
Forage millet, Sorghum	4-leaf to 8 inches

## WEEDS CONTROLLED

Seedling up to 4-leaf stage:

- American nightshade
- Bluebur
- Cocklebur
- Common ragweed
- Cow cockle<sup>1</sup>
- Green smartweed
- Kochia<sup>2</sup>
- Lady's thumb
- Pale smartweed
- Pigweed<sup>1</sup>
- Russian thistle<sup>2</sup>
- Stinkweed<sup>1</sup>
- Velvetleaf<sup>3</sup>
- Wild mustard<sup>1</sup>

Seedling up to 8-leaf stage:

- Common buckwheat
- Common groundsel
- Lamb's quarters
- Tartary buckwheat
- Wild buckwheat

<sup>1</sup>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.

<sup>2</sup>Spray before plants are 2 inches high.

<sup>3</sup>Spray before plants are 3 inches high.





# BROMOTRIL®

## HOW IT WORKS

BROMOTRIL® is a contact herbicide which controls Group 2- and Group 9-resistant biotypes. Leaves will yellow in 2–4 days with complete control in 7–14 days.

## REGISTERED AND SUPPORTED TANK MIXES

Post-emergent herbicides:

- Spring wheat: 2,4-D ESTER 700, MCPA ESTER 600, BISON® 400 L
- Winter wheat: 2,4-D ESTER 700, MCPA ESTER 600, BISON® 400 L
- Barley: 2,4-D ESTER 700, MCPA ESTER 600, BISON® 400 L
- Oats: MCPA ESTER 600
- Corn: Accent®, atrazine, Banvel® (dicamba), Ultim®
- Fall rye: MCPA ESTER 600

Pre-plant herbicide:

- Glyphosate

Fungicide:

- BUMPER® 432 EC

## MIXING INSTRUCTIONS

1. Fill spray tank ½ full with water.
2. Add required amount of BROMOTRIL®. Begin agitation.
3. If tank-mixing, add any tank-mix partner(s) to the spray tank first, agitate and then add BROMOTRIL® (unless otherwise directed by the BROMOTRIL® 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

Do not freeze.

### QUICK TIPS:

Avoid spraying if temperatures are above 25°C. Leaf scorching may occur in corn 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.



HERBICIDES  
IN-CROP • BROAD-SPECTRUM

GROUP 2

# DAVAI® 80 SL

Broadleaf and grassy weed control in a convenient package that allows for flexible tank-mix options in soybeans, dry beans and field peas.



## ACTIVE INGREDIENTS

Imazamox 80 g/L = SL

## PACKAGING

Case: 2 × 8 L jugs

## APPLICATION RATE & ACRES TREATED

Rate: 100 ml/ac

Acres treated: 80 ac/jug

## WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)

Aerial: Do not apply by air.

## RAINFASTNESS

3 hours

## REGISTERED CROPS

• Dry Beans • Field Peas • Soybeans

## WEEDS CONTROLLED AND APPLICATION TIMING

Unless otherwise noted below, apply to young and actively growing weeds.

### BROADLEAF WEEDS

#### Cotyledon – 4 leaf:

- Cleavers<sup>1</sup>
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters
- Redroot pigweed
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola\*
- Wild buckwheat<sup>1</sup>
- Wild mustard

### GRASSY WEEDS

#### 1- to 4-true leaf:

- Barnyard grass
- Green foxtail<sup>2</sup>
- Japanese brome grass<sup>1</sup>
- Persian darnel
- Volunteer cereals (barley, oats, wheat)
- Volunteer canary seed
- Wild oats<sup>2</sup>
- Yellow foxtail

<sup>1</sup>Suppression only

<sup>2</sup>Including Group 1-resistant weeds. DAVAI® 80 SL will NOT control weed biotypes that are multiple-resistant to both Group-1 and Group-2 herbicides.

\*non imidazolinone-tolerant varieties

## HOW IT WORKS

DAVAI® 80 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 injury 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.



# DAVAI® 80 SL

## CROP STAGING

- Dry Beans, Soybeans: Emergence to 3-expanded trifoliate leaves
- Field Peas: 1 to 6 true-leaf stage

## REGISTERED AND SUPPORTED TANK MIXES

- ARROW® 240 EC
- ARROW ALL IN®
- Basagran® Forté
- Broadloom®
- LEOPARD®
- PHANTOM® 240 SL

## MIXING INSTRUCTIONS

1. Fill clean tank  $\frac{1}{2}$  to  $\frac{3}{4}$  full of clean water and turn agitation on.
2. Add the required amount of DAVAI® 80 SL herbicide and continue to agitate.
3. If required, add the correct amount of tank-mix partner while agitating.
4. Add the required amount of adjuvant while agitating.
5. Continue agitating and fill the remainder of the spray tank with water.

## ADJUVANT RATE

Methylated Seed Oil (MSO) such as Merge®, NORAC MSO, Hasten NT Ultra® @ 0.50% v/v

ADAMA Adjuvant 80, Agral® 90, SENTRY™ @ 0.25% v/v

## CROP ROTATIONS

- Barley
- Canola
- Canary Seed
- Corn
- Field Peas
- Imidazoline tolerant sunflower
- Oats
- Soybeans
- Wheat (spring)

## PRE-HARVEST INTERVALS

- Field peas: 60 days
- Dry beans: 75 days
- Soybeans: 85 days

## RECRIPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use DAVAI® 80 SL, DAVAI A PLUS®, DAVAI® Q PLUS or PYTHON®, please consult the recropping restrictions and guidelines on page 48.

## GRAZING RESTRICTIONS

- Field peas: 30 days
- Do not graze all other treated crop.

## STORAGE

Do not freeze.

## QUICK TIPS:

Cool weather conditions or drought will delay herbicidal activity and if prolonged, may result in poor weed control. Use of DAVAI® 80 SL herbicide in hot, humid weather may result in temporary leaf yellowing, leaf flecking, bronzing or burning. The crop usually outgrows this condition within 10 days. When weeds are stressed due to drought, flooding, hot or prolonged cool temperatures (15° C or less), control can be reduced or delayed since weeds are not actively growing. Weeds escapes or regrowth may occur under prolonged stress conditions or low fertility. Do not make applications to weeds stressed longer than 20 days due to lack of moisture, as unsatisfactory control can result.



# DAVAI A PLUS™

DAVAI® 80 SL, is conveniently packaged with ARROW ALL IN® to offer broad-spectrum control in dry beans, peas and soybeans.



## ACTIVE INGREDIENTS

Imazamox 80 g/L = SL  
Clethodim 120 g/L = EC

## PACKAGING

### Co-pack includes:

- 1 x 4 L jug of DAVAI® 80 SL
- 1 x 6 L jug of ARROW ALL IN®

## APPLICATION RATE & ACRES TREATED

### Rate:

- DAVAI® 80 SL: 100 ml/ac
- ARROW ALL IN®: 150 ml/ac

**Acres Treated:** 40 ac/case

## WATER VOLUME

**Ground:** 40 L/ac (10 US gal/ac)  
**Aerial:** Do not apply by air.

## RAINFASTNESS

3 hours

## REGISTERED CROPS

- Dry beans
- Field peas
- Soybeans

## WEEDS CONTROLLED AND APPLICATION TIMING

### BROADLEAF WEEDS

#### Cotyledon – 4 leaf:

- Cleavers<sup>1</sup>
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters
- Redroot pigweed
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola\*
- Wild buckwheat<sup>1</sup>
- Wild mustard

### GRASSY WEEDS

#### 1–6 true leaf:

- Barnyard grass
- Crabgrass (smooth, large)<sup>3</sup>
- Fall panicum
- Green foxtail<sup>2</sup>
- Japanese brome grass<sup>1</sup>
- Persian darnel
- Proso millet
- Quackgrass<sup>1</sup>
- Volunteer canary grass
- Volunteer canary seed<sup>4</sup>
- Volunteer cereals (barley, oats, wheat)
- Volunteer corn<sup>5</sup>
- Wild oats<sup>2</sup>
- Witchgrass
- Yellow foxtail

<sup>1</sup>Suppression

<sup>2</sup>Including Group 1-resistant weeds. DAVAI A PLUS™ will NOT control weed biotypes that are multiple-resistant to both Group-1 and Group-2 herbicides.

<sup>3</sup>2- to 6-leaf

<sup>4</sup>1- to 4-leaf

\*non imidazolinone-tolerant varieties





# DAVAI A PLUS™

## HOW IT WORKS

DAVAI A PLUS™ combines two(2) actives to tackle broadleaf and grassy weeds. See DAVAI® 80 SL and ARROW ALL IN® for more information.

## CROP STAGING

- Dry beans, Soybeans: Emergence to 3 expanded trifoliate leaves
- Field peas: 1–6 true leaf

## REGISTERED AND SUPPORTED TANK MIXES

None registered

## MIXING INSTRUCTIONS

1. Fill clean tank  $\frac{1}{2}$  to  $\frac{3}{4}$  full of clean water and turn agitation on.
2. Add the required amount of ARROW ALL IN® herbicide and continue to agitate.
3. Add the required amount of DAVAI® 80 SL herbicide and continue to agitate.
4. Continue agitating and fill the remainder of the spray tank with water.

## ADJUVANT RATE

No adjuvant required.

## CROP ROTATIONS

- |               |              |                          |
|---------------|--------------|--------------------------|
| • Barley      | • Corn       | • Soybeans               |
| • Canary seed | • Field peas | • Clearfield® sunflowers |
| • Canola      | • Oats       | • Wheat (spring)         |

## RECRIPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use DAVAI® 80 SL, DAVAI A PLUS™, DAVAI® Q PLUS or PYTHON®, please consult the recropping restrictions and guidelines on page 48.

## PRE-HARVEST INTERVALS

- |                       |                     |
|-----------------------|---------------------|
| • Dry beans: 75 days  | • Soybeans: 85 days |
| • Field peas: 60 days |                     |

## GRAZING RESTRICTIONS

- Field peas: 30 days
- All other crops: Do not graze.

## STORAGE

Do not freeze.

### QUICK TIPS:

For best results, apply DAVAI A PLUS™ to actively growing weeds. If the plants are under environmental stress, expect to see temporary yellowing or burning on the leaves.



# DAVAI® Q PLUS

Two modes of action that offer control of tough clumping grasses, like barnyard grass and volunteer corn, proven control of broadleaf weeds and rotational freedom.



## ACTIVE INGREDIENTS

Imazamox 80 g/L = SL

Quizalofop-P-ethyl 100 g/L = EC

## PACKAGING

### Co-pack includes:

- 1 x 4 L jug of DAVAI® 80 SL
- 1 x 7.8 L jug of ADAMA Quizalofop
- 1 x 8 L jug of ADAMA MSO Adjuvant

## APPLICATION RATE & ACRES TREATED

### Rates:

- DAVAI® 80 SL: 100 ml/ac
- ADAMA Quizalofop 194 ml/ac
- ADAMA MSO Adjuvant: 0.5% v/v

**Acres treated:** 40 ac/co-pack

## WATER VOLUME

**Ground:** 40 L/ac (10 US gal/ac)

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

## RAINFASTNESS

3 hours

## REGISTERED CROPS

- Dry beans
- Field peas
- Soybeans

## WEEDS CONTROLLED AND APPLICATION TIMING

Unless otherwise noted below, apply to young and actively growing weeds.

### BROADLEAF WEEDS

#### Cotyledon – 4 leaf:

- Cleavers (suppression)
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters
- Redroot pigweed
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola\*
- Wild buckwheat (suppression)
- Wild mustard

### GRASSY WEEDS

#### 1- to 4-leaf:

- Persian darnel
- Volunteer canary grass
- Volunteer canary seed

#### 1- to 5-leaf to early tillering:

- Wild oats <sup>1,2</sup>

#### 2- to 4-leaf + 3 tillers:

- Foxtail barley

#### 2- to 5-leaf:

- Downy brome
- Japanese brome grass

#### 2- to 6-leaf:

- Quackgrass (suppression)
- Volunteer corn

<sup>1</sup> Including Group 1-resistant weeds. DAVAI® Q PLUS will NOT control weed biotypes that are multiple-resistant to both Group-1 and Group-2 herbicides.

<sup>2</sup> Best results on volunteer/wild oats if application is made before tillering begins.

\*non imidazolinone-tolerant varieties



# DAVAI® Q PLUS

## WEEDS CONTROLLED AND APPLICATION TIMING (CONT'D)

### GRASSY WEEDS (CONT'D)

#### 2-leaf to early tillering:

- Barnyard grass
- Fall panicum
- Green foxtail<sup>1</sup>
- Proso millet
- Volunteer barley, oats<sup>2</sup>, wheat
- Witchgrass
- Yellow foxtail

<sup>1</sup> Including Group 1-resistant weeds. DAVAI® Q PLUS will NOT control weed biotypes that are multiple-resistant to both Group-1 and Group-2 herbicides.

<sup>2</sup> Best results on volunteer/wild oats if application is made before tillering begins.

### HOW IT WORKS

DAVAI® Q PLUS combines two actives to tackle broadleaf and grassy weeds. See the labels for DAVAI® 80 SL and ADAMA Quizalofop for more information.

### CROP STAGING

- Dry Beans, Soybeans: Emergence to 3-expanded trifoliate leaves
- Field Peas: 1 to 6 true-leaf stage

### REGISTERED AND SUPPORTED TANK MIXES

None registered

### MIXING INSTRUCTIONS

1. Fill clean tank  $\frac{1}{2}$  to  $\frac{3}{4}$  full of clean water and turn agitation on.
2. Add the required amount of ADAMA Quizalofop herbicide and continue to agitate.
3. Add the required amount of DAVAI® 80 SL herbicide and continue to agitate.
4. Add ADAMA MSO Adjuvant while agitating.
5. Continue agitating and fill the remainder of the spray tank with water.

### ADJUVANT RATE

ADAMA MSO Adjuvant @0.5%v/v

### CROP ROTATIONS

- Barley
- Canary Seed
- Canola
- Corn
- Field Peas
- Oats
- Soybeans
- Clearfield® sunflowers
- Wheat (spring)

### PRE-HARVEST INTERVALS

- Field peas: 60 days
- Soybeans: 85 days
- Dry beans: 75 days

### RECRIPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use DAVAI® 80 SL, DAVAI A PLUS®, DAVAI® Q PLUS or PYTHON®, please consult the recropping restrictions and guidelines on page 48.

### GRAZING RESTRICTIONS

Do not cut treated crops for hay.

### STORAGE

Do not freeze.

### QUICK TIPS:

For best results when targeting wild oats apply prior to tillering. Application when plants are actively growing will lead to best results. Application at cooler temperatures or in drought conditions can result in reduced efficacy.



# EMPHASIS®

A co-pack of two actives — carfentrazone-ethyl and bromoxynil — that, when tank-mixed with glyphosate, offers three modes of action for fast burndown control of approximately 70 broadleaf and grassy weeds.



## ACTIVE INGREDIENTS

Carfentrazone-ethyl at 240 g/L as an EC = EMPHASIS® A, and Bromoxynil (octanoate ester) at 240 g/L as an EC = BROMOTRIL®

## PACKAGING

**Co-pack includes:**

- 2 x 0.6 L jugs of EMPHASIS® A
- 2 x 9.7 L jugs of BROMOTRIL®

## APPLICATION RATE & ACRES TREATED

### Canola

**Rate:** 15 ml/ac of EMPHASIS® A + 236 ml of BROMOTRIL®

**Acres treated:** 80 ac/case

### Barley, Oats, Wheat

**Rate:** 30 ml/ac of EMPHASIS® A + 472 ml of BROMOTRIL®

**Acres treated:** 40 ac/case

## WATER VOLUME

**Ground:** minimum 40 L/ac (10 US gal/ac)

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

## RAINFASTNESS

30 minutes

## REGISTERED CROPS AND STAGING

- Barley
- Oats
- Canola
- Wheat (spring, winter)

## HOW IT WORKS

EMPHASIS® is a multi-mode, contact herbicide that controls broadleaf weeds including Group-2- and Group-9-resistant\* biotypes such as kochia. Within a few hours following application, the foliage of susceptible weeds shows signs of desiccation, and in subsequent days, necrosis and death of the plant occur.

\* Does not control Group-9-resistant fleabane.

## MIXING INSTRUCTIONS

1. Fill spray tank with ½ of the volume of clean water needed.
2. With agitator running add the required amount of EMPHASIS® A to spray tank.
3. Next add the required amount of BROMOTRIL®.
4. Add more water, then add glyphosate.
5. Complete filling the tank to desired level.

## CROP ROTATIONS

No restrictions

## STORAGE

Do not freeze.



# EMPHASIS®

## WEEDS CONTROLLED

Canola: Pre-Plant (80 acres/case)		
Weeds controlled by EMPHASIS® alone:		Rates:
<ul style="list-style-type: none"> <li>• Black nightshade</li> <li>• Eastern black nightshade<sup>1</sup></li> <li>• Lamb's quarters<sup>2</sup></li> <li>• Morning glory<sup>3</sup></li> <li>• Redroot pigweed</li> <li>• Tall waterhemp<sup>1</sup></li> <li>• Velvetleaf</li> <li>• Volunteer canola<sup>6</sup></li> </ul>		<ul style="list-style-type: none"> <li>• EMPHASIS® A: 15 ml/ac</li> <li>• BROMOTRIL®: 236 ml/ac</li> </ul>
Additional weeds controlled when EMPHASIS® is tank-mixed with glyphosate (at stated rate)*		
EMPHASIS® alone weeds, plus:		
<ul style="list-style-type: none"> <li>• Cocklebur</li> <li>• Cow cockle</li> <li>• Green foxtail</li> <li>• Green smartweed</li> <li>• Lady's thumb</li> <li>• Smooth pigweed</li> <li>• Volunteer cereals (barley, oats, wheat)</li> <li>• Wild mustard</li> </ul>		<ul style="list-style-type: none"> <li>• EMPHASIS® A: 15 ml/ac</li> <li>• BROMOTRIL®: 236 ml/ac</li> <li>• Glyphosate: 180 g a.i./ac</li> </ul>
180 g a.i./ac weeds, plus:		
<ul style="list-style-type: none"> <li>• Bluegrass (annual)</li> <li>• Canada fleabane<sup>4</sup></li> <li>• Canada thistle (rosette stage, summerfallow)</li> <li>• Cleavers</li> <li>• Crabgrass</li> <li>• Dandelion (less than 15 cm)</li> <li>• Downy brome</li> <li>• Flixweed</li> <li>• Giant foxtail</li> <li>• Hemp-nettle</li> <li>• Kochia</li> <li>• Narrow-leaved hawk's beard</li> <li>• Narrow-leaved vetch</li> <li>• Quackgrass<sup>5</sup></li> <li>• Ragweed (common)</li> <li>• Russian thistle</li> <li>• Stinkweed</li> <li>• Prickly lettuce</li> <li>• Sow thistle (annual)</li> <li>• Shepherd's purse</li> <li>• Wild buckwheat</li> </ul>		<ul style="list-style-type: none"> <li>• EMPHASIS® A: 15 ml/ac</li> <li>• BROMOTRIL®: 236 ml/ac</li> <li>• Glyphosate: 360 g a.i./ac</li> </ul>
Wheat, Oats, Barley: Pre-Plant (40 acres/case)		
Weeds controlled by EMPHASIS® alone:		Rates:
<ul style="list-style-type: none"> <li>• Buckwheat (common, tartary)</li> <li>• Carpetweed</li> <li>• Groundsel (common)</li> <li>• Jimsonweed</li> <li>• Lamb's quarters<sup>2</sup></li> <li>• Morning glory<sup>3</sup></li> <li>• Mustard (tansy)</li> <li>• Nightshade (American, Black, Eastern black<sup>1</sup>, hairy)</li> <li>• Pigweed (red root, tumble)</li> <li>• Purslane (common)</li> <li>• Smartweed (pale)</li> <li>• Velvetleaf</li> <li>• Volunteer canola</li> <li>• Waterhemp (common, tall<sup>1</sup>)</li> </ul>		<ul style="list-style-type: none"> <li>• EMPHASIS® A: 30 ml/ac</li> <li>• BROMOTRIL®: 472 ml/ac</li> </ul>
The EMPHASIS® + glyphosate combination controls approximately 70 weeds (not all are listed here).		
See the glyphosate label for a complete list of weeds controlled at each rate.		

<sup>1</sup> up to 5 cm | <sup>2</sup> up to 7.5 cm | <sup>3</sup> up to 3 leaves | <sup>4</sup> does not include Group 9-resistant fleabane<sup>5</sup> light to moderate infestations, 3-4 green leaves or more | <sup>6</sup> including glyphosate-tolerant varieties

\* Additional weeds controlled with glyphosate pertain to both canola and wheat/oat/barley applications.

### QUICK TIPS:

Wait at at least one day after application before seeding to allow adequate time for weed control.

Avoid overnight storage of spray mixtures when possible.

Premixing EMPHASIS® spray solutions in nurse tanks is not recommended.



# ADAMA GLUFOSINATE 150 SL

Reliable formulation for post-emergent control of almost 30 broadleaf and grassy weeds for use in glufosinate-ammonium-tolerant canola and soybeans.



## ACTIVE INGREDIENT

Glufosinate ammonium 150 g/L = SL

## PACKAGING

**Case:** 2 x 13.5 L jugs    **Drum:** 108 L  
**Tote:** 432 L    **Tote Max:** 1000 L

## APPLICATION RATES & ACRES TREATED

**Rate:** 0.8–1.62 L/ac

### Acres Treated:

- 8–17 ac/jug    • 67–135 ac/drum
- 267–540 ac/tote    • 617–1250 ac/tote max

## WATER VOLUME

**Ground:** 45 L/ac (12 US gal/ac)  
**Aerial:** 23 L/ac (6 US gal/ac)

## RAINFASTNESS

4 hours

## REGISTERED CROPS

- Glufosinate-ammonium-tolerant canola
- Glufosinate-ammonium-tolerant soybeans

Crop	Timing	Recommended Rates
Canola	Apply from the cotyledon stage up until, but prior to, the early bolting stage of canola.	<b>One (1) pass:</b> 1.35–1.62 L/ac <b>Two (2) passes:</b> 1.35 L/ac followed by 1.35 L/ac (and up to 1.62 L/ac) OR 1.62 L/ac followed by 1.35 L/ac <b>NOTE:</b> Do not apply more than a total of 2.97 L/ac in one season.
Soybeans	Apply from the cotyledon to the flowering stage of the crop.	0.8–1.35 L/ac

NOTE: Please refer to label for additional rates.

## WEEDS CONTROLLED

### Broadleaf Weeds:

- Canada thistle<sup>1</sup>
- Cleavers
- Common chickweed
- Cow cockle
- Dandelion
- Flixweed
- Hemp-nettle
- Kochia
- Lady's thumb
- Lamb's quarters
- Perennial sow thistle
- Redroot pigweed
- Round-leaved mallow
- Russian thistle
- Scentless chamomile
- Shepherd's purse
- Smartweed
- Stinkweed
- Stork's bill
- Volunteer flax
- Wild buckwheat
- Wild mustard

### Grasses:

- Barnyard grass
- Green foxtail
- Quackgrass<sup>3</sup>
- Volunteer barley<sup>2</sup>
- Volunteer wheat
- Wild oats

<sup>1</sup>Top growth suppression only

<sup>2</sup>Suppression only

<sup>3</sup>Season-long control for heavy populations at 1.62 L/ac



# ADAMA GLUFOSINATE 150 SL

## HOW IT WORKS

ADAMA GLUFOSINATE 150 SL is a non-selective herbicide that provides control of a broad spectrum of grassy and broadleaf weeds in canola and soybean varieties and hybrids that are specially developed to be tolerant to glufosinate ammonium.

ADAMA GLUFOSINATE 150 SL is a contact herbicide with limited translocation within the plant. Control is best when weeds are actively growing and not under stress.

## CROP STAGING

- Pre-plant, Post-harvest, Summerfallow

## REGISTERED AND SUPPORTED TANK MIXES

- Facet® L
- ARROW ALL IN®
- LEOPARD®

## SUPPORTED ADJUVANTS

- Agral 90®
- Not all tank mixes require an adjuvant, see label for details.

## MIXING INSTRUCTIONS

1. Fill the tank  $\frac{3}{4}$  full with clean water.
2. Add the correct amount of ADAMA GLUFOSINATE 150 SL.
3. Add the remaining amount of water, begin agitation, and spray out immediately.

## CROP ROTATIONS

- Buckwheat, barley, millet, oats, rye, sorghum, triticale: 70 days
- All other crops (except alfalfa, canola, carrots, dry common beans not grown for seed, field corn, lettuce, onion, potatoes, and soybeans): 120 days

## PRE-HARVEST INTERVAL

Canola: 60 days

Soybeans: 70 days

## STORAGE

Do not freeze.

## GRAZING RESTRICTIONS

Canola:

- Grain and meal from treated crop can be fed to livestock.
- Do not graze the treated crop or cut for hay; sufficient data is not available to support such use.

Soybeans: 20 days

## QUICK TIPS:

ADAMA GLUFOSINATE 150 SL can be weak on some annual grasses. If these species are not adequately controlled with a residual herbicide, it may be advantageous to include a grass herbicide such as LEOPARD® or ARROW ALL IN® with the post-emergent glufosinate application.

ADAMA GLUFOSINATE 150 SL activity is maximized in warm, sunny weather.

ADAMA GLUFOSINATE 150 SL, as with all ADAMA products, is fully supported by a sales, service and agronomic teams across all Eastern Canadian provinces.





# INVOLVE® 50 WDG

ADAMA's pre-plant or post-harvest Group-2 herbicide for control of the toughest broadleaf weeds.



## ACTIVE INGREDIENT

50% Tribenuron-methyl = WDG

## PACKAGING

Case: 10 x 480 g bottles

## APPLICATION RATES & ACRES TREATED

Rate: 6 g/ac

Acres Treated:

- 80 ac/bottle
- 800 ac/case

## WATER VOLUME

Ground: 22–44 L/ac (5–12 US gal/ac)

Aerial: Do not apply by air.

## RAINFASTNESS

1 hour

## REGISTERED CROPS

- |                 |              |                          |
|-----------------|--------------|--------------------------|
| • Alfalfa       | • Field peas | • Spring barley          |
| • Alsike clover | • Oats       | • Timothy                |
| • Dry beans     | • Red clover | • Wheat (spring, winter) |
| • Faba beans    | • Soybeans   |                          |

## WEEDS CONTROLLED

INVOLVE® 50 WDG plus 0.5 REL/ac glyphosate equivalent will control the following weeds:

### Broadleaf Weeds:

- |                               |                                    |
|-------------------------------|------------------------------------|
| • Canada fleabane             | • Narrow-leaved hawk's beard       |
| • Canada thistle <sup>2</sup> | • Redroot pigweed                  |
| • Common ragweed              | • Scentless chamomile <sup>2</sup> |
| • Cow cockle                  | • Stinkweed                        |
| • Dandelion                   | • Volunteer canola <sup>3</sup>    |
| • Flixweed                    | • White cockle <sup>2</sup>        |
| • Hemp-nettle                 | • Wild mustard                     |
| • Kochia                      | • Wild buckwheat                   |
| • Lamb's quarters             |                                    |

### Grasses:

- |                  |                    |
|------------------|--------------------|
| • Downy brome    | • Volunteer barley |
| • Giant foxtail  | • Volunteer wheat  |
| • Green foxtail  | • Wild oats        |
| • Persian darnel |                    |

<sup>1</sup> Excluding Group 2- and Group 9-resistant fleabane

<sup>2</sup> Suppression only

<sup>3</sup> Including glyphosate-tolerant varieties



# INVOLVE® 50 WDG

## HOW IT WORKS

INVOLVE® 50 WDG 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.

## CROP STAGING

- Pre-plant, Post-harvest, Summerfallow

## REGISTERED AND SUPPORTED TANK MIXES

- 2,4-D ESTER 700
- AIM® EC
- Authority® 480
- Dicamba L
- Glyphosate

## SUPPORTED ADJUVANTS

- Agral 90®
- Not all tank mixes require an adjuvant, see label for details.

## MIXING INSTRUCTIONS

1. Fill clean spray tank ½ full of clean water, start agitation.
2. Add the required amount of Involve and agitate until product is completely dispersed.
3. Add the required amount of glyphosate.
4. Add the required amount of surfactant, then fill tank with remaining water.
5. For repeat tank loads, empty the spray tank completely to avoid Involve from not dispersing or add to tank as a pre-slurry in 5–10 L of water.

## CROP ROTATIONS

- Alfalfa, bean crops (including dry beans, faba beans, field peas and soybeans), oats, red clover or alsike clover, timothy, spring barley, spring wheat and winter wheat: 24 hours after application
- Canola and lentils: 60 days after application

Post-harvest application in the fall may be summerfallowed or seeded in the spring to:

- Alfalfa, canola, field corn or bean crops (including dry beans, faba beans, field peas and soybeans), lentils, red clover or alsike clover, spring wheat, spring barley, oats and Timothy.

## ADJUVANT RATE

Non-ionic surfactant (NIS) @ 0.2–0.35% v/v

Please refer to label for appropriate rate.

## STORAGE

May be stored at any temperature

### QUICK TIPS:

Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions. Activity of the herbicide mixture may be delayed by cold, dry conditions after application.

Injury to pulse 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.



HERBICIDE  
IN-CROP • GRASS

GROUP 1

# LEOPARD®

ADAMA's grass control product to control hard-to-kill grassy weeds in dry beans, soybeans and cucurbit vegetable crops.



## ACTIVE INGREDIENT

Quizalofop-P-ethyl 100 g/L = EC

## PACKAGING

Case: 2 x 7.8 L jug

## APPLICATION RATES & ACRES TREATED

**Rate:** 150 – 290 ml/ac (standard rate: 195 ml/ac)

**Acres Treated:** 30 – 50 ac/jug (standard rate: 40 ac/jug)

## WATER VOLUME

**Ground:** 40 L/ac (10 US gal/ac)

**Aerial:** 10 L/ac (2.5 US gal/ac)

## RAINFASTNESS

1 hour

## REGISTERED CROPS

- |                       |                                       |                    |
|-----------------------|---------------------------------------|--------------------|
| • Alfalfa, seed       | • Lentils                             | • Rutabagas        |
| • Beans (dry & snap)  | • Lima, Adzuki & Mung beans (Ontario) | (Ontario & Quebec) |
| • Canola              | • Peas (field & processing)           | • Soybeans         |
| • Chickpeas           |                                       | • Sugarbeets       |
| • Cucurbit vegetables |                                       |                    |

## WEEDS CONTROLLED

Check label as weed stage controlled by LEOPARD® varies.

- |                  |                           |                       |
|------------------|---------------------------|-----------------------|
| • Barnyard grass | • Japanese brome          | • Volunteer cereals   |
| • Downy brome    | • Old witchgrass          | (wheat, barley, oats) |
| • Fall panicum   | • Proso millet            | • Volunteer corn      |
| • Foxtail barley | • Quackgrass <sup>1</sup> | • Wild oats           |
| • Green foxtail  |                           | • Yellow foxtail      |

<sup>1</sup>Suppression at lower rates; control at higher rates

## HOW IT WORKS

LEOPARD® is a selective post-emergent herbicide for the control of annual and perennial grasses. LEOPARD® is a systemic herbicide which is rapidly absorbed and readily translocated for the treated foliage to the root systems and growing points of the plant. Treated plants show a reduction in growth and a loss of competitiveness. An early yellowing and browning of the younger plant tissues is followed by a progressive collapse of the remaining foliage. These symptoms will generally be observed in 1–3 weeks depending on the grass species treated and the environmental conditions. This product does not control sedges or broadleaf weeds.

## 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.



# LEOPARD®

## REGISTERED AND SUPPORTED TANK MIXES

- Basagran®
- ADAMA Glufosinate 150 SL
- Glyphosate
- PHANTOM® 240 SL

## MIXING INSTRUCTIONS

1. Thoroughly clean the sprayer by flushing the system with water containing detergent.
2. Fill clean spray tank ½ full with water. Start agitation.
3. If tank-mixing LEOPARD® with another pesticide, add tank-mix partner followed by the adjuvant.
4. Ensure that the herbicide is completely mixed before proceeding to the next step.
5. Add the rest of the required water to the tank. Mix well before applying to the crop.

On repeat tank loads, ensure that the amount of spray solution left in the tank from the previous load is less than 10% of volume about to be mixed.

Do not mix, load or clean spray equipment where there is a potential to contaminate wells or aquatic systems.

**When mixing with glufosinate:** Glufosinate + LEOPARD® + surfactant

**When mixing with glyphosate:** Glyphosate + LEOPARD® + surfactant

## ADJUVANT RATES

- LEOPARD® is not packaged with, but requires, an adjuvant such as:
  - Merge® @ 0.5 – 1% v/v
  - LI700® @ 0.25 – 0.5% v/v
  - Liberate™ adjuvant @ 0.5% v/v
  - Other non-ionic surfactants (NIS) or methylated seed oil (MSO) adjuvants

## CROP ROTATIONS

No restrictions

## PRE-HARVEST INTERVAL

- Beans (dry and snap), Cucurbits, Rutabagas: 30 days
- Sugarbeets: 60 – 80 days
- Canola: 64 days
- Peas, Small red beans: 65 days
- Soybeans: 80 days

## GRAZING RESTRICTIONS

Do not cut treated crops for hay.

## STORAGE

Do not freeze.

### QUICK TIPS:

LEOPARD® is safe on the crop at all stages. Rates are dependent on weed stages.

Use the higher adjuvant rate when targeting quackgrass, or when conditions are not conducive to good growth.



# MCPA ESTER 600

Provides reliable post-emergent control of broadleaf weeds and great tank-mix flexibility in wheat, barley, rye, oats, and pasture areas.



## ACTIVE INGREDIENT

MCPA 2 EH Ester 600 g/L = EC

## PACKAGING

Case: 2 × 10 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 285 – 425 ml/ac

Acres Treated: 24 – 35 ac/jug

## WATER VOLUME

Ground: 37– 75 L/ac (10–20 US gal/ac)

Aerial: 11 L/ac (3 US gal/ac)\*

\* Please refer to label as aerial application is crop-specific.

## RAINFASTNESS

Avoid applying when rain is forecast.

## REGISTERED CROPS

Crop	Timing*	Rate (ml/ac)
Oats (not underseeded with legumes)	From the 1-leaf expanded to the early flag-leaf stage.	Up to 365
Spring wheat, Barley, Rye	From the 3-leaf expanded to the early flag-leaf stage. From milk stage to maturity.	Up to 425
Winter wheat, Fall rye	In spring, from full tillering to the shot blade stage. Do not apply during and after the flag-leaf stage. Do not apply to seedling winter cereals in the fall. GROUND APPLICATION ONLY.	

\*Do not apply more than one treatment per year

## WEEDS CONTROLLED

Susceptible weeds<sup>2</sup>:

- Annual sunflower
- Burdock<sup>4</sup>
- Cocklebur
- Flixweed<sup>1</sup>
- Lamb's quarters
- Mustard (except Dog and Tansy)
- Plantain
- Prickly lettuce
- Ragweed
- Russian pigweed<sup>1</sup>
- Shepherd's purse<sup>1</sup>
- Stinkweed
- Vetch
- Wild radish

Harder-to-control weeds<sup>3</sup>:

- Annual sow thistle
- Biennial wormwood
- Canada thistle<sup>1</sup>
- Corn spurry<sup>1</sup>
- Curled dock
- Dandelion
- Dog mustard
- Field bindweed<sup>1</sup>
- Field Horsetail<sup>1</sup>
- Field peppergrass
- Goat's beard
- Hairy galinsoga
- Hedge bindweed<sup>1</sup>
- Hemp-nettle<sup>4</sup>
- Kochia
- Lady's thumb<sup>1</sup>
- Leafy spurge<sup>1</sup>
- Oak-leaved goosefoot
- Perennial sow thistle<sup>1</sup>
- Purslane
- Redroot pigweed
- Russian knapweed<sup>1</sup>
- Russian thistle
- Smartweed<sup>1</sup>
- Sweet clover<sup>5</sup>
- Tansy mustard
- Tartary buckwheat

<sup>1</sup> Use highest listed rate.

<sup>2</sup> Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 235 mL/ac  
Large weeds, dry or cold weather, heavy infestations: 365 mL/ac; Susceptibility decreases with age.

<sup>3</sup> Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 425 mL/ac  
Large weeds, dry or cold weather, heavy infestations: 610 mL/ac; Susceptibility decreases with age.

<sup>4</sup> Before 4-leaf stage

<sup>5</sup> Seedlings



# MCPA ESTER 600

## HOW IT WORKS

Systemic post-emergence phenoxy herbicide that acts as a plant growth regulator to control broadleaf weeds by stimulating nucleic acid and protein synthesis, which impacts the cell division and respiration causing malformed leaves, stems and roots.

## 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.

## REGISTERED AND SUPPORTED TANK MIXES

### Herbicides:

- BADGE®
- BISON® 400 L
- BROMOTRIL®

### Fungicides:

- BUMPER® 432 EC

## MIXING INSTRUCTIONS

1. Fill the spray tank  $\frac{1}{2}$  full with clean water.
2. Add the required amount of ADAMA MCPA ESTER 600 and agitate thoroughly.
3. Add any tank-mix partners.
4. Fill the tank and agitate again before use.

## CROP ROTATIONS

No restrictions

## PRE-HARVEST INTERVAL

7 days

## GRAZING RESTRICTIONS

7 days

## STORAGE

May be stored at any temperature

### QUICK TIPS:

If product is exposed to temperatures below  $-20^{\circ}\text{C}$ , it should be warmed to at least  $5^{\circ}\text{C}$  and mixed thoroughly before using.

Always read and follow registered product label instructions. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.



HERBICIDE  
IN-CROP • BROAD-SPECTRUM

GROUP 2

# PHANTOM® 240 SL

Flexible pre-plant, pre-plant incorporated, pre-emergent or post-emergent broadleaf and grassy weed control in soybeans, dry beans, peas and alfalfa, with residual control to eliminate early season weed competition.



## ACTIVE INGREDIENT

Imazethapyr 240 g/L = SL

## PACKAGING

Case: 2 x 3.3 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 126–170 ml/ac

Acres Treated: 20–26 ac/jug

## WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)

Aerial: Do not apply by air.

## RAINFASTNESS

3 hours

## REGISTERED CROPS

Crop	Application timing			
	Pre-plant	Pre-plant incorporated	Pre-emergent	Post-emergent
Adzuki beans		•	•	
Alfalfa (grown for seed)		•	•	
Dry common beans (black, cranberry, Dutch brown, kidney, white, yellow eye)		Cranberry Kidney White	•	
Lima beans (Ontario only)			•	
Processing peas		•	•	
Snap beans		•	•	
Snow peas		•	•	
Soybeans	•	•	•	•

## WEEDS CONTROLLED

Check label as weeds controlled vary by crop and application timing.

Broadleaf weeds:

- Cocklebur
- Common ragweed
- Eastern black nightshade<sup>1</sup>
- Lady's thumb
- Lamb's quarters
- Ragweed<sup>1</sup>
- Redroot pigweed<sup>1</sup>
- Smartweed
- Velvetleaf
- Wild buckwheat
- Wild mustard

Grasses:

- Barnyard grass
- Crabgrass
- Foxtail (green, yellow)
- Witch grass
- Proso millet

<sup>1</sup> Excluding Group 2-resistant weeds

## HOW IT WORKS

PHANTOM® 240 SL is a selective herbicide that can be applied as an early pre-plant, pre-plant incorporated, pre-emergent or post-emergent treatment in various crops. The application method depends upon the crop, anticipated weed spectrum and the preference of the applicator. With early pre-plant and pre-emergent treatments, susceptible weeds emerge, are present as stunted plants and then die. When Phantom® 240 SL is applied post-emergence, absorption may occur through both the roots and foliage. Susceptible weeds stop growing and eventually die.





# PHANTOM® 240 SL

## CROP STAGING

PHANTOM® 240 SL can be applied early pre-plant, pre-plant incorporated, pre-emergent or post-emergent depending on the crop.

## REGISTERED AND SUPPORTED TANK MIXES

Tank-mix option	Application timing			
	Early Pre-plant	Pre-plant incorporated	Pre-emergent	Post-emergent
Glyphosate	•			• <sup>1</sup>
Glyphosate + FirstRate®	•			
Trifluralin		•		
Edge®		•		
Lorox®/Linuron			•	
Basagran®				•
Basagran® Forte				•
ARROW® 240 EC, ARROW ALL IN®				•
LEOPARD®				•
SQUADRON®		•	•	•

<sup>1</sup> Glyphosate-tolerant soybeans only (i.e. varieties with the Roundup Ready®).

## MIXING INSTRUCTIONS

1. Fill clean spray tank ½ to ¾ full of clean water and turn agitation on.
2. Add the required amount of PHANTOM® 240 SL and continue agitation.
3. Add the required amount of non-ionic surfactant and continue agitation.
4. Fill with remaining water.

## CROP ROTATIONS

These crops may be planted the season following a PHANTOM® 240 SL application:

- Adzuki beans
- Black beans
- Cranberry beans
- Dutch brown beans
- Field corn
- Clearfield® canola and corn
- Kidney beans
- Lima beans
- Processing peas
- Soybeans
- Spring barley
- Spring wheat
- White beans
- Winter wheat
- Yellow-eyed beans

## PRE-HARVEST INTERVALS

- Snap peas: 40 days
- Processing peas: 50 days
- Snow peas: 60 days
- Lima beans: 90 days
- Dry beans<sup>2</sup>, Soybeans: 100 days

## GRAZING RESTRICTIONS

Do not graze treated crops or cut for hay.

## STORAGE

Do not freeze.

<sup>2</sup> Kidney, adzuki, Dutch brown, black, yellow eye, white and cranberry beans.

## QUICK TIPS:

### PHANTOM® 240 SL requires moisture for activation.

Soil-applied PHANTOM® 240 SL requires sufficient water within 7 days of application to moisten the soil to a depth of 2 inches for activation. If adequate moisture is not received within 7–10 days of application, perform a shallow inter-row cultivation 2–3 inches deep using a roller or S-tine cultivator to control escaped weeds until the field receives adequate moisture.

For early pre-plant applications (soybeans only), if more than 7–10 days elapse before the receipt of adequate precipitation to activate the herbicide and reduce the risk of weed escapes.



HERBICIDE  
IN-CROP • BROAD-SPECTRUM

GROUPS 2 & 6

# PYTHON®

Proven co-pack alternative, providing broad-spectrum weed control in soybeans and peas with two modes of action to combat weed resistance.



## ACTIVE INGREDIENT

Imazamox 80 g/L and Bentazon 480 g/L = SL

## PACKAGING

### Case includes:

- PYTHON® A: 1 × 4 L jug
- PYTHON® B: 2 × 7.26 L jugs

## APPLICATION RATES & ACRES TREATED

### Rate:

- PYTHON® A: 101 ml/ac
- PYTHON® B: 364 ml/ac

**Acres Treated:** 40 acres/case

## WATER VOLUME

**Ground:** Minimum 40 L/ac (10 US gal/ac)

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

## RAINFASTNESS

6 hours

**NOTE:** Requires UAN 28% @ 0.810 L/ac  
(NOT included in the co-pack)

## REGISTERED CROPS

- Dry Beans
- Field Peas
- Soybeans

## WEEDS CONTROLLED (APPLICATION TIMING)

Unless otherwise noted below, apply to young and actively growing weeds.

### Broadleaf weeds (cotyledon – 4 leaf):

- Cleavers\*
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters<sup>1</sup>
- Redroot pigweed<sup>1</sup>
- Prostrate pigweed<sup>1</sup>
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola
- Wild buckwheat\*
- Wild mustard

### Grassy weeds (1 to 4-leaf or early tillering):

- Barnyard grass
- Green foxtail<sup>2</sup>
- Japanese brome grass\*
- Persian darnel
- Volunteer barley
- Yellow foxtail
- Volunteer canary seed
- Volunteer wheat
- Wild oats<sup>2</sup>

\*Suppression only

<sup>1</sup> PYTHON® A + PYTHON® B will provide more consistent control of prostrate pigweed, redroot pigweed and lamb's quarters including Group 2-resistant biotypes.

<sup>2</sup> Including Group-1-resistant weeds. PYTHON® A will not control weed biotypes that are multiple-resistant to both Group 1 and Group 2 herbicides.



# PYTHON®

## HOW IT WORKS

The PYTHON® co-pack combines two powerful actives. PYTHON® A (imazamox) is systemic, readily absorbed through both leaf and root uptake and PYTHON® B (bentazon) is a contact herbicide. Good coverage and early application will give the best results.

## CROP STAGING

- Dry beans: After 1<sup>st</sup> trifoliate leaf has fully expanded up to 2<sup>nd</sup> trifoliate leaf
- Soybeans: Cotyledon to the 4-leaf stage
- Peas: 3 to 6 above-ground nodes

## REGISTERED AND SUPPORTED TANK MIXES

- ARROW® 240 EC
- LEOPARD®
- ARROW ALL IN®
- Glyphosate

## MIXING INSTRUCTIONS

1. Fill clean spray tank ½ full with clean water. Start agitation system.
2. Add the required amount of PYTHON® A. Continue to agitate.
3. Add the correct amount of PYTHON® B. Continue to agitate.
4. Add UAN 28%.
5. Add recommended amount of adjuvant.
6. Complete filling with remaining water and continue agitation.

## ADJUVANT RATE

- Merge® @ 0.5% v/v
- NORAC Methylated Seed Oil (MSO) @ 0.5% v/v
- Hasten® NT Ultra @ 0.5% v/v
- Agral® 90 @ 0.25% v/v

## PRE-HARVEST INTERVALS

- Dry Beans: 75 days
- Peas: 60 days
- Soybeans: 85 days

## RECRIPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use DAVAI® 80 SL, DAVAI A PLUS®, DAVAI® Q PLUS or PYTHON®, please consult the recropping restrictions and guidelines on page 48.

## GRAZING RESTRICTION

Do not graze treated crop.  
Peas may be fed to livestock  
30 days after application.

## STORAGE

Do not freeze.

## CROP ROTATIONS

- Barley
- Canola
- Field corn
- Field peas
- Oats
- Soybeans
- Clearfield® sunflowers
- Wheat (spring)

## QUICK TIPS:

UAN 28% and an adjuvant are NOT INCLUDED in the case, but are REQUIRED (a reduction in weed control can be observed without the addition of a nitrogen source).

Do not apply PYTHON® to any crops that have been subjected to stress from conditions — such as hail, flooding, hot/humid weather, drought, widely fluctuating temperature conditions, prolonged cold weather, or injury from prior herbicide applications — as crop injury may result.



# RUSH 24 ALL IN™

Controls a wide spectrum of broadleaf weeds, like cleavers, with excellent grassy weed herbicide compatibility for wheat and barley.



## ACTIVE INGREDIENT

Fluroxypyr 90 g/L and 2,4-D ester 360 g/L as an EC

## PACKAGING

Case: 2 x 8.9 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 445 ml/ac

Acres Treated: 20 ac/jug

## WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)

Aerial: Do not apply.

## RAINFASTNESS

1 hour

## REGISTERED CROPS

- Barley
- Wheat (spring)

## WEEDS CONTROLLED

Control		Suppression
At labelled rate of 445 ml/ac		
<ul style="list-style-type: none"> <li>• Bluebur</li> <li>• Burdock</li> <li>• Canola (volunteer)</li> <li>• Cleavers (1-8 whorls)</li> <li>• Clovers (sweet)</li> <li>• Cocklebur</li> <li>• Flixweed</li> <li>• Field horsetail<sup>1</sup></li> <li>• Goat's-beard</li> <li>• Hemp-nettle (2- to 6-leaf stage)</li> <li>• Hoary cress<sup>1</sup></li> <li>• Kochia<sup>2</sup></li> <li>• Lamb's quarters</li> </ul>	<ul style="list-style-type: none"> <li>• Mustards (except green tansy, dog &amp; grey tansy)</li> <li>• Plantain</li> <li>• Prickly lettuce</li> <li>• Ragweed</li> <li>• Round-leaved mallow (1- to 6-leaf)</li> <li>• Shepherd's purse</li> <li>• Stork's bill (1- to 8-leaf)</li> <li>• Stinkweed</li> <li>• Sunflower (annual)</li> <li>• Vetch</li> <li>• Wild radish</li> <li>• Volunteer flax (1-12 cm)</li> </ul>	<ul style="list-style-type: none"> <li>• Common chickweed<sup>2</sup> (up to 8 cm)</li> <li>• Redroot pigweed</li> <li>• Sow thistle (perennial)<sup>1</sup></li> </ul>
Additional weeds controlled/suppressed with addition of 81 ml/ac (2 oz/ac) of 2,4-D ESTER 700:		
<ul style="list-style-type: none"> <li>• Blue lettuce<sup>1</sup></li> <li>• Dandelion (spring rosettes)</li> <li>• Docks</li> <li>• Field bindweed<sup>1</sup></li> <li>• Field peppergass</li> <li>• Gumweed</li> <li>• Hairy galinsoga</li> <li>• Hedge bindweed</li> </ul>	<ul style="list-style-type: none"> <li>• Lady's thumb</li> <li>• Leafy spurge<sup>1</sup></li> <li>• Mustard (dog, tansy)</li> <li>• Oak-leaved goosefoot</li> <li>• Redroot pigweed</li> <li>• Russian thistle</li> <li>• Smartweed</li> <li>• Tartary buckwheat</li> </ul>	<ul style="list-style-type: none"> <li>• Common chickweed<sup>2</sup> (up to 8 cm)</li> <li>• Canada thistle<sup>1</sup></li> <li>• Sow thistle (perennial<sup>1</sup>, annual)</li> </ul>

<sup>1</sup>Top growth control only

<sup>2</sup>Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.



# RUSH 24 ALL IN™

## HOW IT WORKS

Group 4 herbicides disrupt normal plant growth, resulting in twisting and cupping of leaves, epinasty and death of susceptible plants in 2–10 days.

## CROP STAGING

4-leaf to just prior to flag leaf emergence.

## REGISTERED AND SUPPORTED TANK MIXES

### Wheat only:

- Simplicity™ GoDRI™<sup>1</sup>
- Traxos®

### Wheat and barley:

- BISON® 400 L
- Puma® Advance

<sup>1</sup> Additional 2,4-D ester is not recommended when mixing RUSH 24 ALL IN™ and Simplicity™.

## MIXING INSTRUCTIONS

1. Fill the clean spray tank ½ full of clean water.
2. Add the required amount of RUSH 24 ALL IN™ and agitate thoroughly, followed by the required amount of additional 2,4-D ESTER 700 herbicide, if required.
3. Continue agitation and add the required amount of the tank-mix partner.
4. Complete filling the tank to the desired level with water.

## CROP ROTATIONS

The following crops may be grown one (1) year after application:

- |                |              |         |
|----------------|--------------|---------|
| · Barley       | · Oats       | · Wheat |
| · Canola       | · Field peas |         |
| · Forage grass | · Rye        |         |

## PRE-HARVEST INTERVALS

- Barley, wheat (spring): 60 days

## GRAZING RESTRICTIONS

- Do not permit lactating dairy animals to graze fields within seven (7) days after application.
- Do not harvest forage or cut hay within 30 days after application.
- Withdraw meat animals from treated fields at least three (3) days before slaughter.

## STORAGE

Do not freeze.

### QUICK TIPS:

RUSH 24 ALL IN™ activity is influenced by weather conditions. Optimum activity requires active crop and weed growth.

The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C.

Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, for example drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.



HERBICIDE  
IN-CROP • BROAD SPECTRUM

GROUP 5

# SQUADRON®

This broad-spectrum herbicide is registered for grassy and broadleaf weed control in a wide range of crops, most notably soybeans and potatoes. It can work alone or in combination with recommended tank mixes.



## ACTIVE INGREDIENT

Metribuzin

## PACKAGING

Case: 4 x 5 kg jugs

## APPLICATION RATES & ACRES TREATED

**Rate:** Please refer to the label for application rates as these vary based on crop, soil type and application methods.

**Acres Treated:** 15 – 60 acres/jug

## RAINFASTNESS

6 hours after foliar application

## REGISTERED CROPS

- Asparagus (established)
- Fruit trees (newly planted and established)
- Highbush blueberries (newly planted)
- Potatoes
- Processing carrots
- Soybeans<sup>1</sup>
- Transplanted tomatoes (grown for processing)

<sup>1</sup> Do not use SQUADRON® on AC Brant, Apache, Baron, Emosa, Maple Amber, Maple Ridge, IA 1003 or S-240 varieties.

## WEEDS CONTROLLED

### Broadleaf weeds:

- Carpetweed<sup>1</sup>
- Cocklebur
- Common chickweed
- Common ragweed
- Corn spurry<sup>2</sup>
- Dandelion (seedling)
- Green smartweed
- Hemp-nettle<sup>2</sup>
- Jimsonweed<sup>1</sup>
- Lady's thumb
- Lamb's quarters
- Prickly mallow
- Prostrate pigweed
- Redroot pigweed
- Russian thistle
- Shepherd's purse
- Stinkweed<sup>3</sup>
- Velvetleaf
- Wild buckwheat<sup>3</sup>
- Wild mustard
- Wild potato vine
- Yellow woodsorrel<sup>1</sup>

### Grassy weeds:

- Barnyard grass
- Cheat grass
- Crabgrass
- Fall panicum
- Giant foxtail
- Green foxtail
- Johnson grass (seedling)
- Witch grass
- Yellow foxtail

<sup>1</sup> Pre-emergence only

<sup>2</sup> Suppression with multiple post-emergent applications of 200 g/ha

<sup>3</sup> Post-emergent applications only



# SQUADRON®

## 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:

Coarse	Medium	Fine
Loamy sand, Sandy loam	Loam, Silt loam, Silt, Sandy clay loam, Sandy clay	Silty clay loam, Silty clay, Clay loam, Clay

- 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.

## PRE-HARVEST INTERVALS

- Asparagus: 14 days
- Potatoes, tomatoes: 60 days
- Newly planted blueberries: 2 years

## GRAZING RESTRICTIONS

Grazing restrictions are crop-specific. Please refer to the label.

## CROP ROTATIONS

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

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

## STORAGE

To prevent contamination, store this product away from food or feed.





# SQUADRON®

## REGISTERED AND SUPPORTED TANK MIXES AND APPLICATION TIMING

Crop	Application Method	Products
Soybeans	Pre-plant incorporated	SQUADRON® plus Treflan™ E.C., Dual II Magnum®, Frontier® or Axiom® DF
	Pre-emergence following pre-plant incorporated application of other herbicides	Treflan™ E.C. followed by SQUADRON®; Dual II Magnum® followed by SQUADRON®
	Pre-plant surface or burn-off application	SQUADRON® alone or with PHANTOM® 240 SL (Pursuit®), glyphosate, Axiom® DF, Lorox® DF, Dual II Magnum®
	Pre-emergence	SQUADRON® alone or with PHANTOM® 240 SL (Pursuit®), glyphosate, Axiom® DF, Lorox® DF, Dual II Magnum®, Frontier®, Linuron 50%, Linuron 480, Broadstrike™ Dual
Potatoes	Pre-emergence	SQUADRON® alone or with Dual II Magnum®, Linuron 50%, Linuron 480 g/L
	Early post-emergence	SQUADRON® alone or with Venture® L
	Pre-emergence or early post-emergence or pre-plant incorporated	SQUADRON® plus Dual II Magnum® or Eptam® 8-E
	Split application (pre- and post-emergence)	SQUADRON® alone
Transplanted Tomatoes (grown for processing only)	Pre-plant incorporated	SQUADRON® plus Treflan™ E.C., Dual II Magnum®
	Post-emergence	SQUADRON® alone
Asparagus (established)	Pre-emergence	SQUADRON® alone
Processing carrots	Post-emergence	SQUADRON® alone
Highbush blueberries (newly planted)	Pre-emergence to weeds	SQUADRON® alone

### QUICK TIPS:

Spray equipment must be thoroughly cleaned to remove remaining traces of Squadron herbicide that might injure other crops. A heavy-duty detergent at the rate of 250 ml/100 L of water is recommended to aid in the cleanout.



# RECRIPPING RESTRICTIONS WITH IMIDAZOLINONE PRODUCTS

There are several factors that affect the re-cropping following an imidazolinone application. These include (in order of importance):

1. **Product:** Imazethapyr, for example, is more persistent than imazamox.
2. **Soil moisture:** Requires more than 125 mm (5") of rain between herbicide application and August 31 in the year of application.
3. **Organic matter:** Brown soil zones (< 3% organic matter) are more susceptible to carryover crop injury the year after application.
4. **Rate:** Depending on the crop and rates, soil residues can be an issue.
5. **Soil pH:** Product persists longer in a pH < 5.5 – 6.

Depending on the following crop the level of sensitivity will vary. Please contact your local ADAMA Area Business Manager for more details.



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# CORMORAN®

Multiple modes of action for codling moth control in apples and Colorado potato beetle control in potatoes as well as a wide range of other insects in specialty crops



## ACTIVE INGREDIENT

Novaluron 100 g/L and Acetamiprid 80 g/L = EC

## PACKAGING

Case: 2 x 10.08 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 180 – 840 ml/ac

Acres Treated: 12 – 56 ac/jug

## WATER VOLUME

Ground: 80 – 400 L/ac (20 – 105 US gal/ac)

Aerial: Do not apply by air.

## RAINFASTNESS

Avoid application when heavy rain is forecast.

## REGISTERED CROPS

- Alfalfa (grown for seed)
- Apples
- Brassica leafy greens (Crop subgroup 4-13B)
- Bushberries (Crop subgroup 13-07B)
- Head and stem brassica vegetable crops (Crop group 5-13)
- Peppers (bell and non-bell)
- Potatoes
- Strawberries
- Stone fruits (Crop group 12-09)
- Sweet corn

## KEY INSECTS CONTROLLED

- Alfalfa looper
- Alfalfa plant bug
- Aphids
- Apple maggot
- Armyworm
- Blueberry flea beetle
- Blueberry gall midge (Cranberry tip worm)
- Blueberry maggot fly
- Blueberry spanworm
- Cabbage looper
- Cherry fruit fly (suppression)
- Cherry fruitworm
- Codling moth
- Colorado potato beetle
- Cranberry fruitworm
- Diamondback moth
- Dogwood borer
- European apple sawfly
- European corn borer
- Green fruitworm
- Gypsy moth
- Imported cabbageworm
- Japanese beetle
- Leafhopper
- Leafroller
- Lesser appleworm
- Lygus bug
- Mullein bug
- Oriental fruit moth
- Plum curculio
- Spotted wing drosophila
- Strawberry clipper weevil
- Strawberry rootworm
- Swede midge
- Tarnished plant bug
- Tentiform leafminer
- Thrips

## HOW IT WORKS:

CORMORAN® kills insect eggs by contact and larvae by ingestion. Containing two modes of action, CORMORAN® provides both rapid knockdown and residual control of insect pests.



# CORMORAN®

## CROP STAGING AND RATES (CONT'D)

Crop	Insects Controlled	Rate (ml/ac)	Application Instructions
FRUIT CROPS			
Apples	Leafhopper, Tentiform leafminer	280	Do not apply more than 2800 ml/ac per season.  Apply in minimum finished spray volume of 400 L/ac by ground.  Repeat applications if needed to maintain control but do not make applications < 12 days apart.
	Aphids	280 – 420	
	Gypsy moth, Japanese beetle, Mullein bug	340 – 500	
	Green fruitworm	420	
	Apple maggot, Codling moth, European apple sawfly, Oriental fruit moth, Plum curculio	420 – 500	
	Lesser appleworm, Tarnished plant bug	500	
	Dogwood borer	600	
Bushberries (Crop sub-group 13-07B): Aronia berry, Blueberry (lowbush, highbush), Chilean guava, Cranberry (highbush), Currant (black, buffalo, red), Elderberry, European barberry, Gooseberry, Honeysuckle (edible), Huckleberry, Jostaberry, Juneberry (Saskatoon berry), Lingonberry, Native currant, Salal, Sea buckthorn and cultivars, varieties and/or hybrids of these commodities	Aphids, Blueberry gall midge (cranberry tipworm)	200	Applications per season: 3  Apply in a finished spray volume of 80 L/ac by ground.  Do not apply more than once every 10 – 14 days.
	Japanese beetle	280	
	Blueberry maggot fly	300 – 560	
	Blueberry flea beetle, Blueberry spanworm, Strawberry rootworm, Cherry fruitworm, Cranberry fruitworm, Spotted wing drosophila, Thrips	560	

**CORMORAN®**

Crop	Insects Controlled	Rate (ml/ac)	Application Instructions
<b>FRUIT CROPS (CONT'D)</b>			
Stone fruit (Crop group 12-09)  American plum, Apricot, Beach plum, Black cherry, Canada plum, Cherry plum, Chicksaw plum, Chinese jujube, Damson plum, Japanese apricot, Japanese plum, Klamath plum, Nanking cherry, Nectarine, Peach, Plum, Prune plum, Plumcot, Sloe, Sweet cherry, Tart cherry and cultivars, varieties and/or hybrids of these commodities	Oriental fruit moth (Ontario only)	580 – 840	Applications per season: 4
	Cherry fruit fly (suppression, cherry only)  Plum curculio (under high pressure, suppression only)	840	Apply in minimum finished spray volume of 405 L/ac. Use the high rate under heavy pest pressure.  Do not apply during bloom.  Minimum re-application interval of 10 days.
Strawberries	Aphids, Leafhopper	200 – 300	Applications per season: 3
	Strawberry clipper weevil, Tarnished plant bug	360	Do not apply more than once every 10–14 days.  Apply in a minimum application volume of 80 L/ac by ground.  Do not apply during bloom.
<b>VEGETABLE CROPS</b>			
Alfalfa (grown for seed)	Alfalfa plant bug, Lygus bug	300 – 360	Applications per season: 2  Apply prior to bloom up to when 50% of seed pods are ripe.  Do not exceed more than 720 ml/ac per season.  Do not apply more than once in 7 days.  Use higher rate for heavier infestations.

**CORMORAN®**

Crop	Insects Controlled	Rate (ml/ac)	Application Instructions
<b>VEGETABLE CROPS (CONT'D)</b>			
Brassica (cole) leafy vegetables (Crop group 5-13): Broccoli, Chinese broccoli, Broccoli raab (rapini), Brussels sprouts, Cabbage, Chinese cabbage (bok choy or napa), Cauliflower, Cavalo broccoli, Collards, Kale, Kohlrabi, Mizuna, Mustard spinach, Rape greens and cultivars, varieties and/or hybrids of these commodities	Alfalfa looper, Armyworm, Cabbage looper, Diamondback moth, Imported cabbageworm	180 – 300	Applications per season: · Two at low rate · One at high rate
	Aphids	260 – 300	Do not apply more than 680 ml/ac per season.  Apply in a minimum finished spray volume of 81 L/ac by ground.
	Lygus bug, Swede midge	200	
Leafy vegetables – Brassica leafy greens (Crop subgroup 4-13B): Arugula, Broccoli raab, Chinese broccoli, Abyssinian cabbage, Seakale cabbage, Bok choy (Chinese cabbage), Collards, Garden cress, Upland cress, Hanover salad, Kale, Maca, Mizuna, Mustard greens, Radish leaves, Rape greens, Wild rocket, Shepherd's purse, Turnip greens, Watercress, as well as cultivars, varieties and hybrids of these commodities	Aphids	260 – 300 ml/ac	Applications per season: 3  Do not apply more than once every 7 – 10 days.  Apply in a minimum finished spray volume of 80 L/ac by ground.



# CORMORAN®

Crop	Insects Controlled	Rate (ml/ac)	Application Instructions
VEGETABLE CROPS (CONT'D)			
Peppers (bell and non-bell)	Colorado potato beetle	180 – 280	Do not make applications less than 7 days apart.
	Aphids	200	Do not apply more than 1050 ml/ac per season.
	European corn borer	260 – 300	Apply in at least 80 L/ac by ground.
	Armyworm, Cabbage looper	180 – 300	For CPB, do not apply more than twice to a single generation and do not apply to successive generations.
Potatoes	Colorado potato beetle	180 – 280	Do not apply more than once every 10 – 14 days.
	Armyworm, Cabbage looper	180 – 300	For Colorado potato beetle, do not apply more than twice to a single generation and do not apply to successive generations.
	Leafhopper	200 – 300	Apply in minimum finished spray volume of 80 L/ac by ground.
	Aphids, European corn borer	260 – 300	
Sweet corn	Aphids	200 – 280 ml/ac	Applications per season: 2  Do not apply more than once every 21 days.  Apply in a minimum 80 L/ac spray volume by ground.  Use the higher rate for heavier infestations.



# CORMORAN®

## REGISTERED AND SUPPORTED TANK MIXES

- Acramite® 50 WS
- Luna Sensation™
- Polyram® DF WSP
- Pristine® WG

## MIXING INSTRUCTIONS

1. Fill clean tank ½ full with clean water. and start agitation.
2. Pour required amount of product directly from container into partially filled spray tank.
3. Continue filling tank. Increase agitation if necessary, to maintain surface action.
4. Keep agitation during mixing and application to assure uniform suspension. If mixture sits without agitation for extended periods, agitate the mixture for at least 10 minutes before use.

## CROP ROTATIONS

No restrictions

## PRE-HARVEST INTERVALS

- Strawberries: 1 day
- Brassica leafy vegetables (Crop group 5-13 and subgroup 4-13B), Peppers, Potatoes, Stone fruits (Crop group 12-09): 7 days
- Bushberries (Crop sub-group 13-07B): 8 days
- Sweet corn: 10 days
- Alfalfa (grown for seed), Apples: 14 days

## STORAGE

- Store in original, tightly closed container.
- Do not ship or store near food, feed, seed and fertilizers.
- Store in cool, dry, locked, well-ventilated area without floor drain.
- Keep away from fire or open flame, or other sources of heat.

### QUICK TIPS:

Consider early applications (before petal fall) of CORMORAN® to allow beneficial insects to build up later in the season. To minimize the possibility of transient effects on honeybee brood development, do not use CORMORAN® on blooming crops when bees are actively foraging. If orchards have been historically infested with mites or aphids, be sure to scout regularly and use miticides to control their populations.



# NIMITZ® 480 EC

A fast-acting contact nematicide, NIMITZ® 480 EC is a revolutionary management option for controlling root-knot and root lesion nematodes in fruiting vegetables and cucurbits.



## ACTIVE INGREDIENT

Fluensulfone 480 g/L = EC

## PACKAGING

Case: 2 x 9.46 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 1.62 – 3.24 L/ac

Acres Treated: 3 – 6 ac/jug

## WATER VOLUME

Ground: 120 L/ac (32 US gal/ac)

Aerial: Do not apply by air.

## RAINFASTNESS

If NIMITZ® 480 EC is applied in heavy rainfall areas, avoid application during rain or when rain is forecasted within the next 24 hours. Excessive moisture immediately after application may cause this product to move past the targeted zone.

## REGISTERED CROPS

- Cucumbers
- Eggplant
- Melons  
(cantaloupe, watermelon, honeydew)
- Okra
- Peppers (bell, non-bell)
- Squash
- Tomatoes (except small tomatoes)

## KEY INSECTS CONTROLLED

- Root-knot nematodes
- Root-lesion nematodes

## HOW IT WORKS

Fluensulfone is a true nematicide that kills the target by contact, rather than temporary paralysis activity as seen with older organophosphate and carbamate chemistry. NIMITZ® 480 EC has rapid activity. After one hour of exposure, nematodes cease feeding, become paralyzed and complete mortality is achieved within 24 – 72 hours. Any nematode eggs laid after exposure to NIMITZ® 480 EC are likely to be unviable, or if juveniles do hatch, they do not survive.

## APPLICATION TIMING AND CROP STAGING

Applications can be broadcast incorporated, banded and incorporated, or applied by drip (trickle) chemigation. Apply at a rate of 1.62 – 3.24 L/ac a minimum of 7 days before transplanting. Soil applications should be applied only in accordance with directions and conditions of use described in this labeling. Treated areas can be covered with plastic or left uncovered according to planting practices. NIMITZ® 480 EC does not provide residual control of nematodes. Do not apply more than 1 application per crop and no more than 3.24 L/ac of product per year (365 days).



# NIMITZ® 480 EC

## REGISTERED AND SUPPORTED TANK MIXES

Do not apply NIMITZ® 480 EC with any other product before testing for physical and chemical compatibility of the mixture. To determine compatibility pour the recommended proportions of the product(s) into a suitable container. After mixing, wait for 30 minutes and check to see if the product remains mixed. If the product remains mixed, it is considered physically compatible.

## MIXING INSTRUCTIONS

1. Add the recommended amount of NIMITZ® 480 EC to the water in the spray tank and mix well.
2. Continue agitation at frequent intervals during application.
3. If NIMITZ® 480 EC is to be mixed with other products or fertilizers, the physical compatibility of the mixture should be tested as described above prior to use.

## CROP ROTATIONS

Fruiting vegetables and cucurbits may be planted following an application of this product.

## GRAZING RESTRICTIONS

Do not feed treated commodities or any residual plant material to animals.

## STORAGE

Do not freeze.

### QUICK TIPS:

Soil moisture should be adequate for uniform mechanical incorporation and to support seed germination or plant growth. For optimal performance, all applications must be incorporated by water and/or mechanical means to a depth of 15–20 cm. Resume a normal irrigation schedule immediately after transplanting.



# SILENCER® 120 EC

SILENCER® 120 EC controls a wide range of insects in field, tree fruit and horticulture crops.



## ACTIVE INGREDIENT

Lambda-cyhalothrin 120 g/L = EC

## PACKAGING

Case: 4 x 3.785 L jugs

## APPLICATION RATES & ACRES TREATED:

Rate: 17 – 94 ml/ac

(standard rate for most pests: 34 ml/ac)

Acres Treated: 40 – 220 ac/jug  
(110 ac/jug at standard rate)

## WATER VOLUME

Ground: 40 – 80 L/ac (10 – 20 US gal/ac)

Aerial: 4 – 16 L/ac (1 – 4 US gal/ac)

## RAINFASTNESS

1 hour

## REGISTERED CROPS

- Apples
- Brassica crops (broccoli, Brussels sprouts, cauliflower)
- Carrots
- Cereals (wheat, barley, oats)
- Cherries
- Choke cherry
- Corn (field, sweet)
- Peaches and Nectarines
- Pears
- Plums
- Potatoes
- Shelterbelts
- Soybeans
- Strawberries
- Sweet potatoes
- Tobacco
- Tomatoes

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

## KEY INSECTS CONTROLLED

- Apple aphid
- Apple brown bug
- Apple leaf midge
- Armyworm
- Bean aphid
- Bean leaf beetle
- Bertha armyworm
- Black vine weevil (adults)
- Bud (clipper) weevil
- Cabbage looper
- Cabbage seedpod weevil (adults)
- Carrot rust fly
- Carrot weevil
- Cherry maggot
- Codling moth
- Colorado potato beetle
- Corn borer
- Corn earworm
- Crucifer flea beetle
- Cutworms
- Dark-sided cutworm
- Diamondback moth larvae
- European asparagus aphids
- European corn borer
- Fall armyworm
- Fruit tree leafroller
- Grasshoppers
- Green peach aphid
- Imported cabbageworm
- Lygus bug
- Meadow spittle bug
- Mealy plum aphid
- Oblique-banded leafroller
- Onion thrips
- Oriental fruit moth
- Pale apple leafroller
- Pea aphid
- Pea leaf weevil
- Pear psylla (nymphs, adults)
- Plum curculio
- Potato flea beetle
- Potato leafhopper
- Prairie tent caterpillar
- Soybean aphid
- Spotted tentiform leafminer
- Swede midge
- Tarnished plant bug
- Tuber flea beetle
- Ugly nest caterpillar
- Western bean cutworm
- White apple leafhopper
- Winter moth
- Woolly apple aphid



# SILENCER® 120 EC

## HOW IT WORKS

Fast-acting stomach and contact insecticide

## 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.

## REGISTERED AND SUPPORTED TANK MIXES

### Herbicides:

- SQUADRON®
- BISON® 400 L

### Fungicides:

- Allegro®
- BUMPER® 432 EC
- SORATEL™
- TOPNOTCH™

## 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

- Oilseeds, Potatoes: 7 days
- Timothy: 14 days
- Corn (field), Legumes (soybeans, beans, field peas): 21 days
- Wheat, Barley, Oats: 28 days

## GRAZING RESTRICTIONS

DO NOT cut treated fields for silage/forage.

DO NOT graze treated fields.

DO NOT feed treated crops to livestock.

For grasses/non-grasses grown for seed production only: DO NOT feed seed screenings and aftermath to livestock.

## STORAGE

Do not freeze.

### 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.



# SOMBRERO® 600 FS

This seed treatment gives you long-lasting, early season control of tough insect pests—including wireworms and flea beetles—in cereals, soybeans, corn and canola.



## ACTIVE INGREDIENT

Imidacloprid 600 g/L = SC

## PACKAGING:

Case: 8 x 1.54 L jugs

## APPLICATION RATES & ACRES TREATED

**Rate:** Please refer to the label for application rates or the table below as these vary based on seed type.

**Acres Treated:** Varies

## WATER VOLUME

Dilute in sufficient liquid to achieve uniform coverage on the seed.

## RAINFASTNESS

N/A

## REGISTERED CROPS

- Barley
- Corn<sup>1</sup>
- Soybeans
- Canola<sup>1</sup>
- Oats
- Wheat (spring, winter)

<sup>1</sup>Registered for use on this seed in commercial seed treatment facilities only.

## KEY INSECTS CONTROLLED

- Bean leaf beetle
- Flea beetle
- Soybean aphid
- Corn flea beetle
- Seed corn maggot
- Wireworms

## APPLICATION RATES

A colourant **MUST** be added in accordance with the Pest Control Products (PCP) Act and the Seeds Act Regulations.

Crop	Insect	Rate	Application Information
Barley, Oats, Wheat (spring, winter)	Wireworm	17–50 ml per 100 kg of seed	Dilute in sufficient liquid to achieve uniform coverage on the seed.
Canola	Flea beetle	667–1333 ml per 100 kg of seed	In areas where flea beetle populations are high, use the higher application rate.
Corn, Field corn for seed production	Wireworm	21.3 ml per 80,000 seeds	Dilute in sufficient water to achieve uniform coverage on the seed. Ensure seed is adequately coloured. Other polymers and coating materials may be required.
Field corn for seed production	Corn flea beetle	80 ml per 80,000 seeds	
Soybeans	Soybean aphid, Bean leaf beetle, Seedcorn maggot, Wireworm	104–208 ml per 100 kg of seed	Use the higher rate for early planting, 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.





# SOMBRERO® 600 FS

## 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.

## REGISTERED AND SUPPORTED TANK MIXES

- Allegiance®
- Apron Maxx® RTA®
- EverGol® Energy
- Insure® Cereal FX4
- Insure® Pulse
- Rancona® Apex
- Raxil® MD
- Raxil® Pro
- Trilex® EverGol®
- Vibrance® Quattro
- Vibrance® Maxx RFC

## MIXING INSTRUCTIONS

1. Add fungicide.
2. Add coating agents.
3. Add SOMBRERO® 600 FS.

## STORAGE

- Do not freeze.
- Agitate vigorously before use.

## USE RESTRICTIONS<sup>1</sup>

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 planting.
3. Treated canola seed or rapeseed 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 planting. Do not store treated seed above 25°C or in direct sunlight.
4. 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.

<sup>1</sup> All bags containing treated seed must be labelled or tagged. Please see label for instructions.

## QUICK TIPS:

For optimal insect control, make sure to get good coverage.  
For resistance management, rotate SOMBRERO® 600 FS with different groups that control the same pests in a field.



# ZIVATA™

New choice in insect control giving you the same trusted results in a more sustainable and advanced formulation.



## ACTIVE INGREDIENT

Lambda-cyhalothrin 120 g/L = EC

## PACKAGING

Case: 2 x 4.08 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 17–94 ml/ac

(standard rate for most pests: 34 ml/ac)

Area Treated: 45–240 ac/jug  
(120 ac/jug at standard rate)

## WATER VOLUME

Ground: 40–80 L/ac (10–20 US gal/ac)

Aerial: 4–16 L/ac (1–4 US gal/ac)

## RAINFASTNESS

1 hour

Low VOC

FORMULATION TECHNOLOGY

## REGISTERED CROPS

- Apples
- Carrots
- Cereals  
(wheat, barley, oats)
- Cherries
- Choke cherry
- Corn (field, sweet)
- Brassica crops  
(broccoli, Brussels sprouts, cauliflower)
- Nectarines
- Peaches
- Pears
- Plums
- Potatoes
- Shelterbelts
- Soybeans
- Strawberries
- Sweet potatoes
- Tomatoes

ZIVATA™ is registered for use on more than 30 crops; refer to the label for more information.

## HOW IT WORKS

ZIVATA™ is a synthetic pyrethroid insecticide formulated with an improved, plant-based solvent that offers fast-acting stomach and contact effects against a broad spectrum of insect pests. This renewably sourced formulation has low volatile organic properties and improves the user experience with a reduced drift potential and product volatility.

## APPLICATION RATES

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.

## KEY BENEFITS

- Advanced formulation using sustainable, plant-based materials
- Low Volatile Organic Compound (VOC) with low odour formulation
- Improved user experience and flexibility of use around odour-sensitive areas
- Trusted and proven active ingredient
- Broad range of crops, pests and use patterns

**KEY INSECTS CONTROLLED**

- Apple aphid
- Apple brown bug
- Apple leaf midge
- Armyworm
- Bean aphid
- Bean leaf beetle
- Bertha armyworm
- Black vine weevil (adults)
- Bud (clipper) weevil
- Cabbage looper
- Cabbage seedpod weevil (adults)
- Carrot rust fly
- Carrot weevil
- Cherry maggot
- Codling moth
- Colorado potato beetle
- Corn borer
- Corn earworm
- Crucifer flea beetle
- Cutworms
- Darksided cutworm
- Diamondback moth larvae
- European asparagus aphids
- European corn borer
- Fall armyworm
- Fruit tree leafroller
- Grasshoppers
- Green peach aphid
- Imported cabbageworm
- Lygus bug
- Meadow spittle bug
- Mealy plum aphid
- Oblique-banded leafroller
- Onion thrips
- Oriental fruit moth
- Pale apple leafroller
- Pea aphid
- Pea leaf weevil
- Pear psylla (nymphs, adults)
- Plum curculio
- Potato flea beetle
- Potato leafhopper
- Prairie tent caterpillar
- Soybean aphid
- Spotted tentiform leafminer
- Swede midge
- Tarnished plant bug
- Tuber flea beetle
- Ugly nest caterpillar
- Western bean cutworm
- White apple leafhopper
- Winter moth
- Woolly apple aphid

**REGISTERED AND SUPPORTED TANK MIXES****Herbicides:**

- SQUADRON®
- BISON® 400 L

**Fungicides:**

- Allegro®
- BUMPER® 432 EC
- SORATEL™
- TOPNOTCH™

**MIXING INSTRUCTIONS**

Compatibility should always be confirmed by premixing small proportional quantities of water, ZIVATA™, and the tank-mix partner in advance.

**PRE-HARVEST INTERVALS**

Oilseeds, Potatoes: 7 days

Timothy: 14 days

Corn (field), Legumes (beans, chickpeas, field peas, soybeans): 21 days

Wheat, Barley, Oats: 28 days

**CROP ROTATIONS**

No restrictions the year following the treatment

**STORAGE**

Do not freeze.

**GRAZING RESTRICTIONS**

DO NOT cut treated fields for silage/forage.

DO NOT graze treated fields.

DO NOT feed treated crops to livestock.

For grasses/non-grasses grown for seed production only: DO NOT feed seed screenings and aftermath to livestock.

**QUICK TIPS:**

Control of some insect species with pyrethroid insecticides decreases as temperature rises (above 25° C). For best results, apply ZIVATA™ during the early morning before temperatures rise, and during the evening, past the heat of the day. Use sufficient water for thorough coverage.



## FUNGICIDES

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# BUMPER® 432 EC

Broad-spectrum systemic fungicide that protects against yield and quality losses due to leaf disease including mummy berry in blueberries



## ACTIVE INGREDIENT

Propiconazole 432 g/L = EC

## PACKAGING

Case: 2 x 4.8 L jugs

## APPLICATION RATES & ACRES TREATED

Rate: 60–180 ml/ac

Acres Treated: 27–80 ac/jug

## WATER VOLUME

Ground: min 80 L/ac

(20 US gal/ac)

Aerial: 16–20 L/ac (4–5 US gal/ac)

## RAINFASTNESS

1 hour

Low VOC

FORMULATION TECHNOLOGY

## REGISTERED CROPS

- Apricots
- Asparagus
- Barley
- Blueberries
- (lowbush, highbush)
- Canola
- Cherries
- (sweet, sour)
- Corn
- Cranberries
- Caneberries
- Dry edible beans
- Nectarines
- Oats
- Peaches
- Plums
- Saskatoon berries
- Soybeans
- Wheat
- (spring, winter)

## KEY DISEASES CONTROLLED

- Black knot (suppression)
- Blackleg
- Brown rot
- Cherry Leaf spot
- Cottonball
- Mummy berry
- Net and spot blotches
- Powdery mildew
- Rusts
- Rutabagas
- Septoria spots and blotches
- Scalds
- Tan spots
- Yellow rust

## 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

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

# BUMPER® 432 EC

## FRUIT AND SPECIALTY CROP USES

Crop	Diseases
Asparagus	Rust
Cranberries	Cottonball
Blueberries (highbush, lowbush)	Mummy berry
Kentucky bluegrass grown for seed	Powdery mildew
Peaches, Nectarines, Plums, Apricots	Brown rot blossom blight, Fruit brown rot
Plums, Sour cherries	Black knot (suppression only)
Rutabagas	Powdery mildew
Saskatoon berries	Entomosporium leaf and berry spot, Saskatoon juniper rust
Sweet and sour cherries	Brown rot blossom blight, Fruit brown rot, Cherry leaf spot
Western red cedar	Keithia foliar blight

## REGISTERED AND SUPPORTED TANK MIXES

Herbicides:

- 2,4-D ESTER 700
- BADGE®
- BROMOTRIL®
- MCPA ESTER 600

Insecticides:

- SILENCER® 120 EC
- ZIVATA™

## MIXING INSTRUCTIONS

1. Fill spray tank ½ full with water and gently agitate.
2. Add the required amount of BUMPER® 432 EC and agitate thoroughly.
3. Continue filling the tank with water until the tank is ¾ 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

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

## GRAZING RESTRICTIONS

Do not graze livestock within 3 days of spraying.

## STORAGE

May be stored at any temperature

### QUICK TIPS:

BUMPER® 432 EC should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

# CAPTAN 80 WSP

CAPTAN 80 WSP can be used as a spray for the control of certain fungus diseases of fruit, vegetables and ornamental crops as well as a soil treatment for the control of certain seed-rots and damping-off diseases.



## ACTIVE INGREDIENT

80% CAPTAN = WSP (water-soluble pouch)

## PACKAGING

Case: 4 foil bags x 5 pouches of 0.5 kg

## APPLICATION RATES & ACRES TREATED

**Rate:** Varies by crop, refer to table below.

**Acres Treated:** Varies

## RAINFASTNESS

N/A

## WATER VOLUME\*

**Ground:** 400 L/ac (105 US gal/ac)

**Aerial:** 20 L/ac (5 US gal/ac)

\*unless otherwise noted in the chart below

## REGISTERED CROPS

This is only a partial list of crops registered for use with CAPTAN 80 WSP.

For the full list, please refer to the CAPTAN 80 WSP label.

- Apples
- Apricots
- Blackberries
- Blueberries (highbush, lowbush)
- Cherries
- Cucumbers (field grown)
- Ginseng
- Grapes
- Highbush blueberries
- Lowbush blueberries
- Loganberries
- Nectarines
- Peaches
- Pears<sup>1</sup>
- Plums
- Potatoes
- Prunes
- Raspberries
- Rhubarb
- Strawberries (field grown)
- Tomatoes (field grown – foliar applications)
- Turf (golf course, sod farms only)
- Outdoor ornamentals (cut and non-cut flowers)
- Greenhouse ornamentals (non-cut flower: foliar applications to aster, camellia, carnation, chrysanthemum, dahlia, lilac, rose and tulip)
- Soil and greenhouse bench treatment (soil treatment: seedlings or transplants of roses and other flowers, shrubs, trees, lawn seedbeds, beans, celery, crucifers, eggplants, peas, tomatoes, peppers)

## KEY DISEASES CONTROLLED AND APPLICATION RATES

**NOTE:** Water volume (ground application) is 400 L/ac unless otherwise noted.

Crop	Disease	Application Rate
<b>FRUIT CROPS</b>		
Apples	Scab, Sooty blotch, Fly speck, Brook's spot, Bitter rot, Black Rot, Bull's eye rot	1.2 kg/ac
Pears <sup>1</sup>	Scab, Sooty blotch	
Apricots	Brown rot	1.6 kg/ac
Cherries	Brown rot, Leaf spot (Shot Hole)	
Peaches and Nectarines	Brown rot, Scab	
Plums and Prunes	Black knot, Brown rot	

<sup>1</sup> Do NOT use on D'Anjou pears



# CAPTAN 80 WSP

## KEY DISEASES CONTROLLED AND APPLICATION RATES (CONT'D)

**NOTE:** Water volume (ground application) is 400 L/ac unless otherwise noted.

Crop	Disease	Application Rate
Grapes	Dead arm (current season's infections)	0.8 kg/ac
	Downy mildew, Black rot	0.8–1.2 kg/ac
Raspberries	Fruit rot Spur blight	1 kg/ac
Blackberries	Fruit rot	0.9 kg/ac
Loganberries	Cane spot, Fruit rot, Leaf spot, Spur blight	0.6–0.9 kg/ac
Blueberries	Fruit rot, Mummy berry	0.9 kg/ac
Strawberries	Grey mould, Leaf spot	1.4 kg/ac
Rhubarb (in forcing sheds)	Leaf rot	0.5–0.8 kg/ 1,000 L water
<b>VEGETABLE CROPS</b>		
Cucumbers (field only)	Anthrachnose, Scab	0.9–1.7 kg/ac
Potatoes	Early blight, Late blight	1–1.5 kg/ac
Tomatoes	Anthrachnose, Septoria leaf spot	1.1–1.7 kg/ac
Ginseng	Control: rhizoctonia root rot, pythium root rot and damping-off, phytophthora root rot and grey mould Suppression: cylindrocarpon root rot	1 kg/ac (0.8 kg ai/ac) in a spray volume of 378–757 L of water per acre
<b>TURF AND ORNAMENTAL USES</b>		
Soil and greenhouse bench treatments	Use as a soil treatment for damping-off and fungus root rot diseases of seedlings or transplants of roses (and other shrubs, trees, flowers), lawn seedbeds, and vegetables	1.5 kg/1,000 L of water Apply at rates of 50–85 L/100 m <sup>2</sup>
Turf (golf courses and sod farms only)	Brown patch, Damping-off, Leaf spot and Melting-out, Root rot	60 g/20 L of water per 100 m <sup>2</sup>
<b>OUTDOOR ORNAMENTALS</b>		
Carnation	Leaf spot	1.25–1.5 kg per 1000 L of water
Chrysanthemum	Botrytis flower blight, Septoria leaf spot	
Rose	Black spot	
Camellia	Petal blight	1.25 kg per 1000 L of water
Aster, Dahlia, Lilac, Rose, Tulip	Botrytis flower blight	
Begonia (tuberous), Daffodil, Dahlia, Gladiolus, Iris (bulbous), Narcissus, Tulip	Damping-off, Bulb rots	3.75–9.5 kg per 1000 L of water

# CAPTAN 80 WSP

## REGISTERED AND SUPPORTED TANK MIX

Nova™

## MIXING INSTRUCTIONS

1. Fill the spray tank  $\frac{1}{3}$  to  $\frac{1}{2}$  full with clean water and begin agitation or bypass.
2. Add the required number of unopened pouches of CAPTAN 80 WSP fungicide directly to the spray tank.
3. Vigorous agitation is required for CAPTAN 80 WSP fungicide to become fully suspended. The water temperature and the degree of agitation will determine the amount of time for the pouches to dissolve. The pouches should be completely dissolved before application or adding tank-mix partners. Maintain sufficient agitation during both mixing and application.
4. If required, add the tank-mix partner.

## CROP ROTATIONS

No restrictions

## PRE-HARVEST INTERVALS

- Apricots, Blueberries, Cherries, Cucumbers, Loganberries, Nectarines, Peaches, Potatoes, Plums, Prunes, Rhubarb, Strawberries, Tomatoes: 2 days
- Apples, Grapes, Pears: 7 days
- Ginseng: 20 days

**NOTE:** If the re-entry interval (REI) for hand harvesting and the pre-harvest interval (PHI) are different, follow the longer of the two intervals.

## GRAZING RESTRICTIONS

N/A

## STORAGE

May be stored at any temperature

### QUICK TIP:

The enclosed pouches containing CAPTAN 80 WSP fungicide are water-soluble and will dissolve completely in water. After opening the outer bag, drop the required number of unopened inner pouches into the spray tank as directed. Reseal outer bag to protect remaining pouches. Do not excessively handle water-soluble pouches or expose to moisture since this may cause breakage. Do not allow pouches to become wet prior to mixing spray solution.

# CAPTAN 480 SC

CAPTAN 480 SC is an aqueous suspension suitable for dilution in water as a spray for the control of certain fungal diseases of fruit, vegetables and ornamental crops. CAPTAN 480 SC is also useful as a soil treatment for the control of certain seed-rot and damping-off diseases.



## ACTIVE INGREDIENT

Captan 482 g/L

## PACKAGING

Case: 2 x 10 L jugs

## APPLICATION RATES & ACRES TREATED

**Rate:** Varies by crop, refer to table below.

**Acres Treated:** Varies

## WATER VOLUME

**Ground:** 400 L/ac (105 US gal/ac)\*

**Aerial:** 20 L/ac (5 US gal/ac)

## RAINFASTNESS

Avoid application when heavy rain is forecast.

\*unless otherwise noted in the chart below

## REGISTERED CROPS

This is only a partial list of crops registered for use with CAPTAN 480 SC.

For the full list, please refer to the CAPTAN 480 SC label.

- Apples
- Apricots
- Blackberries
- Blueberries (highbush, lowbush)
- Cherries
- Cucumbers (field grown)
- Ginseng
- Grapes
- Loganberries
- Nectarines
- Peaches
- Pears<sup>1</sup>
- Plums
- Potatoes
- Prunes
- Raspberries
- Rhubarb
- Strawberries (field grown)
- Tomatoes (field grown – foliar applications)
- Turf (golf course, sod farms only)
- Outdoor ornamentals (cut and non-cut flowers)
- Greenhouse ornamentals (non-cut flower: foliar applications to aster, camellia, carnation, chrysanthemum, dahlia, lilac, rose and tulip)
- Soil and greenhouse bench treatment (soil treatment: seedlings or transplants of roses and other flowers, shrubs, trees, lawn seedbeds, beans, celery, crucifers, eggplants, peas, tomatoes, peppers)

## KEY DISEASES CONTROLLED AND APPLICATION RATES

**NOTE:** Water volume (ground application) is 400 L/ac unless otherwise noted.

Crop	Diseases	Application Rate
<b>FRUIT CROPS</b>		
Apples	Bitter rot, black rot, Brook's spot, bull's-eye rot, fly speck, scab, sooty blotch	Rate: 2 L/ac (0.97 kg a.i./ac) Apply at a minimum of a 7-day interval. Maximum Applications per year:
Pears <sup>1</sup>	Scab, sooty blotch	<ul style="list-style-type: none"> <li>• High-density orchards: 10</li> <li>• Low-density orchards: 2</li> </ul> When hand thinning is performed, make one(1) application before hand thinning fruit and 1 application after hand thinning fruit.

<sup>1</sup> Do NOT use on D'Anjou pears.

# CAPTAN 480 SC

## KEY DISEASES CONTROLLED AND APPLICATION RATES (CONT'D)

Crop	Diseases	Application Rate
<b>FRUIT CROPS (CONT'D)</b>		
Apricots	Brown rot	Rate: 2.69 L/ac (1.3 kg a.i./ac) Maximum applications per year: 1
Cherries (sour, sweet)	Brown rot, leaf spot	
Nectarines, peaches	Brown rot, scab	
Plums, prunes	Black knot, brown rot	
Grapes	Dead arm (current season's infections)	Rate: 1.33 L/ac (0.65 kg a.i./ha) Apply when new shoots are 1-5 cm long and again when 10-15 cm long. Maximum applications per year: 2
	Black rot, downy mildew	Rate: 1.33-2 L/ac (0.65-0.97 kg a.i./ha) Maximum applications per year: 1
Blueberries	Fruit rot, mummy berry	Rate: 1.5 L/ac (0.73 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.
Blackberries	Fruit rot	
Loganberries	Cane spot, fruit rot, leaf spot, spur blight	Rate: 1.0-1.5 L (0.49-0.73 kg a.i.) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.
Raspberries	Fruit rot, spur blight	Rate: 1.68 L (0.81 kg a.i.) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.
Strawberries	Gray mould rot, leaf spot	Rate: Apply 2.35 L (1.13 kg a.i.) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT use on greenhouse strawberries.
Rhubarb (in forcing sheds)	Grey mould	Rate: Apply 0.85-1.34 L (0.4-0.65 kg a.i.) Maximum spray volume; 60 L/ac Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.
<b>VEGETABLE CROPS</b>		
Cucumbers	Anthrachnose, scab	Rate: 1.5-2.83 L/ac (0.73-1.38 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 3 DO NOT use on greenhouse cucumber.
Potatoes	Early blight, late blight	Rate: 1.68-2.52 L/ac (0.81-1.21 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 3

# CAPTAN 480 SC

## KEY DISEASES CONTROLLED AND APPLICATION RATES (CONT'D)

**NOTE:** Water volume (ground application) is 400 L/ac unless otherwise noted.

Crop	Diseases	Application Rate
<b>VEGETABLE CROPS (CONT'D)</b>		
Tomatoes	Anthrachnose, Septoria leaf spot	Rate: 1.85 – 2.83 L/ac (0.89–1.38 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 3 DO NOT use on greenhouse tomato.
Ginseng	Grey mould, pythium root rot and damping-off, phytophthora root rot, Rhizoctonia root rot, Cylindrocarpon root rot (suppression only)	Rate: 1.68 L/ac (0.81 kg a.i./ha) in 378–757 L of water per acre Apply at a minimum of a 7-day interval. Maximum applications per year: 8 DO NOT apply by air.
<b>TURF AND ORNAMENTAL USES</b>		
Soil and greenhouse bench treatment	Damping-off and fungus root rot diseases of seedlings or transplants of roses, lawn seedbeds, and vegetables	Rate: 2.5 L (1.2 kg a.i.) per 1,000 L of water and apply at rates of 50–85 L per 100 square metres. Work into the upper 7.5–10 cm of soil before planting. Maximum applications per year: 1 DO NOT apply by air
Turf (golf courses and sod farms only)	Brown patch, Damping-off, leaf spot, melting-out, root rot	Rate: 100 mL (48.2 g a.i.) in 20 L of water per 100 square metres. Maximum applications per year: 1 DO NOT apply to home lawns, parks, schools, sport fields and other recreation areas. DO NOT apply by air.
<b>OUTDOOR ORNAMENTALS</b>		
Carnation	Leaf spot	Rate: 0.85–1.01 L (0.4–0.49 kg a.i.)
Chrysanthemum	Botrytis flower blight, Septoria leaf spot	Maximum applications per year: 6 Do not apply by air. DO NOT use on greenhouse cut flowers.
Rose	Black spot	
Camellia	Petal blight	Rate: 0.85 L (0.4 kg a.i.)
Aster, dahlia, lilac, rose, tulip	Botrytis flower blight	Re-apply on 7- to 10-day intervals if disease pressure continues, or if environmental conditions are conducive to disease development. Maximum applications per year: 6 DO NOT use on greenhouse cut flowers. DO NOT apply by air.
Begonia (tuberous), daffodil, dahlia, gladiolus, iris (bulbous), narcissus, tulip	Damping-off, bulb rots	Rate: 2.52 – 6.38 L (1.21–3.08 kg a.i.) DO NOT use on greenhouse cut flowers. DO NOT apply by air.

# CAPTAN 480 SC

## TANK MIXES

Nova™ and other myclobutanil products

When tank mixes are permitted, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mix and apply using the coarsest spray (ASAE) category indicated on the labels for those tank-mix partners.

## MIXING INSTRUCTIONS

1. Before using, mix contents of the container thoroughly to ensure the product is suspended.
2. Fill the spray tank to at least ½ capacity with clean water and begin agitation.
3. Pour recommended amount of CAPTAN 480 SC into the spray tank.
4. Before adding any optional tank-mix partners, add more water and add the partner according to product labels.
5. Add balance of water.
6. Maintain agitation during filling and spraying operations. Do not allow mixture to stand.
7. Use a screen not finer than 50 mesh in entire system.

## PRE-HARVEST INTERVALS

- Apricots, Blueberries, Cherries, Cucumbers, Loganberries, Nectarines, Peaches, Potatoes, Plums, Prunes, Rhubarb, Strawberries, Tomatoes: 2 days
- Apples, Grapes, Pears: 7 days
- Ginseng: 20 days

**NOTE:** If the re-entry interval (REI) for hand harvesting and the pre-harvest interval (PHI) are different, follow the longer of the two intervals.

## CROP ROTATIONS

No restrictions

## GRAZING RESTRICTIONS

N/A

## STORAGE

Store this product away from food or feed.

### QUICK TIPS:

Alkaline materials such as spray lime, lime-sulfur and Bordeaux mixture will reduce the fungicidal activity of CAPTAN 480 SC. Do not apply CAPTAN 480 SC in combination with or immediately before or closely following oil sprays. Combinations with solvent formulation of organic phosphates should not be used.

# CUSTODIA®

A multi-mode-of-action fungicide offering preventative and curative protection of the flag leaf against major leaf diseases



## ACTIVE INGREDIENT

Tebuconazole 200 g/L and Azoxystrobin 120 g/L = SC

## PACKAGING

- Case: 2 x 10.08 L jugs

## APPLICATION RATES & ACRES TREATED

- Rate: 190 – 250 ml/ac
- Acres Treated: 40 – 53 ac/jug

## WATER VOLUME

- Ground: 40 L/ac (10 US gal/ac)
- Aerial: 20 L/ac (5 US gal/ac)

## RAINFASTNESS

Avoid applying when heavy rainfall is in the forecast.

## REGISTERED CROPS

- Barley
- Oats
- Soybeans
- Wheat (spring, winter)

## KEY DISEASES CONTROLLED

- Leaf rust
- Stem rust
- Stripe rust
- Septoria leaf blotch
- Tan spot
- Net blotch
- Spot blotch

## HOW IT WORKS

CUSTODIA® is a broad-spectrum, preventative fungicide with systemic and curative properties recommended for the control of many important plant diseases. CUSTODIA® may be applied as a foliar spray in spray programs or in tank mixes with other crop protection products. All applications must be made according to the use directions that follow.

## CROP STAGING

Crop	Rate (ml/ac)	Diseases	Application Timing
Wheat (spring, winter)	190–250	Leaf rust, Stem rust, Stripe rust, Septoria leaf blotch, Tan spot	Apply at the very early stages of disease development.
Barley		Net blotch, Spot blotch, Leaf rust, Stem rust, Stripe rust, Septoria leaf blotch, Tan spot	Use of the higher rate should be considered when weather conditions are conducive to heavy disease development or when heavy disease pressure is present.
Soybeans		Asian soybean rust, Frog-eye leaf spot	
Oats	190	Crown rust, Stem rust, Septoria leaf blotch	Apply at the very early stages of disease development.



# CUSTODIA®

## REGISTERED AND SUPPORTED TANK MIX

Manipulator™

### MIXING INSTRUCTIONS

1. Fill the clean spray tank  $\frac{3}{4}$  full with clean water.
2. Add the required amount of CUSTODIA® into the sprayer and agitate thoroughly.
3. Continue agitation and add the required amount of the tank-mix partner.
4. Complete filling the tank to the desired level with water.  
Use a 50-mesh (or coarser) filter screen.

### CROP ROTATIONS

No restrictions

### PRE-HARVEST INTERVALS

- Forage, hay: 6 days
- Mature grains: 36 days

### GRAZING RESTRICTIONS

Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment. Straw cut after harvest may be fed or used for bedding.

### STORAGE

Do not freeze.

#### QUICK TIPS:

CUSTODIA® should be applied at flag leaf for optimal leaf disease control. Pathogens coverage is key; do not use less than recommended water volumes.

For fusarium control, we would recommend an application of SORATEL™ fungicide at full head emergence after CUSTODIA® at flag leaf.

For resistance management, CUSTODIA® contains Group 3 and 11 fungicides. When possible, rotate the use of CUSTODIA® or other Group 3 and 11 fungicides with different groups that control the same pathogens.

# FOLPAN® 80 WDG

A water-dispersible granular fungicide that delivers exceptional protection against the most common and economically damaging diseases in grapes and other fruit, vegetable and ornamental crops



## ACTIVE INGREDIENT

80% Folpet = WDG

## PACKAGING

Case: 2 x 5 kg packs

## APPLICATION RATES & ACRES TREATED

Rate: 0.5–2 kg/ac

Acres Treated: 2.5–10 ac/pack

## WATER VOLUME

Ground: 400–1200 L/ac (100–317 US gal/ac)

Aerial: Do not apply by air.

## RAINFASTNESS

N/A

## REGISTERED CROPS

- Apples
- Azalea
- Carnation
- Chrysanthemum
- Crabapples
- Field cucumbers
- Field tomatoes
- Grapes
- Iris
- Marigold
- Melons
- Poinsettia (greenhouse)
- Pumpkins
- Snapdragon
- Squash
- Strawberries
- Zinnia

## KEY DISEASES CONTROLLED

- Alternaria leaf spot
- Anthracnose
- Black rot
- Brooks spot
- Dead arm
- Didymellina leaf spot
- Downy mildew
- Fly speck
- Fruit rot
- Grey mould
- Leaf spot
- Phythium root rot
- Powdery mildew
- Scab
- Septoria leaf spot
- Sooty blotch
- Stem rot

## HOW IT WORKS

Multi-site-contact mode of action with protective ability. Use in a regularly scheduled maintenance program.

## APPLICATION TIMING AND CROP STAGING

Crop	Diseases	Timing
Apples, Crabapples	Alternaria leaf spot, Black rot, Brooks spot, Fly speck, Scab, Sooty blotch	Apply in a regular protective schedule from green tip up until harvest. Do not apply more than 6 applications per season. See label for additional precautions.
Cranberries	Fruit rot	Apply when 5% of blossoms are open. Repeat 10–14 days later when 50–75% of blossoms are open.
Grapes	Dead arm	Apply when new shoots are 1–2 inches long and repeat when growth is 4–6 inches long.
	Black rot, Downy mildew	Apply just before bloom, just after bloom and in first cover spray. For downy mildew, an additional application 2–3 weeks later may be needed.
	Powdery mildew	Apply in a tank mix with Kumulus® DF at first sign of mildew and repeat after 10 days.

# FOLPAN® 80 WDG

## APPLICATION TIMING AND CROP STAGING (continued)

Crop	Diseases	Timing
Field cucumbers, Melons, Pumpkins, Squash	Anthrachnose, Downy mildew	Apply when first true leaves appear. Repeat at 7-day intervals until crop is harvested.
Field tomatoes	Anthrachnose	Apply during first bloom and repeat at 7-day intervals until harvest.
Strawberries	Grey mould, Fruit rot, Leaf spot	Apply before first infection and repeat at 7-day intervals to protect crop until harvest.
Carnation, Poinsettia, Azalea, Marigold, Zinnia, Chrysanthemum, Iris, Snapdragon	Blight, Phythium root rot, Stem rot, Alternaria leaf spot, Septoria leaf spot, Didymellina leaf spot, Anthracnose (depending on ornamental)	Generally, apply when ornamental emerges and repeat at regular intervals. Consult label for timing on specific disease and ornamental.

## REGISTERED AND SUPPORTED TANK MIXES

- Kumulus® DF

## MIXING INSTRUCTIONS

1. Fill spray tank nearly full and pour recommended amount of FOLPAN® 80 WDG on surface of water.
2. Fungicide can be premixed in a bucket ½ filled with water. Mix can be poured through screen into nearly filled spray tank.
3. Finish filling tank.
4. Keep agitator running during filling and spraying.

## CROP ROTATIONS

No restrictions

## STORAGE

May be stored at any temperature

## GRAZING RESTRICTIONS

No restrictions

## PRE-HARVEST INTERVALS

- Greenhouse ornamentals not grown for cut flower production: 12 hours
- Apples, Crabapples: 1 day
- Field cucumbers, Melons, Pumpkins, Squash: 11 days
- Ornamentals grown for cut flower production: 16 days
- Cranberries: 30 days
- Greenhouse ornamentals grown for cut flower production: 48 days

### Mechanical harvesting\*:

- Field tomatoes, Grapes, Strawberries: 1 day

### Hand harvesting\*:

- Grapes: 3 days
- Strawberries: 11 days
- Field tomatoes: 22 days

\* Crops listed have different mechanical/hand harvesting intervals.

## QUICK TIPS:

Fungicidal activity is reduced if combined with strongly alkaline materials such as hydrated lime.

Do not use in combination with or closely following an oil spray.

# MAXENTIS®

Provides protection against white mould in soybeans and rust in lowbush blueberries. Features two distinct elite modes of action (Groups 3 & 11) for resistance management and long lasting systemic activity.



## ACTIVE INGREDIENTS

Azoxystrobin 120 g/L +  
Prothioconazole 90 g/L as an EC

## PACKAGING

**Case:** 2 x 8.45 L jugs  
**Drum:** 118.1 L

## APPLICATION RATES & ACRES TREATED

**Rate:** 253 – 422 ml/ac

**Acres Treated:**

- 40 – 66 ac/case
- 280–467 ac/drum

POWERED BY  
**Asorbital®**  
FORMULATION TECHNOLOGY

## WATER VOLUME

**Ground:** 80 L/ac (20 US gal/ac)

**Aerial:** 20 L/ac (5 US gal/ac)

## RAINFASTNESS

Avoid applying when rain is forecast.

## REGISTERED CROPS\*

- Lowbush blueberries (east only)
- Soybeans

## KEY DISEASES CONTROLLED\*

- Leaf rust (suppression)
- White mould (*Sclerotinia*)

\*See label for the complete list of registered crops as well diseases controlled and rates for each crop.

## APPLICATION TIMING AND CROP STAGING

Crop	Diseases	Rate (ml/ac)	Timing
Lowbush Blueberries	Rust (suppression)	253	<p>Apply at the first sign of disease in the sprout year. After initial application, one additional application may be made 1–14 days afterwards if conditions remain favourable for continued or increased disease development.</p> <p>Maximum applications per year: 2</p>
Soybeans	White mould ( <i>Sclerotinia</i> )	422	<p>Apply as a preventive foliar spray at the beginning of flowering or at first sign of disease.</p> <p>After the initial application, one additional application may be made 10–14 days afterwards if conditions remain favourable for continued or increased disease development. Apply the higher rate when conditions favour disease development, or when growing less disease resistant varieties.</p> <p>Maximum applications per year: 2</p>

## HOW IT WORKS

Two powerful active ingredients, combined for the first time in Canada, that provide protective and curative action on a wide range of diseases, across multiple crops.

# MAXENTIS®

## MIXING INSTRUCTIONS

1. Fill the clean spray tank  $\frac{3}{4}$  full of clean water.
2. Add the required amount of MAXENTIS® and agitate thoroughly.
3. Continue agitation and add the required amount of the tank-mix partner.
4. Complete filling tank to the desired level with water.

## CROP ROTATIONS

No restrictions

## GRAZING RESTRICTIONS

Forage, hay: 30 days

Grazing or green feed: 6 days

NOTE: Do not feed dried pea vines to livestock.

## STORAGE

Do not freeze.

## PRE-HARVEST INTERVALS

- Soybeans: 20 days
- Lowbush blueberries: 30 days

\*See label for the complete list of pre-harvest intervals for each registered crop.

## KEY BENEFITS

- Unique combination of prothioconazole and azoxystrobin
- Enhanced EC formulation – with bulk packaging capabilities
- Multi-mode activity for resistance management (Groups 3 & 11)
- Broad-spectrum disease control with protective and curative action
- Whole plant protection: translaminar and systemic movement
- Wide window of application

### QUICK TIPS:

Environmental conditions are a major driver of disease pressure and severity. Under high disease pressure conditions a rate of MAXENTIS® at the upper end of the rate range is recommended.

# ORIOUS® 430 SC

Your tool of choice – ORIOUS® 430 SC offers long-lasting, broad-spectrum protection against the most dangerous cereal leaf and head diseases in wheat, barley and oats, and the flexibility of a wider application window.



## ACTIVE INGREDIENT

Tebuconazole 430 g/L = SC

## PACKAGING

Case: 2 x 9.44 L jugs

## APPLICATION RATE & ACRES TREATED

Rate: 89 – 118 ml/ac

Acres Treated: 80 – 100 ac/jug

## WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)

Aerial: 20 L/ac (5 US gal/ac)

## RAINFASTNESS:

Avoid applying when heavy rainfall is in the forecast.

## REGISTERED CROPS

- Barley
- Oats
- Wheat (spring, winter)

## KEY DISEASES CONTROLLED

- Fusarium head blight (suppression)
- Septoria glume blotch
- Rusts (leaf, stem, stripe)
- Septoria leaf blotch
- Tan spot
- Powdery mildew
- Net blotch
- Spot blotch
- Scald

## HOW IT WORKS

ORIOUS® 430 SC foliar fungicide can be applied as a post-emergent treatment in wheat (spring, winter), barley and oats for the suppression of fusarium head blight and control of foliar diseases.

## CROP STAGING

Crop	Diseases	Application Timing	Rate (ml/ac)
Wheat (spring, winter)	Fusarium head blight (suppression), Septoria glume blotch (control)	For optimum suppression of fusarium head blight and control of septoria glume blotch, apply ORIOUS® 430 SC foliar fungicide within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower. <b>Spray coverage is essential:</b> Ensure thorough coverage of all wheat heads.	118
	Rusts (leaf, stem, stripe), Septoria leaf blotch, Tan spot	Apply ORIOUS® 430 SC foliar fungicide to leaf foliage at the first sign or very early stage of disease, especially if weather conditions are conducive to disease development, up to the end of the flowering stage. Consider using the higher rate when weather conditions are conducive to heavy disease development.	89 – 118
	Powdery mildew		118
Barley	Net blotch, Spot blotch, Scald, Rusts (leaf, stem and stripe), Septoria leaf blotch, Powdery mildew	Apply ORIOUS® 430 SC foliar fungicide at the very early stages of disease development. Consider using the higher rate when weather conditions are conducive to heavy disease development.	89 – 118
Oats	Stem rust, Crown rust	Apply ORIOUS® 430 SC foliar fungicide at the very early stages of disease development.	89

# ORIOUS® 430 SC

## REGISTERED AND SUPPORTED TANK MIXES

ORIOUS® 430 SC foliar fungicide is recommended to be used with a registered non-ionic surfactant, such as Agral® 90 or Ag-Surf®.

## MIXING INSTRUCTIONS

1. Fill clean sprayer tank  $\frac{3}{4}$  full with clean water.
2. Add the required amount of ORIOUS® 430 SC into the sprayer and agitate thoroughly.
3. Continue agitation and add the required amount of the tank-mix partner.
4. Add the required amount of recommended registered non-ionic surfactant at 0.125% v/v with the agitation remaining on.
5. Complete filling the tank to the desired level with water. Repeat sprayer cleanout process using an appropriate spray system cleaner.

## SURFACTANT RATE

Non-ionic surfactant (NIS) @ 0.125% v/v

## PRE-HARVEST INTERVALS

Wheat, barley, oats: Applications may not be made within 36 days of harvest.

## GRAZING RESTRICTIONS

Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment. Straw cut after harvest may be fed or used for bedding.

## CROP ROTATIONS

No restrictions

## STORAGE

Do not freeze.

### QUICK TIPS:

ORIOUS® 430 SC should only be applied when the risk of fusarium head blight infection is high. Consult your local extension authority regarding the need for ORIOUS® 430 SC. Head blight is extremely difficult to control. Fusarium head blight outbreaks occur when the weather is warm and wet at the flowering to soft dough stages.

**Timing of application is critical:** For optimum suppression of fusarium head blight and control of septoria glume blotch, apply ORIOUS® 430 SC Foliar fungicide within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower.

**Spray coverage is essential:** Ensure thorough coverage of all wheat heads.

# SORADUO™

Advanced disease protection powered by Asorbital® Formulation Technology. SORADUO™ provides proven fusarium protection in wheat and barley.



## ACTIVE INGREDIENT

Prothioconazole 250 g/L = EC, and  
Tebuconazole 430 g/L = SC

## PACKAGING

Case includes:

- 1 × 9.71 L jug of SORADUO™ A (Prothioconazole)
- 1 × 5.65 L jug of SORADUO™ B (Tebuconazole)

POWERED BY  
**Asorbital**  
FORMULATION TECHNOLOGY

## APPLICATION RATE & ACRES TREATED

Rate:

- 162 ml/ac SORADUO™ A
- 94 ml/ac SORADUO™ B

Acres treated: 60 ac/case

## WATER VOLUME

Ground: 40 – 80 L/ac  
(10 – 20 US gal/ac)

Aerial: 20 L/ac (5 US gal/ac)

## RAINFASTNESS

Avoid application if heavy rainfall is in the forecast.

## REGISTERED CROPS AND APPLICATION TIMING

Crop	Disease	Timing
Barley	For suppression of fusarium head blight ( <i>Fusarium spp.</i> )	70–100% head emergence to 3 days after full head emergence
Wheat (spring, winter)		75% head emergence – 50% main stem flower

Applications per year: Maximum of one (1)

## HOW IT WORKS

SORADUO™ is a combination two triazole fungicides including one that features Asorbital® Formulation Technology for broad-spectrum system activity plus long-lasting foliar protection.

## REGISTERED AND SUPPORTED TANK MIXES

Optional: Non-ionic surfactant (NIS) at 0.125% v/v

## MIXING INSTRUCTIONS.

1. Fill the tank ½ full with clean water.
2. Add required amount of SORADUO™ B (tebuconazole) at 94 ml/ac.
3. Add required amount of SORADUO™ A (prothioconazole) at 162 ml/ac.
4. If desired, add optional non-ionic surfactant (NIS) at 0.125% v/v.
5. Fill the tank and agitate again before use.



# SORADUO™

## KEY BENEFITS

- Proven fusarium protection in wheat and barley
- Absorbital® Formulation Technology helps to deliver uniform coverage for consistent protection
- Simple choice without the complication of grower programming
- Application flexibility
- Performance over a wide range of conditions

## CROP ROTATIONS

No restrictions

## PRE-HARVEST INTERVAL

- Wheat (spring, winter): 36 days

## GRAZING RESTRICTIONS

6 days

## STORAGE

Do not freeze.

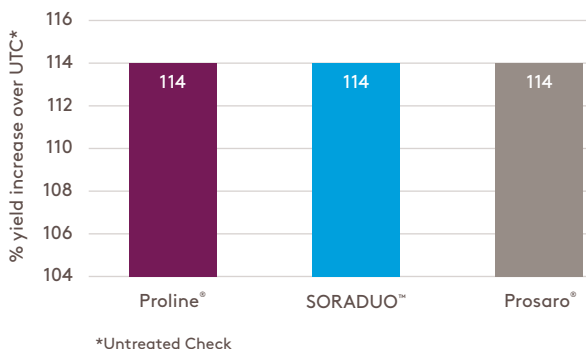
## Fusarium Control in Cereals—Yields

Summary of 35 trials from 2019–2021

Crops (# of trials): spring wheat (14), barley (10), durum wheat (7), winter wheat (4)

## Rates applied (a.i./acre):

- Proline®: 138 ml/ac
- SORADUO™:
  - Prothioconazole: 162 ml/ac
  - Tebuconazole: 94 ml/ac
- Prosaro®: 324 ml/ac



## QUICK TIPS:

Fusarium head blight outbreaks in wheat and barley occur when the weather is warm and wet at head emergence and flowering. Timing of application is critical when providing protection against fusarium head blight.

# SORATEL®

Advanced disease protection powered by Asorbital® Formulation Technology.

Offering a flexible application window, SORATEL® fungicide is proven to protect a wide variety of crops from disease, including fusarium head blight in wheat and Gibberella ear rot in corn.

## ACTIVE INGREDIENT

Prothioconazole 250 g/L = EC

## PACKAGING

Case: 2 x 9.6 L jugs

## APPLICATION RATE & ACRES TREATED

**Rate:** 160 – 320 ml/ac (standard rate: 240 ml/ac)

**Acres treated:** 30 – 60 ac/jug (standard rate: 40 ac/jug)

## WATER VOLUME

**Ground:** Minimum 40 L/ac  
(10 US gal/ac)

**Aerial:** Minimum 20 L/ac  
(5 US gal/ac)

## RAINFASTNESS

Avoid application if heavy rainfall is in the forecast.



POWERED BY  
**Asorbital®**  
FORMULATION TECHNOLOGY

## REGISTERED CROPS

- Barley
- Low-growing berries except strawberries (Crop subgroup 13-07H)
- Borage
- Brassica carinata
- Bushberries (Crop subgroup 13B)
- Canola
- Chickpeas
- Crambe
- Corn
- Field peas
- Flax (linseed)
- Lentils
- Oats
- Oriental mustard
- Peanuts
- Rapeseed
- Safflower
- Soybeans
- Sugarbeets
- Sunflower
- Wheat (spring, winter)
- Plus other small grains

## KEY DISEASES CONTROLLED

Crop	Diseases	Rate (ml/ac)	Timing
<b>Cereals</b>			
Barley	Fusarium head blight <sup>1</sup>	240 – 320	70 – 100% head emergence
	Net blotch, scald, spot blotch	160 – 240	First sign of disease
Oats	Crown rust	240	First sign of disease
Wheat (spring, winter)	Fusarium head blight <sup>1</sup> , glume blotch	240 – 320	75% head emergence – 50% main stem flower
	Leaf rust, speckled leaf blotch, tan spot	240	First sign of disease
<b>Oilseeds</b>			
Canola	Sclerotinia stem rot	240 – 280	20 – 50% bloom
<b>Soybeans</b>			
Soybeans	Asian soybean rust Frog-eye leaf spot	160	First sign of disease

For a complete list of registered crops, diseases, and application rates, consult the label.

<sup>1</sup>Suppression <sup>2</sup>Blueberries only

# SORATEL®

Crop	Diseases	Rate (ml/ac)	Timing
<b>Corn</b>			
Corn (field, sweet and popcorn, including seed production)	Eyespot, Gibberella ear rot <sup>1</sup> , grey leaf spot, Northern corn leaf blight, rust	240 (600 ml/ha)	First sign of disease  Apply from the development stage of corn between full silk emergence (BBCH 63) to early silk browning (BBCH 67)
<b>Berries</b>			
Bushberries: Crop subgroup 13B) (Aronia berry; blueberry, highbush; blueberry, lowbush; buffalo currant; cranberry, highbush; currant, black; currant, red; elderberry; European barberry; gooseberry; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); lingonberry; salal; sea buckthorn; cultivars, varieties, and/or hybrids of these.)	Septoria leaf spot <sup>1</sup> 240 ml/ac	240 (600 ml/ha)	First sign of disease  Apply from the development stage of corn between full silk emergence (BBCH 63) to early silk browning (BBCH 67)
	Leaf rust <sup>1</sup> Valdensinia Leaf Spot <sup>2</sup>	300 (760 ml/ha)	
	Mummy Berry <sup>2</sup>	240 – 320 (600 – 800 ml/ha)	1 <sup>st</sup> application: at early bloom for fruit rot
Low-growing berries except strawberries: Crop subgroup 13-07H) (Bearberry; bilberry; cloudberry; cranberry; partridgeberry; cultivars, varieties, and/or hybrids of these.)	Fruit rot	280 (700 ml/ha)	2 <sup>nd</sup> application: 5-10 days later after first application

For a complete list of registered crops, diseases, and application rates, consult the label.

<sup>1</sup>Suppression <sup>2</sup>Blueberries only

## CROP ROTATIONS

Treated areas may be replanted with any crop specified on the label as soon as practical after the last application. For crops not listed on the label, do not plant back within 30 days of last application.

## PRE-HARVEST INTERVALS

- Bushberries: 7 days
- Corn (field, popcorn, sweet): 14 days
- Soybeans: 20 days
- Barley, Oats, Wheat (spring, winter): 30 days
- Borage, Brassica carinata, Canola, Crambe, Flax, Oriental mustard, Rapeseed: 36 days
- Low-growing berries (except strawberries): 45 days

## GRAZING RESTRICTIONS

Do not graze livestock within 30 days of spraying.

## STORAGE

Do not freeze.

## KEY BENEFITS

- Technologically advanced formulation developed by and unique to ADAMA
- First Canadian product available with Asorbital® Formulation Technology
- 5% higher efficacy vs. competitive products shown in Canadian trials
- Improved leaf penetration into the plant, improved efficacy
- Preventative, curative and eradicated control of multiple diseases in multiple crops
- Wide window of application

# SORATEL®

## REGISTERED AND SUPPORTED TANK MIXES

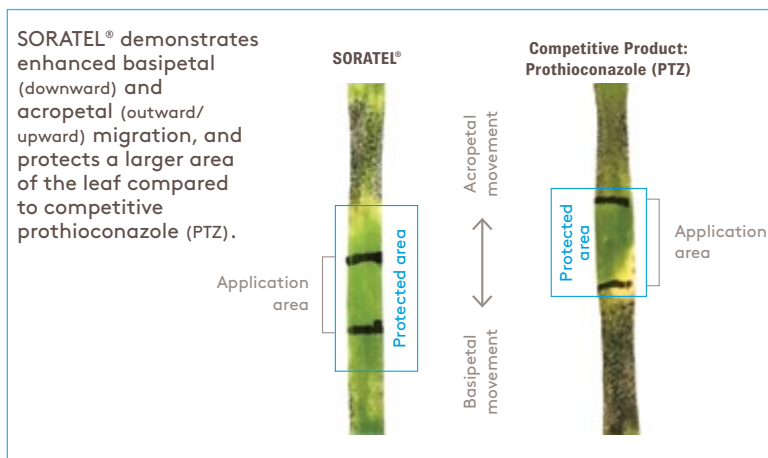
- Coragen®
- Decis®
- SILENCER® 120 EC
- ZIVATA™

## MIXING INSTRUCTIONS

1. Add ½ of the required amount of water to the spray or mixing tank and start agitation.
2. Add the required quantity of SORATEL® to the water and complete filling with water to the required total volume.
3. Maintain agitation throughout mixing and spraying.

## HOW IT WORKS

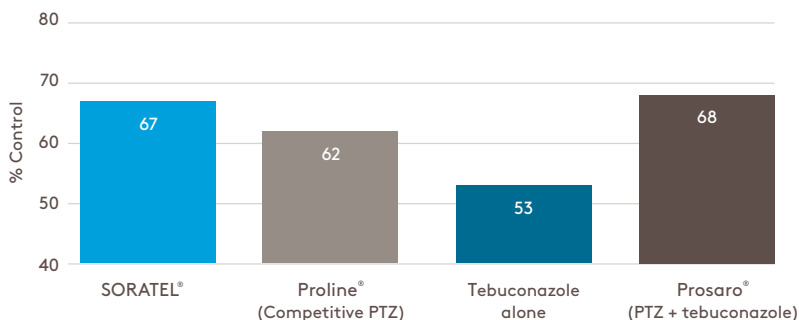
SORATEL® is a triazolinthione, broad-spectrum systemic fungicide with Asorbital® Formulation Technology. This new technology, unique to ADAMA, includes a built-in adjuvant which enhances leaf penetration and increases effectiveness.



## Fusarium head blight control in cereals

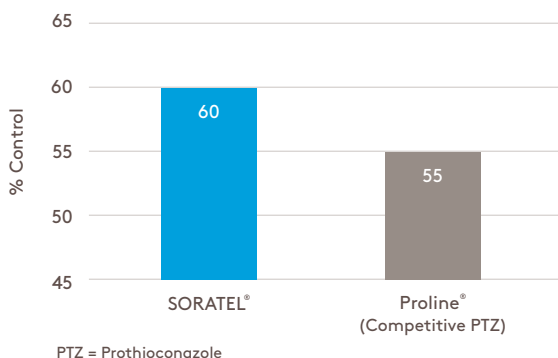
Summary of 35 small-plot, replicated trials  
Conducted by independent researchers across Canada (2018–2020)

**SORATEL® alone** shows superior results to Proline® and similar results to the combo product Prosaro®, demonstrating the benefits of Asorbital® Formulation Technology.



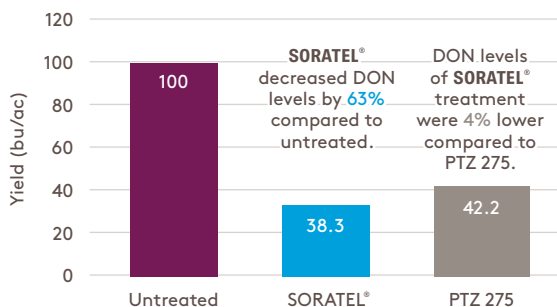
## Sclerotinia control in canola

Summary of 6 small-plot, replicated trials  
Conducted by independent researchers in Canada (2020)



## Mycotoxin content

Average of 20 trials in European Union



## ABOUT ASORBITAL® FORMULATION TECHNOLOGY

Asorbital® Formulation Technology was developed by and is unique to ADAMA worldwide. Products with this enhanced technology offer reduced run-off and photodegradation, improved rainfastness, increased amount of active in the plant and more thorough protection of the foliage.

SORATEL® was the first of many ADAMA products to come that will include Asorbital® Formulation Technology and be available to Eastern Canada growers in the future.

# TOPNOTCH™

Broad-spectrum disease control in multiple crops including cereals, field peas, edible beans and soybeans.



## ACTIVE INGREDIENT

Azoxystrobin 143 g/L and Propiconazole 124 g/L = SC

## PACKAGING

Case: 2 x 8.6 L jugs

## APPLICATION RATE & ACRES TREATED

Rate: 210 – 620 ml/ac

Acres Treated: 14 – 40 ac/jug

## WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)

Aerial: 20 L/ac (5 US gal/ac)

## RAINFASTNESS

Avoid applying when heavy rainfall is in the forecast.

## REGISTERED AND SUPPORTED CROPS

- Barley
- Edible beans
- Field peas
- Lentils
- Oats
- Rye
- Soybeans
- Triticale
- Wheat

## KEY DISEASES CONTROLLED

- Anthracnose
- Ascochyta blight
- Barley leaf rust
- Mycosphaerella blight
- Net and spot blotches
- Powdery mildew
- Scald
- Septoria spot
- Stripe rust
- Tan spot
- Wheat leaf rust
- White mould<sup>1</sup>

<sup>1</sup>Suppression only.

## HOW IT WORKS

Used as both a curative and preventative fungicide, TOPNOTCH™ has broad-spectrum, systemic and contact activity.

## APPLICATION TIMING AND CROP STAGING

Crop	Diseases	Application Timing	Rate
Barley	Barley net blotch, Barley scald, Septoria leaf spot, Stripe rust, Barley leaf rust, Tan spot	Apply once between stem elongation and half-head emergence (Growth stage 29 – 55).	210 ml/ac
Beans, Field peas, Lentils, Soybeans	Mycosphaerella blight, Anthracnose	Make the first application at the first sign of disease. Apply the high rate only under conditions of high disease pressures.  A second application 14 days later may be needed if conditions persist.	310 – 620 ml/ac
	Powdery mildew, White mould (suppression only)	Good spray coverage and canopy penetration are important for best results.	310 ml/ac

# TOPNOTCH™

Crop	Diseases	Application Timing	Rate
Oats	Barley net blotch, Crown rust, Septoria leaf spot	Apply once between stem elongation and half-head emergence (Growth stage 29 – 55).	210 ml/ac
Rye	Septoria leaf spot, Barley scald, Tan spot		
Triticale	Septoria leaf spot, Tan spot		
Wheat	Septoria leaf spot, Tan spot, Stripe rust, Wheat leaf rust		

## REGISTERED AND SUPPORTED TANK MIXES

- ARROW® 240 EC
- ARROW ALL IN®
- Coragen®
- Decis®
- glufosinate
- Poast Ultra®
- LEOPARD®
- SILENCER® 120 EC
- Voliam Xpress®
- ZIVATA™

## MIXING INSTRUCTIONS

1. Fill spray tank  $\frac{1}{2}$  –  $\frac{3}{4}$  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 INTERVALS

Field peas, Beans, Lentils, Soybeans: 30 days

Cereals: 45 days

## GRAZING RESTRICTIONS

Do not graze pea vines.

30 days for all other crops.

## STORAGE

Do not freeze.

## QUICK TIPS:

Good spray coverage and canopy penetration are important to achieve the best results.



## ADDITIONAL RESOURCES

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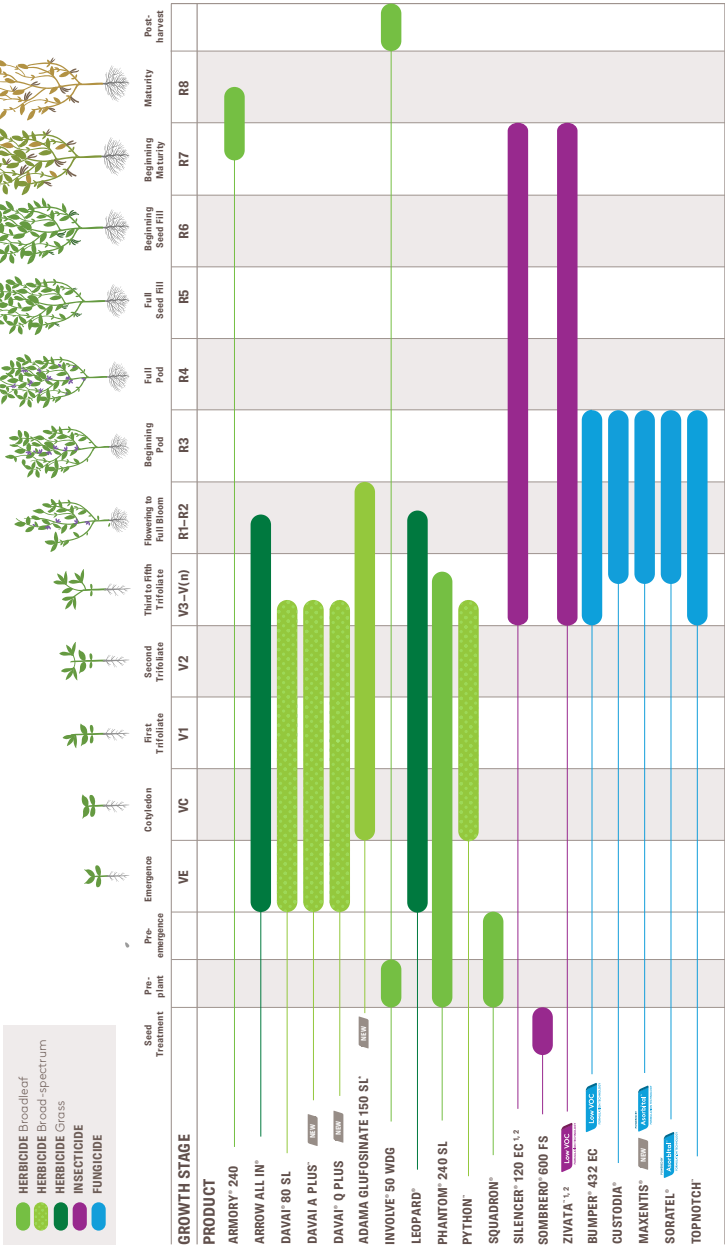
GROWTH STAGE CHARTS & PRODUCT TIMING .....	100
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# GROWTH STAGE CHARTS & PRODUCT TIMING

## SOYBEANS



# GROWTH STAGE CHARTS & PRODUCT TIMING

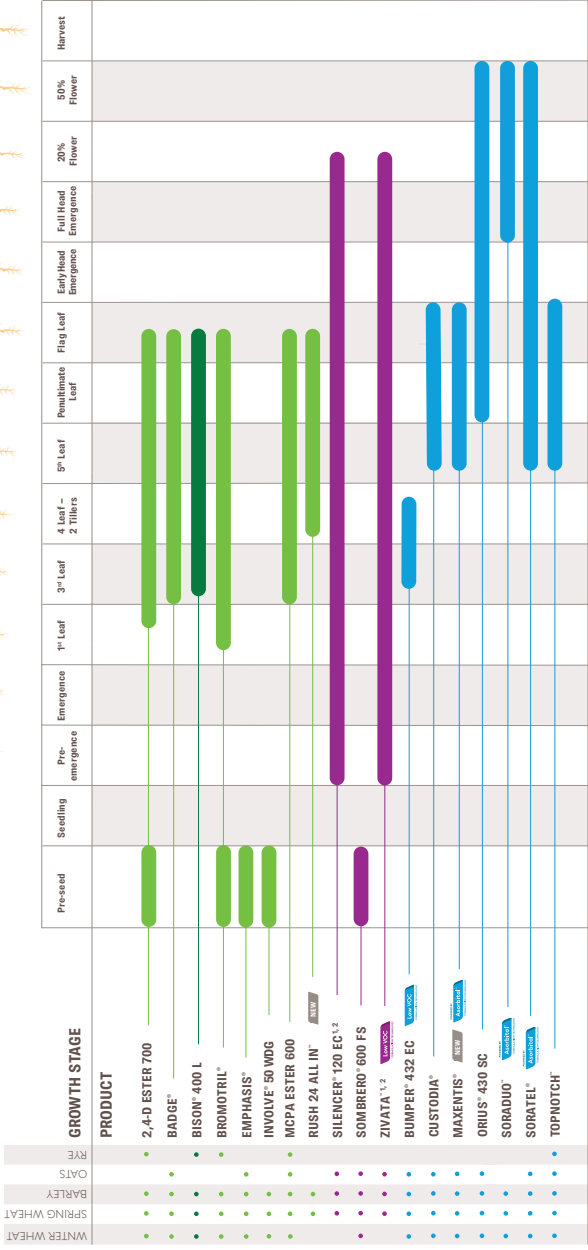
## CEREALS

HERBICIDE Broadleaf

HERBICIDE Grass

INSECTICIDE

FUNGICIDE



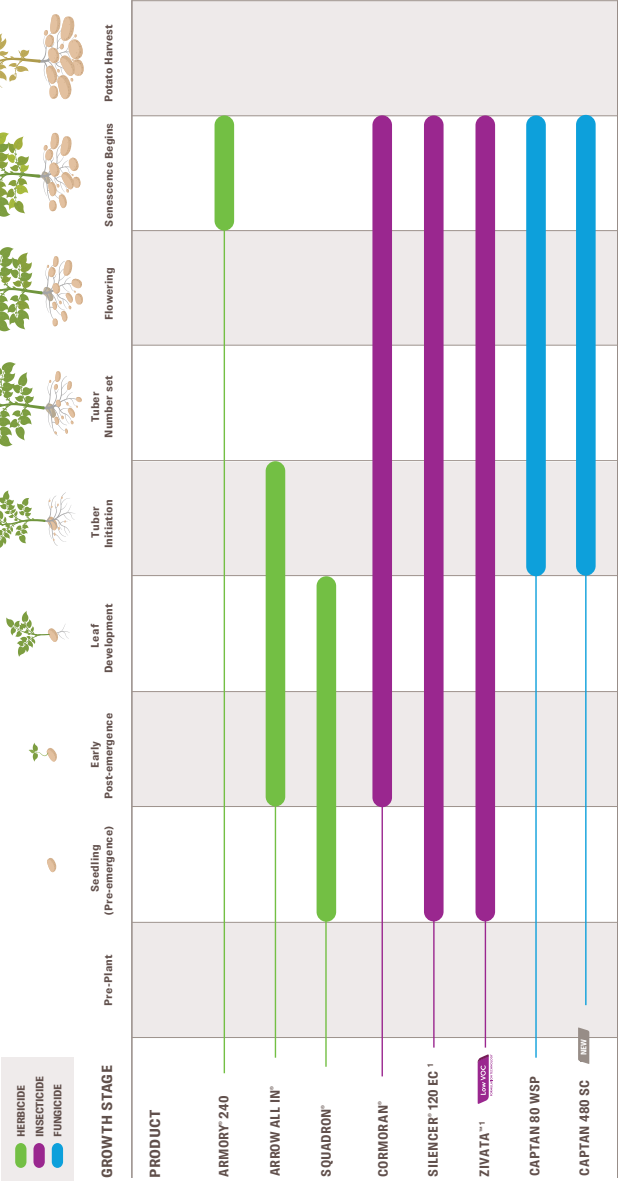
Timing based on using the product alone. Please refer to tank-mix partner labels for crop timing.

<sup>1</sup> Dependent of Pre-harvest interval (PHI)

<sup>2</sup> DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock. For grasses/hanglosses grown for seed production only, DO NOT feed seed screenings and aftermath to livestock.

# GROWTH STAGE CHARTS & PRODUCT TIMING

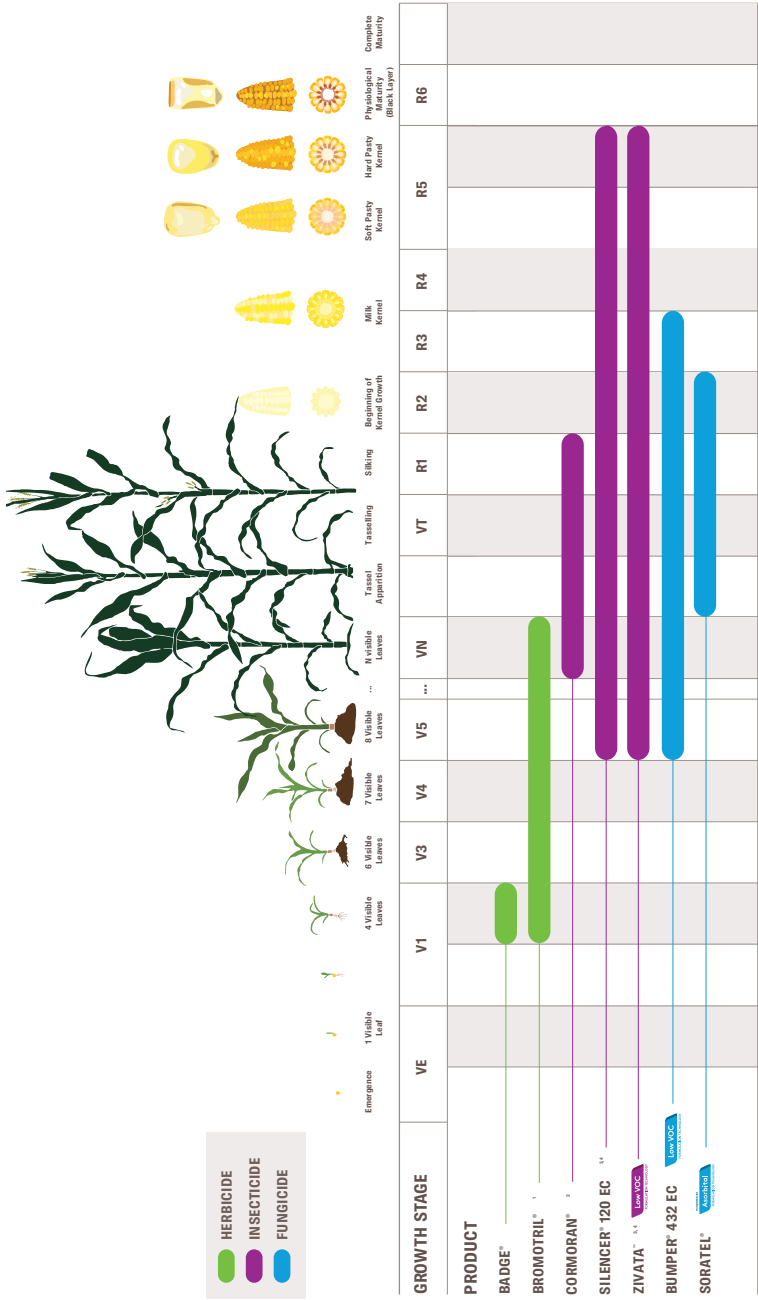
## POTATOES



Timing based on using the product alone. Please refer to tank-mix partners' label for crop timing.  
¹Dependent of Pre-harvest Interval (PHI). DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock.  
For grasses/monograses grown for seed production only. DO NOT feed seed screenings and aftermath to livestock.

# GROWTH STAGE CHARTS & PRODUCT TIMING

## CORN



# AERIAL APPLICATION CHART

ADAMA PRODUCT NAME	AERIAL APPLICATION	WATER VOLUME
<b>HERBICIDES</b>		
2,4-D ESTER 700	Yes	12 L/ac
ARMORY® 240	Yes	90 – 200 L/ac
ARROW ALL IN®	No	–
BADGE®	Yes (wheat, barley and oats only)	8 – 20 L/ac
BISON® 400 L	Yes (cereal crops)	12 – 18 L/ac
BROMOTRIL®	Yes (wheat and barley only)	8 – 16 L/ac
DAVAI® 80 SL	No	–
DAVAI A PLUS™	No	–
DAVAI® Q PLUS	No	–
EMPHASIS®	No	–
ADAMA GLUFOSINATE 150 SL	Yes	23 L/ac
INVOLVE® 50 WDG	No	–
LEOPARD®	Yes	10 L/ac
MCPA ESTER 600	Yes	12 L/ac
PHANTOM® 240 SL	No	–
PYTHON®	No	–
RUSH 24 ALL IN™	No	–
SQUADRON®	No	–
<b>INSECTICIDES</b>		
CORMORAN®	No	–
NIMITZ® 480 EC	No	–
SILENCER® 120 EC	Yes	4 – 16 L/ac
SOMBRERO® 600 FS	No	–
ZIVATA™	Yes	4 – 16 L/ac
<b>FUNGICIDES</b>		
BUMPER® 432 EC	Yes	16 – 20 L/ac
CAPTAN 80 WSP	Yes (with restrictions, see label)	See label
CAPTAN 480 SC		
CUSTODIA®	Yes	20 L/ac
FOLPAN® 80 WG	No	–
MAXENTIS®	Yes	20 L/ac
ORIOUS® 430 SC	Yes	20 L/ac
SORADUO™	Yes	10 L/ac
SORATEL®	Yes	20 L/ac
TOPNOTCH™	Yes	20 L/ac

# PHENOXY USE RATES

Active Ounces per Acre	Formulation (ml per acre)					Acres Treated per 10 L Jug				
	300	400	500	600	700	300	400	500	600	700
1	94	70	57	47	41	107	142	177	212	247
2	187	140	113	94	81	53	71	88	106	124
3	281	211	170	142	121	36	47	59	71	82
4	374	281	227	189	162	27	36	44	53	62
5	468	351	283	236	202	21	28	35	42	49
6	562	421	340	283	243	18	24	29	35	41
7	655	491	397	331	283	15	20	25	30	35
8	749	562	453	378	324	13	18	22	27	31
9	842	632	510	425	364	12	16	20	24	28
10	936	702	567	472	405	11	14	18	21	25

Recommended rates have been rounded to whole numbers.

# TANK-MIXING GUIDELINES

## W.A.M.L.E.G.S. METHOD

<b>W</b>	<b>Wettable</b> powders, dispersible granules, soluble granules (WG, DF, SG, WP, SP)
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<b>A</b>	<b>Agitate</b> tank mix thoroughly
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<b>M</b>	<b>Micro-encapsulated</b> suspensions (ME)
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<b>L</b>	<b>Liquid</b> flowables and suspensions (SC, SL, SN, LI, SU, SE)
----------	--

<b>E</b>	<b>Emulsifiable</b> concentrate formulations (EC)
----------	---

*Fill spray tank nearly full with water.*

<b>G</b>	<b>Glyphosate</b> formulations
----------	--------------------------------

<b>S</b>	<b>Surfactants</b>
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Some herbicide labels list a specific mixing sequence. In absence of specific directions, a recommended sequence for adding pesticide formulations to a tank partially filled with water is the **W.A.M.L.E.G.S. method**. Each ingredient must be uniformly mixed before adding the next component. For example, a soluble powder must be completely dissolved before adding the next component. Adjuvants are added in the same sequence as pesticides: ammonium sulfate is a soluble powder, oil adjuvants are emulsifiable concentrates and most surfactants are solutions. Within each group, usually add the pesticide before the adjuvant. For example, add a soluble-powder pesticide before ammonium sulfate.

Know the benefits and risks of tank-mixing before you make an application. In some cases, compatibility of two or more chemicals is based on the order in which they are added to the tank mix.



Tank-mixing can lead to a variety of mishaps if not done correctly. Being aware of the benefits and risks while following the proper guidelines is critical to ensuring the success of any tank mix procedure and application.

This information is presented in good faith for your reference. Always read and follow product label directions before tank-mixing.

# GENERAL CLEANING PRACTICES FOR SPRAYER EQUIPMENT

1. **CLEAN SPRAYER:** Once tank is empty, clean sprayer in an area that will not allow the contamination of water bodies, sources, crops or other areas that are not accessible to others, pets and livestock.
2. **RINSE 1:**
  - a) Rinse equipment, removing any product adhering to the inside of the tank. Fill tank to 10% full of water and herbicide recommended rinse solution (see below). Agitate for 15 minutes.
  - b) Flush RINSE 1 through the booms, hoses and nozzles then drain.
  - c) Once done flushing, disassemble all strainers, filters, nozzles, screens, diaphragms and boom ends where residue can get tied up. Clean separately with an ammonia solution of 100 mL/10 L water. Inspect thoroughly and reassemble.
3. **RINSE 2:** Fill tank to 10% full of water and add the RINSE 2 solution if needed (see below) while agitating. Charge up the booms and continue to agitate for 15 minutes before flushing out again.
4. **ADDITIONAL RINSES:** Complete additional rinses, as requested from the table below, by filling, agitating and flushing the system with the recommended solution each time.
5. **FINAL RINSE:** Fill tank to 10% full of clean water and flush through the booms and hoses. Remove end caps/open ball valves and flush water through to ensure no spray solution is trapped. Drain any remaining water.

HERBICIDE	HERBICIDE NUMBER OF RINSES			
	1	2	3	4
2,4-D ESTER 700	W	D or 1%A	W	
ARMORY® 240	W	1%S	W	
ARROW ALL IN®	W	D	W	
BADGE®	W	D or 1%A	W	
BISON® 400 L	W	D or 1%A	W	
BROMOTRIL®	D	W		
DAVAI® 80 SL	W			
DAVAI A PLUS™	W	D	W	
DAVAI® Q PLUS	W	1%A	1%A	W
EMPHASIS®	D	W	3%A	W
ADAMA GLUFOSINATE 150 SL	D	W		
INVOLVE® 50 WDG	W	1%A	W	W
LEOPARD®	W	1%A	1%A	W
MCPA ESTER 600	W	D or 1%A	W	
PHANTOM® 240 SL	W			
PYTHON®	D	W	W	
RUSH 24 ALL IN™	W	D or 1%A	W	
SQUADRON®	D	D	D	W

IMPORTANT NOTES		SOLUTION	
<p>If a tank-mix partner is used, always check tank-mix partner label for any additional clean up procedures.</p> <p>Be cautious with dry granular products, like florasulam, which can severely harm a sensitive broadleaf crop if not properly cleaned out.</p> <p><b>WARNING:</b> Never mix chlorine (bleach) and ammonia as a reaction-producing toxic gas can occur.</p>		A	Ammonia Solution (min. 3% ammonia – Finish or Flush)
		D	Detergent Solution
		S	Non-Ionic Surfactant
		W	Water



# METRIC/IMPERIAL CONVERSIONS

Metric Unit	Imperial Multiply by	Imperial Unit	Metric Multiply by	Metric Unit
<b>LINEAR</b> centimetre (cm)	x 0.39	inch	x 2.54	<b>LINEAR</b> centimetre (cm)
<b>AREA</b> square metre (m <sup>2</sup> ) hectare (ha)	x 1.2 x 2.5	square yard acres	x 0.84 x 0.4	<b>AREA</b> square metre (m <sup>2</sup> ) hectare (ha)
<b>VOLUME</b> litre (L) litre (L)	x 0.22 x 0.27	Imperial gallon U.S. gallon	x 4.55 x 3.79	<b>VOLUME</b> litre (L) litre (L)
<b>PRESSURE</b> kilopascals (kPa)	x 0.14	psi	x 6.9	<b>PRESSURE</b> kilopascals (kPa)
<b>WEIGHT</b> gram (g) kilogram (kg)	x 0.04 x 2.2	oz lb	x 28.35 x 0.45	<b>WEIGHT</b> gram (g) kilogram (kg)
<b>AGRICULTURAL</b> litres per hectare (L/ha) litres per hectare (L/ha) litres per hectare (L/ha) litres per hectare (L/ha) millilitres per hectare (ml/ha) millilitres per hectare (ml/ha) kilograms per hectare (kg/ha) grams per hectare (g/ha)	x 0.09 x 0.11 x 0.36 x 0.71 x 0.015 x 0.014 x 0.89 x 0.014	Imperial gallons per acre U.S. gallons per acre quarts per acre pints per acre Imperial fl. oz per acre U.S. fl. oz per acre lb per acre oz per acre	x 11.23 x 9.35 x 2.81 x 1.41 x 70.17 x 73.05 x 1.12 x 70	<b>AGRICULTURAL</b> litres per hectare (L/ha) litres per hectare (L/ha) litres per hectare (L/ha) litres per hectare (L/ha) millilitres per hectare (ml/ha) millilitres per hectare (ml/ha) kilograms per hectare (kg/ha) grams per hectare (g/ha)

EXAMPLE: To convert centimetres to inches, multiply by 0.39; conversely, to convert inches to centimetres, multiply by 2.54.

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