



FMC

An Agricultural
Sciences Company



2025 PRODUCT GUIDE

EASTERN CANADA





An Agricultural
Sciences Company

SETTING UP GOOD STORIES IN 2025

We can't predict which weather events will become the storyline in 2025. But we know that no matter what happens, a healthy plant that doesn't have to compete with weeds for resources or fight off insect pressure at critical times will do better than a plant left to fend for itself.

FMC continues to be dedicated to researching products, application options and technologies. Bringing new solutions that will enable our end users to achieve higher yields more economically, more efficiently and more sustainably. Whether it is a small problem today or an industry wide concern for our future, we want to be part of those solutions.

Our product guide brings you a snapshot of each solution that FMC can offer.

Thank you for making us a part of your success this year. We wish you a safe, productive and profitable 2025.





Table of Contents

HERBICIDE

Aim® EC	7
Authority® 480	9
Authority® Supreme.....	11
Barricade® M.....	13
Command® 360 ME.....	15
Express® FX.....	17
Express® SG	18
Focus®	21
Muster®	23
Pinnacle® SG	24
Refine® M.....	25
Refine® SG.....	26
Spartan®	27
UpBeet®	28

INSECTICIDE

Altacor® MaX.....	33
Beleaf® 50SG.....	38
Coragen® MaX	42
Cygon® 480-AG.....	47
Cygon® 400EC	51
Exirel®	55
Pounce® 384EC	65
Verimark®	72

FUNGICIDE

Fullback® 125 SC	77
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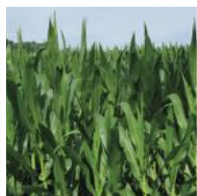
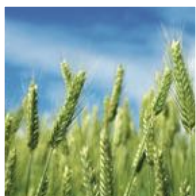
OTHER

Herbicide Mixing Instructions	83
The Benefits of Solumax®	84
Product Storage	85
FMC Tank Mix Policy.....	85



Herbicide

Aim® EC	7
Authority® 480	9
Authority® Supreme	11
Barricade® M	13
Command® 360 ME	15
Express® FX	17
Express® SG	18
Focus®	21
Muster®	23
Pinnacle® SG	24
Refine® M	25
Refine® SG	26
Spartan®	27
UpBeet®	28




Herbicide

Aim® EC	7
Authority® 480	9
Authority® Supreme.....	11
Barricade® M.....	13
Command® 360 ME.....	15
Express® FX.....	17
Express® SG	18
Focus®	21
Muster®	23
Pinnacle® SG	24
Refine® M.....	25
Refine® SG.....	26
Spartan®	27
UpBeet®	28



A flexible tank-mix partner for enhanced burnoff and harvest-aid

- Controls a wide range of troublesome weeds and provides a quicker burndown of hard-to-control species
- Controls many glyphosate-resistant weed biotypes
- Potato harvest aid¹: provides broadleaf weed control and potato leaf and stem desiccation for improved harvestability and tuber quality
- Sucker control in grapes, stone fruit, pome fruit, tree nuts and primocane control in caneberries

 **Crops: Harvest-aid:** Potatoes, dry beans, soybean, cereals and other legume crops. *Refer to the label pre-harvest interval table for appropriate application timing.*


Pre-plant burnoff: Cereals, cucurbit vegetables, fruiting vegetables, legume vegetables, mint, potatoes, rapeseed (including canola) and sunflowers.

Pre-emergence: Cereals, legume vegetables, rapeseed (including canola) and sunflowers.

Hooded sprayer application: Brassicas, berries, bulb vegetables, cucurbits, fruiting vegetables, leafy vegetables, legumes, mint, pome fruit, root vegetables, stone fruit and tree nuts.


Post-harvest burndown: Aim[®] EC herbicide can be applied after harvest to control certain emerged weeds. Cereals, cucurbits, fruiting vegetables, legume vegetables, mint, potatoes, rapeseeds (including canola) and sunflowers can be planted the following spring after post-harvest application. All other crops can be planted after 12 months.

Do not apply more than two applications in total per year, including post-harvest application.

 **Timing:** Pre-Seed, pre-emerge (up to 3 days after seeding), harvest-aid and post-harvest application

 **Herbicide Group:** Group 14

 **Active Ingredient(s):** Carfentrazone-ethyl

 **Packaging:** 8 x 1.2 L jugs per case

 **Crop Rotation:**

Crop	Rotation Interval
Legumes, fruiting vegetables, cucurbits, cereals, oilseeds, potatoes, rapeseed, sunflowers and mint	Any time
All other crops	12 months

Weeds Controlled and Application Information

Weeds	Rate	Application Information
Lamb's-quarters (up to 7.5 cm tall), morning glory (up to 3 leaves), black nightshade (up to 5 cm tall), Eastern black nightshade (up to 5 cm tall), pigweed (redroot), velvetleaf, tall waterhemp (up to 5 cm tall)	15 mL/ac	Water volume: 10 gal/ac (100 L/Ha) Registered and Supported Tank-Mixes ³ : Glyphosate, 2,4-D ester, MCPA Ester, Nufarm Kori [®] 235, IPCO [®] Brotex [®] 240, 480 and IPCO Brotex [®] 4AT, Command 360ME herbicide, Express [®] SG herbicide, Bromotril [®] products (Bromotril [®] 240 EC, Bromotril [®] 240 II EC), Authority [®] Supreme herbicide, Authority [®] 480 herbicide.
All above plus: Flixweed, lamb's-quarters, mallow (round-leaved), morning glory, nightshade (hairy), pigweed (prostrate, smooth, tumble), purslane (common), Pennsylvania smartweed (seedling), stinkweed, mustard (tansy), waterhemp (common, tall)	24 mL/ac	Control of weeds up to 10 cm tall, or as specified. Apply with adjuvant: Please refer to FMC's Tank Mix Policy on Page 85. Non-ionic surfactant (0.25% v/v), Merge [®] (1% v/v), Destination [™] MSO (1% v/v), Journey [™] or Destinaire [™] High Surfactant Oil Concentrates (0.5% v/v). See label for instructions regarding use of Aim [®] EC herbicide in sucker management.
All above plus: Carpetweed, cleavers, cocklebur, jimsonweed, kochia, black nightshade, Eastern black nightshade, Russian thistle (up to 5 cm tall), shepherd's purse, volunteer canola (all types)	30 mL/ac	
All above plus: Burclover, lettuce (prickly), Venice mallow, corn spurry	47 mL/ac	

Surfactant note - Preplant, pre-emergence, post-harvest and in-fallow: When using Aim[®] EC herbicide alone, use a non-ionic surfactant at 0.25% v/v, Merge[®] at 1% v/v, Destination[™] MSO at 1% v/v or Journey[™] or Destinaire[™] High Surfactant Oil Concentrates at 0.5% v/v. A surfactant is not required when tank mixed with glyphosate. Refer to label for surfactant information for harvest-aid use.

Aim[®] EC herbicide for potato desiccation

Benefits of tank-mixing Aim[®] EC herbicide with Reglone[®] Desiccant for potato desiccation

- Improves vine kill's success rate, resulting in:
 - Better skin set
 - Better detachment of the tuber from the stolon
- Reliable control of tough broadleaf weeds like redroot pigweed, lamb's-quarters, nightshades and more

	Reglone [®] desiccant	Aim [®] EC herbicide
Active	Diquat ion (dibromide) (240 g/L)	Carfentrazone-ethyl (240 g/L)
Rate	1st app: 506 - 931 mL/ac 2nd app: 506 mL/ac	1st app: 94 - 142 mL/ac 2nd app: 94 - 142 mL/ac
PHI	1 day	7 days

Dense potato canopy, large plant size, and environmental conditions not conducive to product absorption or activity will reduce initial application efficacy and increase the need for a second application. If a second application is necessary, apply at 7 to 14 days after the first application. Thorough coverage of the potato plant to be desiccated is essential (minimum of 10 gal/ac (100 L/Ha) water volume).

¹ For maximum pre-harvest benefits, tank-mixing Aim[®] EC herbicide + Reglone[®] Desiccant is recommended.

² Refer to label for complete crop listing.

³ Adjuvant not required for some tank mixes, see label.

Extended control of tough broadleaf weeds

- Pre-plant/pre-emergent extended control of tough broadleaf weeds in soybeans and a wide range of other crops

🌱 Crops: Soybeans, chickpeas, field peas, flax, sunflower, tame mustard, asparagus, faba bean, mint, strawberry, horseradish, cabbage (transplants only), tomato (transplants only), walnuts, grapes, caneberries, bushberries, apples, and spring and durum wheat

🌿 Herbicide Group: Group 14

🔍 Active Ingredient(s): Sulfentrazone

📦 Packaging: 4 x 3.79 L jugs per case

🔄 Crop Rotation

Rotation Interval	Crop
Any time (All rates)	Alfalfa seed production (dormant, established stands), asparagus (established), broccoli, cabbage (transplants), cauliflower, chickpea, faba bean, field pea, flax, grapes and berries, horseradish, leafy greens, potato, soybean, Strawberry (dormant, established), sunflower, tomato (transplants), tree nuts
Any time (Low Rate)	Tame mustard; spring and durum wheat
4 months	Winter wheat
12 months	Alfalfa, barley, canary grass, canola, field corn, oats, spring and durum wheat (high rate), mustard (high rate)
24 months	Sweet and pop corn, lentils, sorghum

Weeds Controlled and Application Information

Weeds	Rate	Application Timing	Application Information
Kochia, Lamb's quarters Powell pigweed Redroot pigweed Russian thistle ¹	43 ac/jug (89 mL/ac)	Apply pre-plant or post-seed (up to 3 days after seeding).	<p>Early application (pre-plant) increases activation potential via spring showers. Post-seed application should be considered with higher disturbance seeding equipment.</p> <p>A minimum of 10 gal/ac (100 L/Ha) provides best uniform soil coverage with medium to coarse droplet sizes.</p> <p>To supplement broadleaf control, tank-mix with metribuzin or imazethapyr or Express[®] SG herbicide. To control grass weeds, tank-mix with Focus[®] herbicide or Boundary[®] LQD.</p> <p>Do not apply Authority[®] 480 herbicide to fields treated with products containing sulfentrazone in the previous year.</p> <p>Do not apply Authority[®] 480 herbicide (or any other product containing sulfentrazone) to spring wheat if an application of Focus[®] herbicide (or any other product containing pyroxasulfone) was applied in the previous fall.</p> <p>Do not apply to soils classified as coarse-textured soils.</p> <p>Do not apply in any type of soil with organic matter lower than 1.5% or greater than 6%.</p> <p>Do not use on soils with a pH of 7.8 or greater.</p>
<i>Above weeds plus:</i> Cleavers ¹ Common groundsel Common purslane Common waterhemp Eastern black nightshade Large crabgrass Smooth crabgrass Wild buckwheat Yellow woodsorrel	32 ac/jug (118 mL/ac)		

¹Suppression

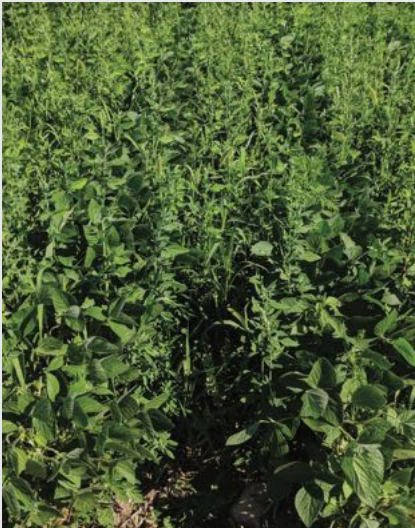
Excellent Pre-Emergent Weed Control

38 Days After Application



Location: Woodstock, ON

61 Days After Application



Untreated Check

Location: Bright, ON

**Authority[®] 480 herbicide 118 mL/ac (292 mL/Ha)
+ Boundary[®] LQD 1 L/ac (2.5 L/Ha)**



AUTHORITY[®] SUPREME HERBICIDE

Your next line of defense against grassy weeds, broadleaf weeds and herbicide resistance

- Pre-plant/pre-emergent grassy and broadleaf extended weed control for soybeans, field peas, sunflowers, chickpeas and field-grown conifers (including Christmas trees)
- Consistent performance on tough to control weeds
- Multiple rate options: lower rate in herbicide-tolerant (HT) soybeans for critical early season weed control or higher rate for longer, extended weed control in IP soybeans
- Multiple modes of action for herbicide resistance management

Crops: Soybeans (IP or HT), field peas, sunflowers, chickpeas and field-grown conifers (including Christmas trees)

Herbicide Groups: Groups 14 & 15

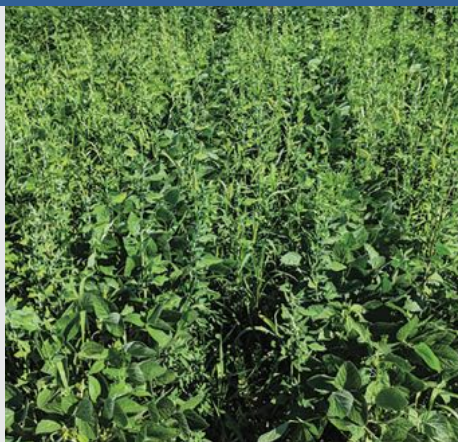
Active Ingredient(s): Sulfentrazone, pyroxasulfone

Packaging: 2 x 8 L jugs per case

Crop Rotation

Rotation Interval	Crop
Any time	Alfalfa seed production (dormant, established stands), chickpeas, field peas, soybeans, sunflowers,
4 months	Winter wheat
12 months	Barley, canola, field corn, mustard, oats, spring and durum wheat
24 months	Lentils
36 months	Sugar beet

Broadleaf and Grassy Weed Control



Untreated Check



Authority[®] Supreme herbicide (202 mL/ac)

51 Days After Application

Location: Bright, ON



AUTHORITY[®]

SUPREME

HERBICIDE



Weeds Controlled and Application Information

Weeds	Rate	Application Timing	Application Information
Grass weeds Barnyardgrass Brome (downy, Japanese) Crabgrass (large, smooth) Foxtail (green, yellow, giant) Witchgrass Wild oats ¹	Setup Treatment (early season control only) 50 ac/jug (162 mL/ac)	Apply pre-plant or pre-emergence (up to 3 days after seeding).	Early application (pre-plant) increases activation potential via spring showers. Pre-emergence application should be considered with higher disturbance seeding equipment. A minimum of 10 gal/ac (100 L/Ha) provides uniform soil coverage with medium to coarse droplet sizes. Authority [®] Supreme herbicide can be applied on its own or mixed with one or more herbicide products, provided that the tank-mix product labels do not prohibit such mixing. Authority [®] Supreme herbicide can be tank-mixed with labelled rates of glyphosate (that are registered for the same uses). Please refer to FMC's Tank Mix Policy on Page 85. DO NOT apply Authority [®] Supreme herbicide to fields treated with Authority [®] 480 herbicide or Authority [®] Supreme herbicide or any product containing sulfentrazone, in the previous year. Restrictions: Do not apply to soils classified as coarse-textured soils. Do not use on peat or muck soils. Do not apply on any type of soils with an organic matter content less than 1.5% or greater than 6%. Do not use on soils with a pH of 7.8 or greater.
Broadleaf weeds Cleavers Common groundsel Common purslane Common ragweed ¹ Common waterhemp Cow cockle Eastern black nightshade Kochia Lamb's-quarters Palmer amaranth Pigweed (redroot, green/Powell) Russian thistle ¹ Stinkweed Wild buckwheat Wild mustard ¹ Yellow woodsorrel	Extended Control 40 ac/jug (202 mL/ac) (medium texture, O.M. 1.5 - 3%) 33 ac/jug (243 mL/ac) (medium-fine/fine texture, O.M. 3 - 6%)		
Horsetail control in field-grown conifers (including Christmas trees)	20 ac/jug (408 mL/ac)	Pre-emergence to horsetail, applying as soon as the ground thaws	Not recommended for over-the-top broadcast spray, limit to directed sprays (banded application). Maximum one application per season. Testing on a small number of plants will determine suitability for widespread application. Prior to treating the entire crop, examine test plants for 4-8 weeks for symptoms of phytotoxicity.

¹Suppression

Systemically controls your toughest broadleaf weeds with multiple modes of action

- Controls a wide range of troublesome weeds, including chickweed, common ragweed, dandelion, lamb's-quarters, perennial sow thistle, tufted vetch and pigweeds, along with suppression of Canada thistle, wild carrot, and more
- Gentle on the crop and has outstanding re-cropping flexibility the following year
- Powered by Solumax® soluble granules for effective and consistent weed control, as well as easier, more consistent sprayer cleanout to reduce risk to subsequently sprayed crops
- 🌾 **Crops:** Wheat (winter, spring, durum), spring barley, oats
- 🧪 **Herbicide Groups:** Groups 2 & 4
- 🔍 **Active Ingredient(s):** Thifensulfuron-methyl, Tribenuron-methyl, Fluroxypyr and MCPA Ester
- 📦 **Packaging:** Case - 486 g + 3.4 L + 7.6 L (case treats 40 acres)
- 🔄 **Crop Rotation:**

Rotation Interval	Crop
Following year	Alfalfa, barley, canola, corn, dry beans, faba beans, flax, forage grasses, lentils, mustard, oats, peas, potatoes, rye, soybeans, sugar beets, sunflowers and wheat

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing
Wheat (winter, spring, durum), spring barley, oats.	Canada thistle ¹ Cleavers (1 to 9 whorls) Common chickweed (1-6 leaf) Common ragweed (up to 10 cm) Cow cockle Dandelion (spring and fall rosettes up to 15 cm) Flixweed Hemp-nettle (1-8 leaf) Kochia (up to 10 cm) Lamb's-quarters Narrow-leaved hawk's-beard Night-flowering catchfly Perennial sow thistle Redroot pigweed Round-leaved mallow (1-5 leaf) Russian thistle Scentless chamomile Shepherd's purse (up to 20 cm) Smartweed (green, lady's thumb) Stinkweed Stork's-bill (1-6 leaf) Tufted vetch (up to 15 cm) White cockle Wild buckwheat Wild carrot ¹ (up to 15 cm) Wild mustard Volunteer canola (2-4 leaf) Volunteer flax (up to 12 cm)	40 ac/case Add a registered non-ionic surfactant (NIS) at 2 L per 1000 L of spray solution (0.2% v/v). When tank-mixing with a grass herbicide, use the surfactant provided with that product. Do not use additional surfactant unless otherwise indicated on the label.	Wheat (spring, durum), barley and oats - 3 leaf to initiation of stem elongation. Winter wheat - 3 tiller to just before flag leaf. Minimum water volume of 5 gal/ac (50 L/Ha) recommended.

¹Suppression

Barricade[®] M herbicide on Dandelion



16 DAA



47 DAA

Barricade[®] M herbicide on Wild Carrot



Untreated Check



42 DAA

Barricade[®] M herbicide on Canada Thistle



16 DAA



47 DAA

Broadleaf and grassy weed control in a variety of horticultural crops

- Microencapsulated (ME) formulation protects the integrity of the herbicide, so crops can be protected
 - Controls broadleaf and grassy weeds in processing pumpkins, squash and cucurbits
 - Excellent tank-mix partner
 - Activates with rainfall and does not require incorporation
- Crops:** Soybeans, field cucumbers, melons, squash, field peppers, processing pumpkins, cilantro, field sweet potatoes, canola, mustard, camelina, asparagus and dry beans

Herbicide Group: Group 13

Active Ingredient(s): Clomazone

Packaging: 2 x 5.4 L jugs per case

Crop Rotation

Rotation Interval	Crop	Rate of Command® 360 ME herbicide
Any time	Soybeans, spring canola, mustard, camelina, dry beans	101-134 mL/ac
4 months	Winter wheat	
Following spring	Beans (white, kidney, snap), corn (field, sweet), peas, peppers (transplant, plugs), broccoli (transplant, plugs), cucumbers, melons, pumpkins, squash, potatoes, spring wheat, durum wheat, spring barley, oats, lentils	
Any time	Soybeans	316-951 mL/ac
Following spring	Beans (white, kidney, snap), corn (field, sweet), peas, peppers (transplant, plugs), broccoli (transplant, plugs), cucumbers, melons, pumpkins, squash, potatoes, spring canola, spring wheat	
16 months	All other crops	

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Soybean, peppers, asparagus	Velvetleaf Lamb's-quarters Lady's thumb (smartweed) Eastern black nightshade Redroot pigweed ² Common ragweed ² Barnyardgrass Green foxtail Yellow foxtail ¹	Based on soil type³ Light: 627 mL/ac Medium: 789 mL/ac Heavy: 951 mL/ac	Soybean - apply between seeding and soybean emergence Peppers - apply before transplanting and prior to weed emergence Asparagus - apply prior to spear emergence or after a clean harvest	Minimum water volume of 10 gal/ac (100 L/Ha) is recommended. Soybeans - Command® 360 ME herbicide may be tank-mixed with Sencor® 75DF, Pursuit® 240 or Dual II Magnum®. See label for specific instructions. Peppers - Place roots of the transplants below the chemical barrier when planting. Do not apply to banana peppers. Do not apply to sandy soil. Pre-harvest interval is 70 days. Asparagus - Cover exposed plants prior to application. Pre-harvest interval is 14 days.

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Cilantro, melons (muskmelons, watermelons)	Velvetleaf ² Lamb's-quarters ² Barnyardgrass ²	316 mL/ac	Apply as a single, soil-applied, pre-emergent treatment after seeding and prior to weed and crop emergence.	Apply in 10-40 gal/ac (100-375 L/Ha) of spray water. Do not apply within 60 days of harvest. Do not apply to sandy soils.
Cucumbers, squash (including processing pumpkin varieties)	Velvetleaf ² Lamb's-quarters ² Barnyardgrass ²	316-474 mL/ac Use lower rate on light (coarse) soils and higher rate on heavy (fine) soils ³	Apply as a single, soil-applied, pre-emergent treatment after seeding and prior to crop or transplanting and weed emergence.	Apply in 10-40 gal/ac (100-375 L/Ha) of spray water. Do not use on Jack-O-Lantern pumpkins. Some squash cultivars may have unacceptable whitening of the fruit. See label for complete varietal listing. Do not apply to sandy soil. Do not apply within 30 days of harvest.
Sweet potato	Velvetleaf Lamb's-quarters Lady's thumb (smartweed) Eastern black nightshade Redroot pigweed ² Common ragweed ² Barnyardgrass Green foxtail Yellow foxtail ²	627 mL/ac ³ on light (coarse) soils	Apply as a single, soil-applied application after transplanting and prior to weed emergence.	Apply in a minimum of 10 gal/ac (100 L/Ha) spray water. Do not apply post transplant to sweet potatoes. Do not apply within 95 days of harvest.
Canola	Cleavers ⁴ Common chickweed ²	101-134 mL/ac	Apply as a single, soil-applied application prior to seeding canola and prior to weed emergence.	Apply in a minimum of 10 gal/ac (100 L/Ha) spray water. Do not apply to sandy soils.

¹Controlled only at the 950 mL/ac rate of Command[®] 360 ME herbicide when not tank-mixed.

²Suppression

³Light (coarse) soils: sandy loam

Medium soils: loam, silt loam, silt, sandy clay loam

Heavy (fine) soils: silty clay, clay loam, clay

⁴Suppression of cleavers at 101 mL/ac

Control weeds down to the root in the fall to get crops off to a clean start in the spring

- Three modes of action when tank-mixed with glyphosate
- Enhanced control of key fall weeds: dandelion, Canada fleabane¹, Canada thistle¹ and stinkweed
- Systemic activity all the way down to the root, so weeds won't grow back
- Can also be applied in the spring if desired

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

🕒 Active Ingredient(s): Tribenuron-methyl, dicamba

📊 Registered and Supported Tank-mixes: Must be tank-mixed with glyphosate. Please refer to FMC Tank Mix Policy on Page 85.

🕒 Timing: Pre-seed burnoff, chemfallow and post-harvest

🔄 Crop Rotation:

Express® FX herbicide timing	Rotation Interval	Crop
Pre-seed	24 hours	Wheat (spring, durum, winter), barley, oats
Pre-seed	Following Year	Any crop
Chemfallow		Any crop
Post-harvest		Canola, corn, lentils, oats, spring barley, soybeans, wheat (spring or durum), white bean

🔍 Application Information

Rates and Packaging: 2 x 1.86 kg jugs per case (each jug treats 40 acres)

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

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

Weeds Controlled (Express® FX herbicide plus 0.5 L/ac glyphosate equivalent) [†] :		Stage
Common ragweed Kochia (including Gr. 2 & 9 resistant biotypes)	Narrow-leaved hawk's-beard Scentless chamomile ¹	Up to 8 cm
Canada Fleabane ¹ (including Group 9 resistant biotypes)	Wild Carrot ¹	Up to 10 cm
Cleavers Dandelion Downy brome Flixweed Giant foxtail Green foxtail Hemp-nettle Lady's-thumb Lamb's-quarters Persian darnel Redroot pigweed	Russian thistle Stinkweed Tufted vetch ¹ Volunteer barley Volunteer canola (including glyphosate-tolerant varieties) Volunteer flax Volunteer wheat Wild mustard Wild oats	Up to 15 cm
Cow cockle		Up to 3 cm
Common chickweed	Wild buckwheat	Up to 8 cm
Canada thistle ¹	White cockle ¹	Rosette

¹ Suppression.

[†] Original 360 g/L formulation.

Refer to the Express® FX herbicide label for complete use instructions.

Enhance your spring burndown and burn weeds right down to the root

- Supports a weed-free start to the growing season
- Systemic activity on the weeds for control from shoots to roots
- Fall or spring application keeps your options open with flexible recropping

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

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

 **Active Ingredient(s):** Tribenuron-methyl

 **Packaging:** 8 x 243 g jugs per case (each jug treats 40 acres)

Registered Tank-mixes:

Express® SG herbicide must be tank-mixed with glyphosate for pre-seed, chemfallow and post-harvest applications.

Aim® EC herbicide + glyphosate and Authority® 480 herbicide + glyphosate. Consult the tank-mix partner label for specific application use and restrictions. (Always follow the most restrictive label)

Please refer to the FMC Tank Mix Policy on Page 85.

Crops and Rotation:

Express® SG herbicide timing	Rotation Interval	Crop
Spring Pre-seed Application	24 hours	Wheat (spring, winter, durum), barley, oats, pulse crops* (dry beans, soybean, faba beans, field peas, lupin), alfalfa*, clover* (red, yellow sweet, sainfoin & alsike), bromegrass* (smooth, meadow & hybrid), timothy*, fescue* (creeping red, meadow & tall), wheatgrass* (crested & slender), canary seed
	2 months	Canola, flax
	Following year	Any other crop
Fall / Post-harvest Application	24 hours	Winter wheat
	Following spring	Any crop listed above for 24 hour spring application PLUS: Field corn, canola, flax, chickpea, lentil

*Note: Injury to pulse crops or forages 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 in soils containing more than 50% sand.

Crop	Weeds (up to 15 cm unless otherwise stated)	Rate	Application Timing	Application Information
Wheat (spring, winter, durum), barley, oats, pulse crops*** (dry beans, soybean, faba beans, field peas, lupin), alfalfa***, clover*** (red, yellow sweet, sainfoin, & alsike), bromegrass*** (smooth, meadow & hybrid), timothy***, fescue*** (creeping red, meadow & tall), wheatgrass*** (crested & slender), canary seed	Canada fleabane** (8 cm) Canada thistle ¹ (rosette) Common chickweed (up to 8 leaf) Common ragweed (8 cm) Cow cockle (3-leaf) Dandelion Downy brome Foxtail (giant, green) Flixweed Hemp-nettle Lady's-thumb Lamb's-quarters Narrow-leaved hawk's beard (8 cm) Persian darnel Redroot pigweed Russian thistle Scentless chamomile ¹ (8 cm) Stinkweed Tufted vetch ¹ Volunteer barley, wheat Volunteer canola (incl. glyphosate tolerant varieties) Volunteer flax Wild buckwheat (3-leaf) Wild carrot (up to 10 cm) ¹ White cockle ¹ (rosette) Wild mustard Wild oat	6 g/ac + 0.5 L/ac glyphosate equivalent	Pre-seed, chemfallow and post-harvest	Minimum water volume of 5 US gal/ac (50 L/Ha) is recommended
Tribenuron-tolerant sunflowers	Lamb's-quarters (9-leaf) Wild buckwheat ¹ (1-6 leaf)	Express [®] SG herbicide at 6 g/ac + Hasten [®] NT or Hasten [®] NT ULTRA spray adjuvant at 0.5% v/v OR a non-ionic surfactant such as Agral [®] 90 or Ag-Surt [®] at 0.2% v/v	In-crop: 2-8 leaf stage of sunflowers	Minimum water volume of 5 US gal/ac (50 L/Ha) is recommended Can be tank-mixed Express [®] SG herbicide at 6 g/ac + Assure [®] II herbicide at labelled rates + Merge [®] at 0.5-1% v/v or Sure-Mix [™] at 0.5% v/v Express [®] SG herbicide at 6 g/ac + Hasten [®] NT at 0.5% v/v + Poast [®] Ultra Liquid Emulsifiable herbicide at 190 mL/ac Express [®] SG herbicide at 6 g/ac + Select [®] , Centurion [®] , or Shadow [®] RTM herbicide at 76 mL/ac + Amigo [®] adjuvant at 1% v/v

Crop	Weeds (up to 15 cm unless otherwise stated)	Rate	Application Timing	Application Information
Pasture and rangeland	Narrow-leaved hawk's-beard Tall buttercup	6 g/ac + NIS at 0.2% v/v	In-crop Apply to broadleaf weeds in the early bud to pre-bloom stage	Minimum water volume of 5 US gal/ac (50 L/Ha) is recommended
	Above weeds PLUS: Common tansy Dandelion White cockle	12 g/ac + NIS at 0.2% v/v		

Grassy weed control from glyphosate portion of tank-mix. All weeds sizing up to 15 cm unless otherwise stated
¹ Suppression

*Original 360 g/L formulation. Can tank-mix with glyphosate of choice

**Will not control Gr. 2 and Gr. 9 resistant Canada Fleabane

***For pre-seeding applications in spring, injury to FORAGES and PULSE CROPS planted in coarse-textured soils, low in organic matter (<3%), or in field with variable soils, gravelly areas, sandy areas, or eroded knolls can occur

Express[®] SG Herbicide on Dandelions Fall 2018 Application – Spring 2019 Photos



Untreated



Express[®] SG herbicide (6 g/ac) +
Glyphosate (1 REL/ac)

Location: Bright, ON

Superior pre-emergent, extended control of grassy weeds, plus effective broadleaf activity

- This pre-formulated product with two active ingredients provides long-lasting, extended control of grassy and broadleaf weeds, with effective burndown on several broadleaf weeds
- Ideal pre-plant/pre-emergent solution to fight weed resistance and helps maximize yield
- Tank-mixes easily for broader spectrum control
- 🚫 **Crops:** Field corn, field peas, soybeans, sunflowers, wheat (spring and winter, excluding durum) and lentils
- 🕒 **Timing:** Focus[®] herbicide can be applied pre-plant or pre-emergence. Requires a minimum 1/2" of moisture, at once, for activation. Plant wheat and corn a minimum of 2.5 cm deep, plant soybeans a minimum of 4 cm deep.
- 🧪 **Herbicide Groups:** Groups 14 & 15
- 🔍 **Active Ingredient(s):** Pyroxasulfone + carfentrazone-ethyl
- 📦 **Packaging:** 4 x 4.5 L jugs per case
- 🔄 **Crop Rotation**

Rotation Interval	Crop
Any time	Field corn, soybeans, wheat (winter and spring, excluding durum), field pea, sunflower and lentils
12 months	Chickpeas, flax, safflower, barley, canola, mustard, oats and durum wheat
24 months	Sugar beets

If there is a lack of adequate or normal soil moisture due to drought conditions following an application of Focus[®] herbicide, the minimum rotational crop interval described above must be extended for one additional year and a representative bioassay of the field must be conducted with the potential rotational crop and adequate soil moisture to determine the crop sensitivity to Focus[®] herbicide.

Weeds Controlled and Application Information				
Crop	Weeds	Rate	Application Timing	Application Information
Field corn, soybeans, wheat (spring and winter), lentils, field peas and sunflowers	Annual grasses (registered for extended control): Wild oats ¹ Foxtail (green, yellow, giant) ¹ Foxtail barley ¹ Barnyardgrass Downy brome Japanese brome Italian ryegrass Large crabgrass Annual bluegrass	Setup Treatment (early season control only) 50 ac/jug (91 mL/ac) Residual Treatments 40 ac/jug (113 mL/ac) (coarse/medium texture, O.M. 1-3%) 33 ac/jug (136 mL/ac) (medium-fine/fine texture, O.M. >3-7%)	Apply pre-plant or post-seed (up to 3 days after seeding).	Application Information For burn-off control of emerged weeds, the addition of an adjuvant is required. Use a nonionic surfactant (NIS) at 0.25% v/v (0.25 L per 100 L of spray solution) or use Merge at 1% v/v. Only apply pre-seed if using low disturbance seeding equipment that does not move soil laterally. Minimum water volume of 10 gal/ac (100 L/ha) Depending on the crop, Focus [®] herbicide may be tank mixed with other products whose labels allow tank mixing. Depending on the crop, tank-mix Focus [®] herbicide + Express [®] SG herbicide + glyphosate for pre-plant application to control broadleaf weeds and grasses in wheat, soybeans, field peas.

¹Suppression

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Field corn, soybeans, wheat (spring and winter), lentils, field peas and sunflowers	<p>Annual broadleaves (registered for extended control): Pigweed (green, redroot) Cleavers Common waterhemp Stinkweed¹ Velvetleaf Wormseed mustard Kochia¹ Lamb's-quarters¹ Wild buckwheat¹ Wild mustard¹ Eastern black nightshade</p> <p>Emerg ed weeds controlled: Rate: 113 mL/ac or 40 acres/jug Common mallow, round-leaved; flixweed; lamb's-quarters; morning glory; mustard; tansy; nightshade, black (up to 5 cm tall), Eastern black (up to 5 cm tall) and hairy; pennycress, field (stinkweed); smartweed, Pennsylvania (seedling); pigweed, prostrate, smooth and tumble; pigweed, redroot; purslane, common; velvetleaf; waterhemp, tall and common</p> <p>Rate: 136 mL/ac or 33 acres/jug All the weeds controlled at 113 mL/ac plus the following: carpetweed; cleavers; cocklebur; jimsonweed; kochia; nightshade, black and Eastern black; thistle, Russian (up to 5 cm tall); shepherd's purse; canola, volunteer, including glyphosate-tolerant</p>	<p>Setup Treatment (early season control only) 50 ac/jug (91 mL/ac)</p> <p>Residual Treatments 40 ac/jug (113 mL/ac) (coarse/medium texture, O.M. 1- 3%)</p> <p>33 ac/jug (136 mL/ac) (medium-fine/fine texture, O.M. >3 - 7%)</p>	Apply pre-plant or post-seed (up to 3 days after seeding).	<p>Only apply pre-seed if using low disturbance seeding equipment that does not move soil laterally.</p> <p>Minimum water volume of 10 gal/ac (100 L/Ha)</p> <p>Depending on the crop, Focus[®] herbicide is compatible with atrazine, Authority[®] 480 herbicide and glyphosate.</p> <p>Depending on the crop, tank-mix Focus[®] herbicide + Express[®] SG herbicide + glyphosate for pre-plant application to control broadleaf weeds and grasses in wheat, soybeans, field peas.</p> <p>Refer to FMC Tank Mix Policy on Page 85.</p>

¹Suppression

Grassy Weed Control 35 Days After Application



Untreated Check

Focus[®] herbicide
(136 mL/ac)

Untreated Check

Focus[®] herbicide
(136 mL/ac)


Location: Rockwood, ON

- New, more convenient packaging
- Broadleaf weed control in canola, sunflower and Laurentian rutabaga
- Control of wild mustard in Brassica crops

 **Crops:** Sunflower, canola, Laurentian rutabaga

 **Herbicide Group:** Group 2

 **Active Ingredient(s):** Ethametsulfuron-methyl

 **Packaging:** 8 x 320 g jugs per case

 **Timing:**

Canola (spring seeded): 2 leaf stage to beginning of bolting

Laurentian rutabaga: Prior to bolting

Sunflower: 2-8 leaf stage

Weeds: Apply early when weeds are small and actively growing

 **Application Information:**

Rates: See charts below. Make only one application per growing season.

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

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

Region	Rates	Weed Controlled	Recropping*
Canola (Spring Seeded)			
Southern Ontario	6 g/ac	Wild mustard (cotyledon to 6 leaf)	Year of treatment: winter wheat 10 months: soybeans, spring wheat, barley, oats
Quebec and the Maritimes			Year of treatment: winter wheat 10 months: spring wheat, barley, oats
Okanagan & Creston Valley areas of British Columbia	8 g/ac	Flixweed (spring seedlings), green smartweed, hemp-nettle, wild mustard, stinkweed ¹	10 months: spring wheat, barley, oats
	12 g/ac	Flixweed (spring seedlings), green smartweed, hemp-nettle, wild mustard, stinkweed, and redroot pigweed ¹	

¹ Suppression

*Refer to the label for additional recropping information

Do not harvest canola within 60 days of treatment.

Sunflower			
Canada	8 g/ac	Flixweed (spring seedlings), green smartweed, hemp-nettle, wild mustard, stinkweed ¹	10 months: spring wheat, barley, oats
	12 g/ac	Flixweed (spring seedlings), green smartweed, hemp-nettle, wild mustard, stinkweed, and redroot pigweed ¹	

¹ Suppression

Do not harvest sunflower within 60 days of treatment.

Laurentian Rutabaga			
Canada	6 g/ac	Wild mustard (cotyledon to 6 leaf)	Year of treatment: Winter wheat 10 months: soybeans, spring wheat, barley, oats

Do not harvest Laurentian rutabaga within 45 days of treatment.

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


Controls select broadleaf weeds in soybeans and field tomatoes

- New, more convenient packaging
- Recognized leader for post-emergent control of lamb's-quarters
- Powered by Solumax® soluble granules for effective and consistent weed control, and easier, more consistent sprayer cleanout that reduces risk to subsequently sprayed crops

 **Crops:** Soybeans, field tomatoes, Camelina (SES1154HR thifensulfuron-methyl tolerant)

 **Herbicide Group:** Group 2

 **Active Ingredient(s):** Thifensulfuron-methyl

 **Packaging:** 8 x 240 g jugs per case (each jug treats 50-72 acres).

 **Crop Rotation:** Any crop the following year

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Soybeans, field tomatoes	Lady's-thumb Redroot pigweed Wild mustard	3.3 g/ac + NIS	<p>Soybeans: Apply post-emergent from the first fully expanded trifoliolate leaf to before the initiation of flowering. Target weeds when they are small.</p> <p>Tomatoes: Apply post-emergent 3 weeks after transplanting in the field. Weeds should be less than 10 cm (4 in.) tall or across. Weeds that emerge after treatment will not be controlled. Because varieties differ in their tolerance to herbicides, limit the first use of Pinnacle® SG herbicide to a small area of each variety prior to adoption as a field practice.</p>	<p>Soybeans: Add a registered non-ionic surfactant (NIS) such as Agral® 90 or Ag-Surf® at 1 L per 1000 L of spray solution (0.1% v/v). For more consistent control of velvetleaf, add 28% UAN at 4 L per 100 L of spray solution (4% v/v). Pinnacle® SG herbicide can be applied up to 60 days before soybean harvest.</p> <p>Tomatoes: Add a registered non-ionic surfactant (Agral® 90 only) at 2.0 L per 1,000 L of spray solution (0.2% v/v). For a wider spectrum of weeds, apply a tank-mix of Prism® herbicide and Pinnacle® SG herbicide 3 weeks after processing tomatoes are transplanted. If rain occurs after application, control may be reduced. Several hours of dry weather are needed to allow Pinnacle® SG herbicide to be absorbed by weed foliage. Pinnacle® SG herbicide can be applied 45 days before harvest of field tomatoes. Ground only.</p>
	Lady's-thumb Lamb's-quarters Redroot pigweed Velvetleaf Wild mustard	4.8 g/ac + NIS		
Thifensulfuron-methyl tolerant camelina (SES1154HR) Only	Lady's-thumb Lamb's-quarters Redroot pigweed Velvetleaf Wild mustard	4.8 g/ac + NIS	Apply after camelina is established, up to 60 days before harvest, to young actively growing weeds less than 10 cm tall or across. Weeds that emerge after treatment will not be controlled. Do not make more than 1 application per year in thifensulfuron-methyl tolerant camelina.	Add a registered non-ionic surfactant (Ag-Surf®, Agral® 90 or Citowett® Plus) at 1 L per 1000 L of spray solution (0.1% v/v) OR a crop oil concentrate (such as Sure-Mix® at 0.5 L per 100 L of spray solution (0.5% v/v) OR Assist® at 1-2 L per hectare. Use a minimum spray volume of 10 gal/ac. Do not apply by air.


Control of annual and perennial broadleaf weeds


- Broad-spectrum control of broadleaf weeds, including problem weeds such as dandelion, lamb's-quarters, chickweed and redroot pigweed. Suppression of perennial sow thistle and Canada thistle
- Two modes of action for effective herbicide resistance management
- Powered by Solumax[®] soluble granules for effective and consistent weed control, and easier, more consistent sprayer cleanout that reduces risk to subsequently sprayed crops

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

 **Herbicide Groups:** Groups 2 & 4

 **Active Ingredient(s):** Tribenuron-methyl + thifensulfuron-methyl + MCPA Ester

 **Packaging:** Case - 486 g + 7.6 L (case treats 40 acres)

 **Crop Rotation:** Any crop the following year


Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Barley, oats, durum wheat, spring wheat, winter wheat, (not underseeded to legumes or grasses)	Ball mustard Canada thistle ¹ Chickweed (1-6 leaf) Cleavers ¹ (1-3 whorls) Common groundsel Corn spurry Cow cockle Dandelion (spring and fall rosettes; < 15 cm diameter) Flixweed Green smartweed Hemp-nettle Kochia (excluding Gr. 2 resistant biotypes) Lady's-thumb Lamb's-quarters Narrow-leaved hawk's-beard Redroot pigweed Round-leaved mallow ¹ Russian thistle, Scentless chamomile ¹ Shepherd's purse Sow thistle ¹ Stinkweed Stork's-bill ¹ (2-6 leaf) Tartary buckwheat Toadflax ¹ Volunteer canola (all types) Volunteer sunflower (excluding ExpressSun [®] sunflowers) Wild buckwheat (up to the 5-leaf stage) Wild mustard	40 ac/case (12 g/ac Refine [®] SG herbicide + 190 mL/ac MCPA Ester 600) Add a registered non-ionic surfactant (NIS), such as Agral [®] 90 or Ag-Surf [®] at 2 L/1000 L of spray solution (0.2% v/v).	Can be safely applied from the 3-leaf to just before the flag leaf growth stage of the crop.	Canada thistle: Apply when the majority of thistles have emerged and are actively growing. Later emerging thistles will not be controlled. Dandelion: Optimal control is achieved when dandelions are small and actively growing. Minimum water volume of 5 gal/ac (50 L/Ha) is recommended.

¹Suppression

Reliable control of broadleaf weeds

- One of the most reliable broadleaf products on the market, with activity on weeds like lamb's-quarters, chickweed and redroot pigweed
- No recropping restrictions the year after treatment, allowing flexibility in recropping
- Powered by Solumax[®] soluble granules for effective and consistent weed control, and easier, more consistent sprayer cleanout that reduces risk to subsequently sprayed crops
- Wide window of application and excellent crop safety

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

 **Herbicide Group:** Group 2

 **Active Ingredient(s):** Tribenuron-methyl + thifensulfuron-methyl

 **Packaging:** 8 x 486 g jugs per case (each jug treats 40 acres)





 **Crop Rotation:**

Rotation Interval	Crop
2 months	alfalfa, canola, flax, lentils
Following Year	no recropping restrictions

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Barley, oats, durum wheat, spring wheat, winter wheat, (not underseeded to legumes or grasses)	Ball mustard Canada thistle ¹ Chickweed (1-6 leaf) Cleavers ¹ (1-3 whorls) Common groundsel Corn spurry Cow cockle Flixweed Green smartweed Hemp-nettle Kochia (excluding Gr. 2 resistant biotypes) Lady's thumb Lamb's-quarters Narrow-leaved hawk's-beard Redroot pigweed Round-leaved mallow ¹ Russian thistle Scentless chamomile ¹ Shepherd's purse Sow thistle ¹ Stinkweed Stork's-bill ¹ (2-6 leaf) Tartary buckwheat Toadflax ¹ (<15 cm) Volunteer canola (excluding Clearfield [®] canola) Volunteer sunflower (excluding ExpressSun [®] sunflowers) Wild buckwheat (up to 5-leaf) Wild mustard	40 ac/jug (12 g/ac) Add a registered non-ionic surfactant (NIS), such as Agral [®] 90 or Ag-Surf [®] , at 2 L/1000 L of spray solution (0.2% v/v).	Can be safely applied from the 2-leaf to the full flag leaf stage of the crop.	For best results, apply to young, actively growing weeds that are less than 10 cm in height or diameter unless otherwise specified. Thorough coverage of target weeds is essential. Tank-mix Refine [®] SG herbicide with: • MCPA LV500 – Amine or Ester, at 0.33 L/ac to 0.45 L/ac • 2,4-D LV500 – Amine or Ester, at 0.34 L/ac to 0.44 L/ac Common ragweed: Use a minimum of 0.33 L/ac MCPA LV500 or a minimum of 0.34 L/ac 2,4-D Amine 500 for control. Wild buckwheat: Under environmental stress, such as dry weather, control may be reduced. Large plants may regrow after treatment.

Control of hard-to-kill weeds in blueberries

-  **Crop:** Lowbush blueberries
-  **Herbicide Group:** Group 2
-  **Active Ingredient(s):** Tribenuron-methyl
-  **Packaging:** 8 x 160 g jugs per case

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Lowbush blueberries	Bunchberry	16 g/ac	Apply in the spring of the sprout year, when the majority of the emerged bunchberry plant leaves have unfolded to form a 45° angle but no later than when the first white blossoms are visible on the most advanced plants OR, a fall application can be made 1 to 4 weeks after the completion of harvest.	Must be applied with a registered non-ionic surfactant (NIS) such as Agral® 90 at 2 L per 1000 L of spray solution (0.2% v/v). 16-26 gal/ac (150-250 L/Ha) water volume. Make only one application per crop cycle (2 or 3 years) in the sprout year. Spartan® herbicide + Agral® 90 should be applied before blueberry sprout regrowth exceeds 2 cm in height. Applications made at later stages of blueberry development or applications made in spring burnt fields are not recommended due to potential crop injury and yield reductions.
	Bracken fern Speckled alder Wild rose Yellow loosestrife	Mix 0.25 grams of Spartan® herbicide per litre of water and apply as a spot treatment.	Spot treatment application should be made in mid-summer of the prune or vegetative year of the crop to fully expanded foliage of bracken fern and yellow loosestrife. Wild rose and speckled alder may also be controlled by early fall applications. Stunting and reduction of fruit buds may occur if the crop is sprayed directly.	Must be applied with a registered non-ionic surfactant (NIS) such as Agral® 90 at 2 L per 1000 L of spray solution (0.2% v/v). Apply enough spray solution to thoroughly wet weed foliage.

UPBEET®

HERBICIDE

Broadleaf weed control for beets

Crop: Sugar beets, garden beets, root chikory (Ontario only)

Herbicide Group: Group 2

Active Ingredient(s): Triflurosulfuron-methyl

Packaging: 10 x 117 g jugs per case

Crop Rotation:

Crop	Rotation Interval
Sugar beets	30 days in case of crop failure
Winter wheat, spring wheat, durum wheat, barley	These crops may be planted the following year after UpBeet® herbicide application

Weeds Controlled and Application Information

Crop	Weeds	Rate	Application Timing	Application Information
Garden beets	Velvetleaf	14 g/ac Add a non-ionic surfactant (Agral® 90, Ag-surf®, Citowett® Plus) at 0.25% v/v Apply in a finished spray volume of 10-40 gal/ac.	Apply post emergent to the crop up to 3 times per year when garden beets are at the 2-4, 4-6 and 6-8 leaf stages.	Do not apply within 30 days of harvest. All dosages are expressed as broadcast rates. See label for more information.
Sugar beet	Velvetleaf (2 applications necessary)	14-28 g/ac ³ Add a registered non-ionic surfactant (NIS) at 2.5 L per 1000 L of spray solution. (0.25% v/v)	Apply post-emergent and before the initiation of flowering. Target weeds when they are small.	Maximum seasonal use rates: Sugar beets - 40.5 g/ac Garden beets - 43.7 g/ac Root chikory - 28.3 g/ac Apply in 10-40 gal/ac (100-375 L/Ha) of spray water Pre-harvest interval: 60 days
	Tankmix of UpBeet® herbicide + Betamix® Green foxtail ¹ Kochia ² Lamb's-quarters Redroot pigweed Velvetleaf	14-28 g/ac UpBeet® herbicide + 0.7-1.4 L/ac Betamix®	Make 2 applications 5 - 10 days apart or as weeds germinate.	For a wider spectrum of weeds, apply a tank-mix of UpBeet® herbicide + Betamix®. No additional adjuvant is required with this mix. Rainfall within 6 hours may reduce control.
Root chikory (Ontario only)	Velvetleaf	14 - 28 g/ac ³ Use a non-ionic surfactant such as Agral® 90, Ag-Surf® or Citowett® Plus may be used at 0.25% v/v (2.5 litres per 1000 litres of spray solution).	Apply post-emergent to chikory and velvetleaf prior to the 4-leaf stage of velvetleaf. If a second application is necessary, apply 2-3 weeks later to newly emerging velvetleaf.	Maximum seasonal use rates: Sugar beets - 40.5 g/ac Garden beets - 43.7 g/ac Root chikory - 28.3 g/ac Apply in 10-40 gal/ac (100-375 L/Ha) of spray water Pre-harvest interval: 60 days

¹Suppression

²Rosette stage, <2.5 cm diameter and when preceded by a pre-plant or pre-emergence treatment

³Use the higher rate as weed size or population increases. Chlorosis (yellowing) of the crop may be observed following an application of UpBeet® herbicide but the effect is only temporary.

Do not apply by air.

NOTES



Insecticide

Altacor® MaX.....	33
Beleaf® 50SG.....	38
Coragen® MaX.....	42
Cygon® 480-AG.....	47
Cygon® 400EC.....	51
Exirel®.....	55
Pounce® 384EC.....	65
Verimark®.....	72



Insecticide

Altacor® MaX.....	33
Beleaf® 50SG	38
Coragen® MaX	42
Cygon® 480-AG.....	47
Cygon® 400EC	51
Exirel®	55
Pounce® 384EC	65
Verimark®	72

2X more concentrated than Altacor® insecticide for insect control in apples, cranberries, grapes and other fruit crops

- Powered by Rynaxypyr® active, a unique mode of action that provides remarkable plant protection
- Consistent residual activity as an ovicide, ovi-larvicide, and larvacide through to adult stages
- Highly concentrated for very low use rates
- Minimal impact on many important beneficial insects and pollinators*
- 🍷 **Crops:** Caneberries, cranberries, bushberries, grapes, pome fruit, stone fruit, tree nuts
- 🧪 **Insecticide Group:** Group 28
- 🎯 **Active Ingredient(s):** Chlorantraniliprole
- 📦 **Packaging:** 8 x 510 g jugs per case
- 🕒 **Re-entry Period:** 12 hours

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Pome Fruits: (Group 11) Apple, crabapple, pear, etc.	Spotted tentiform leafminer Western tentiform leafminer	30-44 g/ac	5	Apply in minimum 50 gal/ac (450 L/Ha) spray volume
	Oriental fruit moth	30-44 g/ac		Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control.
	European apple sawfly	30-44 g/ac		Apply at 1 st egg hatch of the targeted generation. Monitor populations using pheromone traps and reapply 10 – 14 days later if required.
	Green fruitworm	30-44 g/ac		Apply at early petal fall, and repeat if needed after petal fall.
	Codling moth	30-44 g/ac		Apply at the pink stage. Repeat if necessary at petal fall.
	Three-lined leafroller Eyespotted bud moth Redbanded leafroller Tufted apple bud moth Variegated leafroller	30-58 g/ac		For control of 1 st generation apply before first egg hatch (80 – 110 degree days Celsius after biofix). Monitor populations and reapply 10 – 14 days later if required. For 2 nd generation timing of the first application is based on first egg hatch after establishing a new biofix. Monitor populations and reapply 10 – 14 days later if required.
				For optimum control of Eyespotted bud moth, Redbanded leafroller, Tufted apple bud moth and Variegated leafroller apply when the larvae are active in the pink to petal fall period.

*When applied at label rates. In line with Integrated Pest Management and Good Agricultural Practices, insecticide applications should be made when pollinators are not foraging to avoid unnecessary exposure.

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Pome Fruits (continued)	Obliquebanded leafroller	30-58 g/ac	5	Apply in minimum 50 gal/ac (450 L/ha) spray volume For over-wintering generations, apply when over-wintering larvae become active, from pink stage through petal fall. For summer generations, monitor adult moth flight, and apply at first egg hatch (170 – 240 degree days Celsius) after the first sustained moth catch. A repeat application approximately 10 days after the initial application may be needed to control the extended emergence of the small larvae.
	Apple clearwing moth	58 g/ac		Begin application when treatment thresholds have been reached. Thorough coverage is key for optimum control. Apply specified amount as a spray to wet application to the bottom 60 cm of tree trunk at the first sign of apple clearwing moth feeding. Apply as a summer spray at 25% and 75% egg laying; 200 and 375 DD (10 degrees Celsius base temp) respectively, after first male pheromone trap catch (Biofix). Use handgun or backpack sprayer at high water volumes to ensure thorough coverage of tree trunks and scaffold limbs. Re-apply after 10-14 days if required.
	Apple maggot ¹ White apple leafhopper ¹	44-58 g/ac		For apple maggot, begin applications when flies are first captured, and repeat 10 – 14 days later. A third application may be made in 10 – 14 days if flies are still being captured.
	Dogwood borer	44-58 g/ac		Apply specified amount as a spray to wet application to the bottom 60 cm of tree trunk, at the first sign of dogwood borer feeding.
	Japanese beetle ¹	58 g/ac		Apply when feeding is first observed and repeat in 10 – 14 days if required.
Grapes	Grape berry moth	30-58 g/ac	14	Begin applications after moth flight begins and prior to egg hatch. Monitor populations and reapply 7 – 10 days later if required.
	Climbing cutworm	44-58 g/ac		Monitor bud development and the presence of cutworm damage. Begin applications when treatment thresholds have been reached. Monitor populations and reapply 7 – 10 days later if required.
	Japanese beetle ¹	58 g/ac		Apply when feeding is first observed and repeat in 10 – 14 days if required.

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Stone Fruits: (Group 12-09) Apricot, cherry, plum, nectarine, peach, prune, chokecherry, etc.	Oriental fruit moth	44-58 g/ac	1	Apply in minimum 50 gal/ac (450 L/ha) spray volume. Apply at 1 st egg hatch of the targeted generation. Monitor populations using pheromone traps and reapply 7 – 10 days later if required.
	Peach twig borer	44-58 g/ac		For spring/overwintering or first summer generation larvae: Apply within 7 days of first trap catch of adult male moths. For second summer generation larvae: continue monitoring for second brood moths until at least mid-August. If required, apply a second spray within 7 days of first trap catch of adult male moths.
	Cherry fruit fly ¹	44-58 g/ac		Apply when flies are first detected in the orchard, and repeat in 10 – 14 days.
	Obliquebanded leafroller	30-58 g/ac		For control of over-wintering generations, monitor larval population in the spring, and apply when over-wintering larvae become active, from pink stage through petal fall. For summer generations, monitor adult moth flight, and apply at first egg hatch (170 – 240 degree days Celsius) after the first sustained moth catch. A repeat application approximately 10 days after the initial application may be needed.
	Three-lined leafroller Redbanded leafroller	30-58 g/ac		Apply in the pink to petal fall period.
	Japanese beetle ¹	58 g/ac		Apply when feeding is first observed and repeat in 10 – 14 days if required.
	Lesser and greater peach tree borer	44-58 g/ac	1	For optimum control, apply to tree trunks and lower branches using a coarse, low pressure spray. Do not use more than 2,000 L/ha spray volume. Always ensure thorough coverage for optimal results. Apply at egg hatch before larvae enter trunk; do not apply more than once every 10 days. If extended moth flight or egg laying occurs, extended applications may be necessary.

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information Apply in minimum 50 gal/ac (450 L/ha) spray volume
Tree Nuts: (Group 14-11) Hazelnuts, almond, chestnut, pecan, pine nut, walnut, etc.	Codling moth	30-44 g/ac	10	For control of 1st generation apply before first egg hatch (80-110 degree days Celsius after biofix). Monitor populations and reapply 10 – 14 days later if required. For 2 nd generation, timing of the first application is based on first egg hatch after establishing a new biofix. Monitor populations and reapply 10 – 14 days later if required. Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control.
	Obliquebanded leafroller	30-58 g/ac		For control of over-wintering generations, monitor larval population in the spring, and apply when over-wintering larvae become active, from pink stage through petal fall. For summer generations, monitor adult moth flight, and apply at first egg hatch (170 – 240 degree days Celsius) after the first sustained moth catch. A repeat application approximately 10 days after the initial application may be needed. Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control.
	Three-lined leafroller	30-58 g/ac		
Low growing berries (Subgroup 13-07G) Blueberry, cranberry, strawberry, etc.	Obliquebanded leafroller Three-lined leafroller Climbing cutworm	44-58 g/ac	1	Begin applications when treatment thresholds have been reached. Monitor populations and reapply a minimum of 7 days later if required. Thorough coverage is important to obtain optimum control.
	Japanese beetle ¹	44-58 g/ac		Apply when feeding is first observed and repeat in 10-14 days if required.
Caneberries (Subgroup 13-07A) Blackberry, raspberry, etc	Raspberry cane borer Raspberry crown borer	44-58 g/ac	3	Apply to first-instar when insects are actively feeding in the cambium, before they tunnel into the root, crown or canes.
Bushberries (Subgroup 13-07B) Highbush blueberry, currants, gooseberry, highbush cranberry, sea buckthorn, etc.	Cranberry fruitworm Cherry fruitworm Obliquebanded leafroller Three-lined leafroller Lesser appleworm Redstriped fireworm Blueberry spanworm Japanese beetle ¹	44-58 g/ac	1	Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimal control. Monitor populations and reapply a minimum of 7 days later if required. A single application may not control cherry fruitworm or cranberry fruitworm. Either a second application of Altacor [®] MaX insecticide, or a subsequent application of a different pest control product registered for this use may be required.

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Cranberries	Cranberry fruitworm Sparganothis fruitworm Blackheaded fireworm	30-58 g/ac	1	Apply in minimum 50 gal/ac (450 L/Ha) spray volume Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control.
	Sparganothis fruitworm Blackheaded fireworm	58 g/ac		Chemigation: Apply in a minimum spray volume of 1214 L/ac. Do not make more than 2 applications per season. Do not exceed a total of 115 grams of Altacor [®] MaX insecticide per acre per season. The minimum interval between applications is 7 days. See label for addition equipment requirements.

¹Suppression



Aphid control in potatoes and other fruit and vegetable crops

- Unique anti-feeding action. Targets piercing and sucking pests so effectively, that both immature and adult stages begin to stop feeding within 30 minutes of application
- Selective and extended control insecticide that has minimal impact on some beneficial insects
- 🍷 **Crops:** Potato, strawberry, root vegetables, pome fruit, stone fruit, fruiting vegetables, cole crops / Chinese vegetables, leafy vegetables, alfalfa
- 🧪 **Insecticide Group:** Group 29
- 🔍 **Active Ingredient(s):** Flonicamid
- 📦 **Packaging:** 6 x 0.68 kg jugs per case
- 🕒 **Re-entry Period:** 12 hours

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
<u>Brassica Leafy Vegetables</u> (Group 5-13): Broccoli, Brussels sprouts, cabbage, cauliflower, kale, etc. <u>Brassica Leafy Greens</u> (Group 14-3B): Arugula, cabbage, bok choy, collards, kale, watercress, etc.	Aphids	49-65 g/ac	0	Use higher rates for greater pest populations and/or dense foliage. Apply in sufficient water to ensure good coverage; use a minimum of 10 gal/ac (94 L/Ha) when applied by ground. Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year. Apply when tarnished plant bugs first appear in the field and before populations reach high levels. Beleaf [®] 50SG insecticide will stop tarnished plant bug feeding rapidly but it may take several days to see a reduction in tarnished plant bug numbers.
<u>Cucurbit Vegetables</u> (Group 9): Cucumber, melon, cantaloupe, pumpkin, squash, watermelon, etc. <u>Fruiting Vegetables</u> (Group 8-09): Bell pepper, eggplant, tomato, okra, etc. <u>Leafy Vegetables</u> (Group 4): Lettuce, spinach, arugula, celery, Swiss chard, etc. (Subgroup 22B): Celery, rhubarb, etc.	Aphids Tarnished plant bug ¹	49-65 g/ac 81 g/ac (3 applications) or 121 g/ac (2 applications)		

¹Suppression or reduction of numbers

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Sweet Potato Slips (greenhouse)	Thrips, aphids, lygus bugs	30 g/100 L	3	Foliar application. Apply sufficient volume to ensure good coverage, up to 100 gal/ac (1000 L/ha). The maximum volume should be used when plant foliage is dense. Do not apply more than 2 applications per crop cycle (no more than 1 application per crop cycle may be foliar).
		30 mg/m ²		Apply using drip irrigation or drench by hand using sufficient water volume to ensure delivery of the product to the roots. Allow a minimum of 7 days between applications. Do not apply more than 2 applications per crop cycle (no more than 1 application per crop cycle may be foliar).
<u>Stalk and Stem Vegetables:</u> Celtuce, Florence fennel and kohlrabi.	Aphids	49-65 g/ac	0	Use higher rates for greater pest populations and/or dense foliage. Apply in sufficient water to ensure good coverage; use a minimum of 10 gal/ac (94 L/Ha) when applied by ground. Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year.
Hops	Aphids	49-65 g/ac	31	Use higher rates for greater pest populations and/or dense foliage. Apply in sufficient water to ensure good coverage; use a minimum of 10 gal/ac (94 L/Ha) when applied by ground. Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year.
	<u>Tuberous and Corn Vegetables</u> (Subgroup 1C): Artichoke, potato, sweet potato, etc.	Aphids	49-65 g/ac	
<u>Root Vegetables</u> (subgroup 1B): Beet, carrot, ginseng, radish, etc. (except sugar beets)	Psyllid in potato ¹	81 g/ac	3	Apply when Tarnished Plant Bugs first appear in the field and before populations reach high levels. Beleaf [®] 50SG insecticide will stop Tarnished Plant Bug feeding rapidly but it may take several days to see a reduction in numbers. Reapply when new insects are detected.
	Aphids	49-65 g/ac		
<u>Pome Fruit</u> (Group 11-09): Apple, pear, etc.	Tarnished plant bug ²	81 g/ac	21	Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year. Do not allow worker entry for the purposes of performing thinning activities in treated areas during the restricted entry interval of 3 days.
	Aphids	49-65 g/ac		
<u>Stone Fruit</u> (Group 12-09): Apricot, cherry, peach, plum, etc.	Tarnished plant bug ²	81 g/ac	14	Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year. Do not allow worker entry for the purposes of performing thinning activities in treated areas during the restricted entry interval of 3 days.
	Aphids	49-81 g/ac		
<u>Non-grass Animal Feeds</u> (Group 18): Alfalfa (forage), clover, vetch, etc. Alfalfa (seed*), lupin, trefoil	Tarnished plant bug	81 g/ac (3 applications) or 121 g/ac (2 applications)	7	Apply in sufficient water to ensure good coverage; use a minimum of 10 gal/ac (100 L/Ha) when applied by ground. Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year.
	Aphids	49-65 g/ac		

¹Suppression ²Suppression or reduction of numbers

* Do not use seed or treated forage for human or animal consumption from treated alfalfa grown for seed production specifically.

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Mint: Spearmint, peppermint	Aphids	49-65 g/ac	7	Apply in sufficient water to ensure good coverage; use a minimum of 10 gal/ac (94 L/Ha) when applied by ground. Allow a minimum of 14 days between applications. Do not apply more than 3 applications per year.
Cucumber (greenhouse)	Thrips Aphids Lygus bug Whiteflies ¹	30 g/100 L	0	Foliar application. Apply sufficient volume to ensure good coverage, up to 1000 L/Ha. Do not apply more than 1 foliar application per crop cycle.
		12.5 mg/plant	0	Apply using drip irrigation or drench by hand using sufficient water volume to ensure delivery of the product to the roots.
Peppers (greenhouse)	Thrips Aphids Lygus bug	30 g/100 L	0	Foliar application. Apply sufficient volume to ensure good coverage, up to 1000 L/Ha. Do not apply more than 1 foliar application per crop cycle.
		30 mg/m ²	0	Apply using drip irrigation or drench by hand using sufficient water volume to ensure delivery of the product to the roots.
Lettuce (greenhouse)	Aphids	14 - 20 g/100 L	0	Foliar application. Apply sufficient volume to ensure good coverage, up to 1000 L/Ha. Do not apply more than 1 application per crop cycle.
Tomato (greenhouse)	Whiteflies	20 g/100 L	0	Foliar application. Apply sufficient volume to ensure good coverage, up to 1000 L/Ha. Do not apply more than 2 foliar applications per crop cycle.
Ornamentals (greenhouse)	Thrips Aphids	30 g/100 L	n/a	Foliar application. Apply sufficient volume to ensure good coverage, up to 1000 L/Ha. Do not apply more than 1 foliar application per crop cycle.
	Whiteflies	20 g/100 L		Foliar application. Apply sufficient volume to ensure good coverage, up to 1000 L/Ha. Do not apply more than 2 foliar applications per crop cycle.
	Mealybugs	16 - 30 g/100 L		Treat when insects appear. Apply sufficient volume to ensure good coverage, up to 1000 L/ha. The maximum volume should be used when plant foliage is dense. Do not apply more than 2 applications per crop cycle.
Herbaceous ornamentals only, including cut flowers.	Thrips Aphids Whiteflies Lygus bug	122 g/ac	n/a	Apply using drip irrigation or drench by hand using sufficient water volume to ensure delivery of the product to the roots. Do not apply more than 2 applications per crop cycle.
Strawberry (greenhouse)	Aphids Lygus bugs (including tarnished plant bug)	30 g/100 L	0	Beleaf [®] 50SG insecticide will stop aphid and lygus bug feeding rapidly but it may take several days to see a reduction in pest numbers. Do not apply more than 1 application per crop cycle. Max spray volume of 650 L

¹Suppression or reduction of numbers

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Ornamentals (outdoors) (excluding conifers)	Aphids	49-65 g/ac	n/a	Use higher rates for greater pest populations and/or dense foliage. Apply in sufficient water to ensure good coverage; use a minimum of 10 gal/ac (94 L/Ha) when applied by ground. Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year.
	Mealybugs	16-30 g/100 L	n/a	Foliar application. Treat when insects appear. Do not apply more than 2 applications per year.
	Chilli Thrips (<i>Scirtothrips dorsalis</i> Hood)	30 g/100 L		
Low growing berry (Subgroup 13-07G): Lowbush blueberry, cranberry, strawberry, etc.	Aphids	49-65 g/ac	0	Apply before aphid populations reach economic thresholds or as populations begin to increase but before damaging populations become established. Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year.
	Lygus bugs ¹ including Tarnished plant bug	81 g/ac		Apply when lygus bugs first appear in the field and before populations reach high levels. Beleaf [®] 50SG insecticide will stop lygus bug feeding rapidly but it may take several days to see a reduction in lygus bug numbers. Reapply when new insects are detected.
	Thrips	81 g/ac (3 applications) or 121 g/ac (2 applications)		Apply when thrips first appear in the field and before populations reach high levels. Beleaf [®] 50SG insecticide will stop thrips feeding rapidly but it may take several days to see a reduction in thrips numbers. Under heavy infestation, use the higher rate of 121 g/ac. Multiple applications may be required.
Edible-podded legume vegetables (Subgroup 6A), Succulent shelled pea and bean (Subgroup 6B), Dried shelled bean except soybean (Subgroup 6C)	Aphids	49-65 g/ac	7	Apply before aphid populations reach economic thresholds, or as populations begin to increase but before damaging populations become established. Scout fields and reapply if necessary. Use higher rates for greater pest populations and/or dense foliage.
	Lygus bugs ¹ including Tarnished plant bug	81 g/ac		Apply when lygus bugs first appear in the field and before populations reach high levels. Beleaf [®] 50SG insecticide will stop lygus bug feeding rapidly but it may take several days to see a reduction in lygus bug numbers. Reapply when new insects are detected.
Balsam fir and Fraser fir (including Christmas trees)	Balsam twig aphids (<i>Mindarus abietinus</i>)	49-65 g/ac	n/a	Use higher rates for greater pest populations and/or dense foliage. Apply after the stem mothers have hatched but before the second generation aphids are present, based on a degree-days model and when insect populations reach intervention threshold. Thorough spray coverage of plant foliage is essential for optimum control. Apply in sufficient water to ensure good coverage; use a minimum of 300 litres per hectare when applied by ground. Finished spray volumes should be increased when plant foliage is dense. Allow a minimum of 7 days between applications. Do not apply more than 2 applications per year.

¹Suppression or reduction of numbers



Innovative, targeted insect control you can count on

- Highly concentrated formulation for ease of handling and increased sustainability
- Extended control! Delivers reliable, long-lasting protection against key insect pests
- Active ingredient from a novel group of chemistry with no cross resistance to other chemistries
- Controls hatching insects all the way through to adult stages of development
- Provides reliable control of western bean cutworm
- Coragen® MaX insecticide has minimal impact on many important beneficial insects and pollinators*, and its unique environmental and toxicological profile make it a sound choice for growers and applicators.

Crops: Corn (field, sweet, seed and pop), dry beans, brassicas, cereals, cucurbits, fodder, fruiting vegetables, forage grass, green onion, hay, hops, leafy vegetables, legumes, mint, non-grass animal feeds, oilseeds, root vegetables, tuber vegetables, and greenhouse cucumber, eggplant, pepper and tomato

Insecticide Group: Group 28

Active Ingredient(s): Chlorantraniliprole

Packaging: 4 x 2 L jugs per case

Re-entry Period: 12 hours



Source: Purdue University, Department of Entomology



WBC damage to corn ears in an untreated plot (left), and a plot treated with Coragen® insecticide (right) near Rodney, Ontario (October 3, 2014).

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Corn (Field, sweet, seed, and pop)	Black cutworm	33.5 mL/ac	14 days (field and pop corn)	Begin applications when treatment thresholds have been reached. Apply either by ground or aerial application equipment. Do not exceed a total of 152 ml/ac per year.
	Armyworm Fall armyworm Beet armyworm Variegated cutworm	33.5 - 50.5 mL/ac	1 day (sweet and seed corn)	
	Corn earworm Tomato fruitworm European corn borer Western bean cutworm			Time the applications to coincide with peak egg hatch. Scout by monitoring egg laying and egg hatch to determine application timing. Reapply if necessary. Apply either by ground or aerial application equipment.

*When applied at label rates. In line with Integrated Pest Management and Good Agricultural Practices, insecticide applications should be made when pollinators are not foraging to avoid unnecessary exposure.

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
<u>Corn</u> (contd.) (Field, sweet, seed, and pop)	Grasshoppers	17-33.5 mL/ac	14 days (field and pop) 1 day (sweet and seed)	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.
<u>Legume Vegetables</u> (Group 6): Dry beans, chickpea, field pea, faba bean, lentil, etc.	Grasshoppers	17-33.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Ground or aerial. Do not make a foliar application of Coragen [®] MaX insecticide for a minimum of 60 days following an in-furrow or soil application or planting of seed or seed pieces treated with any Group 28 insecticide. Do not exceed a total of 152 ml/ac per year.
	Cabbage looper Cutworms	33.5 mL/ac		
	Armyworm Fall armyworm Beet armyworm Corn earworm European corn borer Western bean cutworm	33.5-50.5 mL/ac		
<u>Potato</u>	Colorado potato beetle	33.5-67.5 mL/ac	1 day	Use the higher application rate under heavy pest pressure and/or when larger larvae are present. Apply by either ground or aerial application equipment. Do not apply Coragen [®] MaX insecticide for Colorado potato beetle if any Group 28 insecticide was used at planting as an in-furrow, soil or seed-piece treatment. Do not exceed a total of 152 ml/ac per year.
	European corn borer	33.5-50.5 mL/ac	1 day	Time application to coincide with peak egg hatch. Scout for European corn borer by monitoring egg laying and egg hatch to determine application timing. Apply by either ground or aerial application equipment.
	Grasshoppers	17-33.5 mL/ac		
<u>Root and Tuber Vegetables</u> (Group 1): Carrot, sugar beet, ginseng, potato, sweet potato, etc.	Diamondback moth Cabbage looper Black cutworm Imported cabbageworm Swede midge	33.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not apply by air (except on potatoes). Do not exceed a total of 152 ml/ac per year. For control of European corn borer, time the application to coincide with peak egg hatch. Scout for European corn borer by monitoring egg laying and egg hatch to determine application timing.
	Corn earworm European corn borer Tobacco hornworm Tomato hornworm Armyworm Variegated cutworm Fall armyworm Beet armyworm Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>	33.5-50.5 mL/ac		

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Leafy Vegetables (Group 4): Lettuce, spinach, arugula, celery, Swiss chard, etc.	Cabbage looper Black cutworm	33.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not apply by air. Do not exceed at total of 135 ml/ac per year.
	Armyworm Fall armyworm Corn earworm Beet armyworm Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>	33.5 - 50.5 mL/ac		
Brassica Leafy Vegetables (Group 5): Broccoli, Brussels sprouts, cabbage, cauliflower, kale, etc.	Imported cabbage worm Diamondback moth Cabbage looper Black cutworm Swede midge	33.5 mL/ac	3 days	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. For optimum control of swede midge, apply Haster [®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSQ Concentrate with Leci-Tech [®] at an application rate of 0.5% v/v. Monitor swede midge activity every 2-4 days using Jackson traps baited with pheromone lures. Follow local threshold. Apply Coragen [®] MaX insecticide as soon as possible once the swede midge threshold is reached. Applications on cabbage, Chinese cabbage (napa), cauliflower and Chinese broccoli (gai lon) must be made early in the growing season, before heads start to form. Given that there are multiple generations of swede midge, several applications of insecticide (to a maximum of 4 per season) will likely be required. Do not apply by air. Do not exceed at total of 135 ml/ac per year.
	Armyworm Fall armyworm Beet armyworm Corn earworm Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>	33.5 - 50.5 mL/ac		
Fruiting Vegetables (Group 8): Eggplant, pepper, tomato, etc.	Colorado potato beetle Armyworm Fall armyworm Beet armyworm Variegated cutworm Tobacco hornworm Tomato hornworm Tomato fruitworm (Corn earworm) European corn borer	33.5 - 50.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not apply Coragen [®] MaX insecticide for Colorado potato beetle if any Group 28 insecticide was used at planting as an infurrow, soil or seed treatment. Do not apply by air. Do not exceed at total of 152 ml/ac per year.
	Cabbage looper Black cutworm	33.5 mL/ac		
Cucurbit Vegetables (Group 9): Cucumber, melon, pumpkin, squash, etc.	Cabbage looper Black cutworm	33.5 mL/ac	1 day	
	Armyworm Fall armyworm Corn earworm Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>	33.5 - 50.5 mL/ac		

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Cereal Grains Barley, oats, rye, wheat, etc.	Grasshoppers	17 - 33.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Ground or aerial. Do not exceed a total of 152 ml/ac per year.
	Cutworms	33.5 mL/ac		
	Armyworm Fall armyworm Beet armyworm Corn earworm European corn borer	33.5 - 50.5 mL/ac		
Grass, Forage, Fodder and Hay (Crop Group 17)	Grasshoppers	17 - 33.5 mL/ac	0 days	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Ground or aerial. Do not exceed a total of 152 ml/ac per year.
	Armyworm Fall armyworm Beet armyworm Corn earworm	33.5 - 50.5 mL/ac		
	Cutworms	33.5 mL/ac		
Non-Grass Animal Feeds (Group 18): Alfalfa, clover, vetch, lupin, trefoil, etc.	Beet armyworm	33.5 - 50.5 mL/ac	0 days	
	Alfalfa weevil ¹	50.5 - 67.5 mL/ac		
	Grasshoppers	17 - 33.5 mL/ac		
	Cutworms	33.5 mL/ac		
Oilseeds (Group 20): Canola, sunflower, safflower, etc.	Diamondback moth	17 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Ground or aerial. Do not exceed a total of 152 ml/ac per year.
	Grasshoppers	17 - 33.5 mL/ac		
	Bertha armyworm	17 - 50.5 mL/ac		
	Cabbage looper Imported cabbage worm Swede midge Cutworms	33.5 mL/ac		
	Sunflower head moth Reduces damage caused by banded sunflower moth.	33.5 - 50.5 mL/ac		
Mint	Cabbage looper	33.5 mL/ac	3 days	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Ground application only. Do not exceed a total of 135 ml/ac per year.
Okra	Beet armyworm Corn earworm	33.5 - 50.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Ground application only. Do not exceed a total of 152 ml/ac per year.
Hops	Cutworms Armyworm	33.5 - 50.5 mL/ac	0 days	
	Cabbage looper	33.5 mL/ac		
Globe artichoke	Cutworms Armyworm	33.5 - 50.5 mL/ac	3 days	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not apply using aerial application equipment. Do not exceed a total of 152 ml/ac per year.
	Cabbage looper	33.5 mL/ac		



Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Greenhouse Cucumbers, tomato, peppers, and eggplant	Cabbage looper	42 mL/1000 L spray volume	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Repeat applications if monitoring indicates it is necessary. Do not exceed at total of 101 ml/ac per crop cycle.
	Lepidoptera leafminer (not registered pest on greenhouse cucumbers)	67 mL/1000 L spray volume		
Peanuts	Cutworms, Armyworm, Corn earworm	33.5 - 50.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not apply by air. Do not exceed a total of 152 ml/ac per year.
Green Onions (subgroup 3-07B)	Cutworms Leek moth ¹ Leafminers: <i>Liriomyza sativae</i> <i>Liriomyza trifolii</i>	33.5 - 50.5 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not apply by air. Do not exceed a total of 152 ml/ac per year.
Garden and Sugar beet	Beet webworm	33.5 - 50.5 mL/ac	1 day	Apply by either ground or aerial application equipment. Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not exceed a total of 152 ml/ac per year.

¹Suppression

Reliable aphid and spider mite control in your soybean crop

• Broad spectrum insecticide for the control of insects on listed vegetable, fruit and field crops

🌿 **Crops:** Cole crops, leafy vegetable, soybeans, beans, potatoes, pepper, alfalfa, cereals, canola, hazelnut, peaches, apples, eggplant, asparagus, pastures, forage crops, pear, blueberry and strawberry

🧪 **Insecticide Group:** Group 1B

🔍 **Active Ingredient(s):** Dimethoate

📦 **Packaging:** 2 x 10 L jugs per case

🕒 **Re-entry Period:** 12 hours (unless otherwise indicated on label)



Two-spotted spider mite



Adult nymph soybean aphid

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
<u>Cole Crops:</u> Broccoli, Brussels sprouts, cauliflower	Aphids	283-405 mL/ac	7 days (broccoli, cauliflower) 21 days (Brussels sprouts)	Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging.
Chinese broccoli, pak choi, chicory	Aphids	243-405 mL/ac	7 days	
<u>Leafy Vegetables:</u> Beet greens, turnip greens, kale, lettuce, Swiss chard	Aphids Leafhoppers	283 mL/ac	14 days	
Peppers	Aphids Pepper maggots	283-405 mL/ac	3 days	
Potatoes, tomatoes (field)	Aphids Leafhoppers	223-405 mL/ac	7 days	
Alfalfa	Aphids, Leafhoppers, reduction of alfalfa weevil larvae Lygus bugs	172 mL/ac	10 days	
	Blotch leaf miners	223 mL/ac	10 days	
	Grasshoppers - nymphs	223 mL/ac	28 days	
	Grasshoppers - adults	344-364 mL/ac	28 days	
Alfalfa (seed)	Lygus bugs Plant bugs	445 mL/ac	28 days	Ground or aerial application.

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Forage crops (grain)	Lygus bugs Plant bugs	172 mL/ac	2 days	Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. Ground or aerial application.
	Grasshoppers – Low infestations	172-223 mL/ac	2 days	
	Grasshoppers- nymphs	223 mL/ac	2 days	
	Grasshoppers- adults	344-405 mL/ac	28 days	
Safflower	Grasshoppers (nymphs, adults)	223 - 405 mL/ac	21 days	Apply when damage is apparent and more than 15 grasshoppers per square metre are found in the crop. Repeat only when necessary. Use sufficient water for good coverage using ground or aerial application. Toxic to bees. Do not apply during the crop blooming period or during the 5-day period before the crop blooms. Ground or aerial application.
Sweet clover, red clover, alsike clover	Sweet clover weevils	344-445 mL/ac	28 days	Ground or aerial application.
	Pastures			
Canola	Grasshoppers- nymphs	223 mL/ac	2 days	Repeat application only when necessary. Toxic to bees. Do not apply during the crop blooming period or during the 5-day period before the crop blooms. Ground or aerial application.
	Grasshoppers- adults	344-405 mL/ac	28 days	
Canola	Aphids Leafhoppers Grasshoppers	344-364 mL/ac	21 days	Repeat application only when necessary. Toxic to bees. Do not apply during the crop blooming period or during the 5-day period before the crop blooms. Ground or aerial application.
	Lygus bug	182 - 364 mL/ac		
Eggplant	Tarnished plant bug	202-283 mL/ac	7 days	Apply when bugs are found and flowering is seen. Treat again in 7 to 10 days if bugs are found. Do not apply when bees are foraging.
Peas	Aphids	111-154 mL/ac	3 days	May be applied by air or ground equipment. Do not feed or allow livestock to graze treated vines within 21 days after application. Do not apply when bees are foraging.

Insects Controlled and Application Information

Crop	Pest	Rate	PHI (days)	Application Information
Asparagus	Asparagus aphid	931 mL/ac	Apply post harvest only	For mature asparagus, sprays begin July 1, after crop has been harvested, and continue at 3 to 4 week intervals until defoliation in October. For immature asparagus, begin application mid-May. If applied on immature asparagus do not harvest for feed or food.
Beans	Aphids Bean beetles Leafhoppers Leaf miners Lygus bugs Mites Tarnished plant bugs	283-405 mL/ac	7 days	Do not feed or allow livestock to graze treated forage. Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging.
Soybean	Spider mites	405 mL/ac	30 days	
Wheat	Orange blossom wheat midges Says stink bug (For Say's stink bug must use a water volume of at least 10 gal/ac (100 L/Ha) for ground or 5 gal/ac (50 L/Ha) for air).	405 mL/ac	35 days	If adult midges are present sprays should be applied when 25% of the wheat head has fully emerged but before flowering. Applications should be made in the late afternoon or evening when temperatures exceed 15°C and the wind speed is less than 10 km/h. High volume sprays will improve penetration of the crop. Ground or aerial application.
Wheat, oats, barley	Thrips	405 mL/ac	35 days	Ground or aerial application.
	Aphids Russian wheat aphid ¹	172 mL/ac		
Flax	Potato aphids	177 mL/ac	21 days	One application per season; apply from late flowering to early green bole stage in sufficient water to provide good coverage. Do not apply when bees are foraging. Ground or aerial application.
Pear	Aphids Mites Pear psyllas	1-1.25 L/1000 L water (max 1.2 L of product per acre)	28 days	Apply when insects first appear, using sufficient water for good coverage. Apply up to 2 applications per year.
	Tarnished plant bugs	625 mL/1000 L water (max 1.2 L of product per acre)		

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Lowbush blueberry	Blueberry maggots	235-336 mL/ac	21 days	Apply in sufficient water for good coverage one week after first berries ripen. Do not apply foliar spray when daytime temperatures exceed 25°C. Use no more than 1,000 L spray/Ha. Apply second spray in 10 - 12 days if needed.
Highbush blueberry	Blueberry maggot	336 mL/ac	21 days	Apply post-harvest only, to control spotted wing drosophila (adults and larvae in fruit) that may otherwise infest adjacent crops. Timing varies, depending on variety of highbush blueberry.
	Spotted wing drosophila	336 mL/ac	Post-harvest application	
Peaches (non-bearing)	Tarnished plant bug	688 mL/ac	40 day	Spray when insects first appear and repeat as necessary using sufficient water for good coverage.
	Aphids Mites	1-1.5 L/1000 L water (max 1.2 L of product per acre)		
Strawberries (bearing)	Tarnished plant bugs	1.1 L/ac	7 days	Apply first spray when first blooms appear and the second application 10 to 12 days after if needed.
Strawberries (bearing and non-bearing)	Aphids Mites	911 mL/ac	7 days	Spray when insects first appear and repeat as necessary using sufficient water for good coverage.
Sweet cherries Sour cherries	Black and Western cherry fruit fly maggots	911 mL/ac	21 days	Apply no later than 6 days after the first adult fly has been trapped. Apply once only.
Hazelnuts	Aphids	2 L/ac	45 days	One application per season; apply when aphids appear. Primarily for use on young plantings.
Canary seed	Aphids	202 mL/ac	21 days	Apply when >50 aphids per seed head between heading and soft dough stage. Toxic to bees, avoid application during crop blooming period. Ground or aerial application.

¹Suppression

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are foraging the treatment area.

Reliable aphid and spider mite control in your soybean crop

- Broad spectrum insecticide for the control of insects on listed vegetable, fruit and field crops
- 🍷 **Crops:** Cole crops, leafy vegetable, soybeans, beans, potatoes, pepper, alfalfa, cereals, canola, hazelnut, peaches, apples, eggplant, asparagus, pastures, forage crops, pear, blueberry and strawberry
- 🧪 **Insecticide Group:** Group 1B
- 🔍 **Active Ingredient(s):** Dimethoate
- 📦 **Packaging:** 2 x 9.7 L jugs per case
- 🕒 **Re-entry Period:** 12 hours (unless otherwise indicated on label)



Two-spotted spider mite



Adult nymph soybean aphid

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
<u>Cole Crops:</u> Broccoli, Brussels sprouts, cauliflower	Aphids	340-486 mL/ac	7 days (broccoli, cauliflower) 21 days (Brussels sprouts)	Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging.
Chinese broccoli, pak choi, chickey	Aphids	291-486 mL/ac	7 days	
<u>Leafy Vegetables:</u> Beet greens, turnip greens, kale, lettuce, Swiss chard	Aphids Leafhoppers	340 mL/ac	14 days	
Peppers	Aphids Pepper maggots	340-486 mL/ac	3 days	
Potatoes, tomatoes (field)	Aphids Leafhoppers	267-486 mL/ac	7 days	
Alfalfa	Aphids, Leafhoppers, reduction of alfalfa weevil larvae Lygus bugs	206 mL/ac	10 days	
	Blotch leaf miners	223 mL/ac	10 days	
	Grasshoppers - nymphs	267 mL/ac	10 days	
	Grasshoppers - adults	413-437 mL/ac	28 days	
Alfalfa (seed)	Lygus bugs Plant bugs	534 mL/ac	28 days	Ground or aerial application.

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Forage crops (grain)	Lygus bugs Plant bugs	206 mL/ac	2 days	Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging. Ground or aerial application.
	Grasshoppers – Low infestations	206-267 mL/ac	2 days	
	Grasshoppers- nymphs	267 mL/ac	2 days	
	Grasshoppers- adults	413-486 mL/ac	28 days	
Safflower	Grasshoppers (nymphs, adults)	267-486 mL/ac	21 days	Apply when damage is apparent and more than 15 grasshoppers per square metre are found in the crop. Repeat only when necessary. Use sufficient water for good coverage using ground or aerial application. Toxic to bees. Do not apply during the crop blooming period or during the 5-day period before the crop blooms.
Sweet clover, red clover, alsike clover	Sweet clover weevils	413-534 mL/ac	28 days	Ground or aerial application.
Pastures	Grasshoppers- nymphs	267 mL/ac	2 days	
	Grasshoppers- adults	413-486 mL/ac	28 days	
Canola	Aphids Leafhoppers Grasshoppers	413-437 mL/ac	21 days	Repeat application only when necessary. Toxic to bees. Do not apply during the crop blooming period or during the 5-day period before the crop blooms. Ground or aerial application.
	Lygus bug	219-437 mL/ac		
Eggplant	Tarnished plant bug	243-340 mL/ac	7 days	Apply when bugs are found and flowering is seen. Treat again in 7 to 10 days if bugs are found. Do not apply when bees are foraging.
Peas	Aphids	134-185 mL/ac	3 days	May be applied by air or ground equipment. Do not feed or allow livestock to graze treated vines within 21 days after application. Do not apply when bees are foraging.

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Asparagus	Asparagus aphid	1117 mL/ac	Apply post harvest only	For mature asparagus, sprays begin July 1, after crop has been harvested, and continue at 3 to 4 week intervals until defoliation in October. For immature asparagus, begin application mid-May. If applied on immature asparagus do not harvest for feed or food.
Beans	Aphids Bean beetles Leafhoppers Leaf miners Lygus bugs Mites Tarnished plant bugs	340-486 mL/ac	7 days	Do not feed or allow livestock to graze treated forage. Toxic to bees. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to evening when most bees are not foraging.
Soybean	Spider mites	486 mL/ac	30 days	
Wheat	Orange blossom wheat midges Says stink bug (For Say's stink bug must use a water volume of at least 10 gal/ac (100 L/Ha) for ground or 5 gal/ac (50 L/Ha) for air).	486 mL/ac	35 days	If adult midges are present sprays should be applied when 25% of the wheat head has fully emerged but before flowering. Applications should be made in the late afternoon or evening when temperatures exceed 15°C and the wind speed is less than 10 km/h. High volume sprays will improve penetration of the crop. Ground or aerial application.
Wheat, oats, barley	Thrips	486 mL/ac	35 days	Ground or aerial application.
	Aphids Russian wheat aphid ¹	206 mL/ac		
Flax	Potato aphids	207 mL/ac	21 days	One application per season; apply from late flowering to early green bole stage in sufficient water to provide good coverage. Do not apply when bees are foraging. Ground or aerial application.
Pear	Aphids Mites Pear psyllas	1.2-1.5 L/1000 L water (max 1.2 L of product per acre)	28 days	Apply when insects first appear, using sufficient water for good coverage. Apply up to 2 applications per year.
	Tarnished plant bugs	750 mL/1000 L water (max 1.2 L of product per acre)		

Insects Controlled and Application Information				
Crop	Pest	Rate	PHI (days)	Application Information
Lowbush blueberry	Blueberry maggots	283-404 mL/ac	21 days	Apply in sufficient water for good coverage one week after first berries ripen. Do not apply foliar spray when daytime temperatures exceed 25°C. Use no more than 1,000 L spray/Ha. Apply second spray in 10 - 12 days if needed.
Highbush blueberry	Blueberry maggot	404 mL/ac	21 days	Apply post-harvest only, to control spotted wing drosophila (adults and larvae in fruit) that may otherwise infest adjacent crops. Timing varies, depending on variety of highbush blueberry.
	Spotted wing drosophila	404 mL/ac	Post-harvest application	
Peaches (non-bearing)	Tarnished plant bug	809 mL/ac	40 day	Spray when insects first appear and repeat as necessary using sufficient water for good coverage.
	Aphids Mites	1.2-1.8 L/1000 L water (max 1.2 L of product per acre)		
Strawberries (bearing)	Tarnished plant bugs	1.3 L/ac	7 days	Apply first spray when first blooms appear and the second application 10 to 12 days after if needed.
Strawberries (bearing and non-bearing)	Aphids Mites	1.09 L/ac	7 days	Spray when insects first appear and repeat as necessary using sufficient water for good coverage.
Sweet cherries Sour cherries	Black and Western cherry fruit fly maggots	1.09 L/ac	21 days	Apply no later than 6 days after the first adult fly has been trapped. Apply once only.
Hazelnuts	Aphids	2.4 L/ac	45 days	One application per season; apply when aphids appear. Primarily for use on young plantings.
Canary seed	Aphids	243 mL/ac	21 days	Apply when >50 aphids per seed head between heading and soft dough stage. Toxic to bees, avoid application during crop blooming period. Ground or aerial application.

¹Suppression

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are foraging the treatment area.



One step closer to a strong crop

- Applied early in the season, Exirel® insecticide provides protection for pome fruit, stone fruit, blueberries and root vegetables during the most critical stages of development
- Designed for superior foliar protection against a cross-spectrum of sucking and chewing pests
- Exirel® insecticide is rapidly absorbed into foliage and provides translaminar and locally systemic movement for rainfast and extended control
- Exirel® insecticide is a highly effective IPM product with excellent crop safety

Crops: Brassica vegetables, bulb vegetables, bush berries, caneberries, corm and tuberous vegetables, cucumbers, cucurbits, eggplants, fruiting vegetables, greenhouse tomatoes, hops, leafy vegetables, legumes, low growing berries, peanuts, peppers, pome fruit, root vegetables (except sugar beet), stone fruit, strawberries, tobacco and tree nuts.

Insecticide Group: Group 28

Active Ingredient(s): Cyantraniliprole

Packaging: 4 x 3.79 L jugs per case

Re-entry Period: 12 hours

Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
<u>Tuberous and Corm Vegetables</u> (Sub-group 1C): Artichoke, potato, sweet potato, etc.	Colorado potato beetle	202-405 mL/ac	7 days	Begin applications when treatment thresholds have been reached. Aphids: Apply Hasten® NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech® at an application rate of 0.5% v/v. Colorado potato beetle: Use the higher application rate when larger larvae are present. Resistance management: DO NOT apply for Colorado potato beetle control if any Group 28 insecticide was used at planting as an in-furrow, soil or seedpiece treatment. European corn borer: Time application to coincide with peak egg hatch. Scout by monitoring egg laying and egg hatch to determine application timing.
	Cabbage looper	101-202 mL/ac		
	Armyworm Beet armyworm Fall armyworm	202 mL/ac		
	Variiegated cutworm European corn borer	202-304 mL/ac		
	Corn earworm Tobacco hornworm ¹ Tomato hornworm ¹	304 mL/ac		
	Flea beetles	202-405 mL/ac		
	Aphids	202-607 mL/ac		

Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
<u>Root Vegetables</u> (except sugar beet) (Sub-group 1B): Carrot, ginseng, potato, sweet potato, etc.	Cabbage looper	101-202 mL/ac	7 days	Begin applications when treatment thresholds have been reached. Aphids: Apply Hasten [®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech [®] at an application rate of 0.5% v/v. Carrot weevil: Begin applications at the 2-3 leaf stage or when scouting indicates the presence of weevils. Colorado potato beetle: Use the higher application rate with larger larvae are present. European corn borer: Time the application to coincide with peak egg hatch. Use sufficient water volume to ensure thorough coverage. Recommended minimum water volume of 200 L/ha for control of carrot weevil. Use the higher rate and a higher water volume when pest pressure is high.
	Armyworm	202 mL/ac		
	Beet armyworm			
	Fall armyworm			
	Variegated cutworm	202-304 mL/ac		
	European corn borer			
	Corn earworm	304 mL/ac		
Flea beetle	202-405 mL/ac	1 day		
Aphids	202-607 mL/ac			
<u>Bulb Vegetables:</u> (Sub-group 3-07) Garlic, onion, leek, etc.	Thrips ¹	405-607 mL/ac	1 day	Thorough coverage is essential for optimum control. Use sufficient water to obtain thorough, uniform coverage. For optimum control, apply Hasten [®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech [®] at an application rate of 0.5% v/v. Thrips: Begin applications when thrips populations are low. If populations are high, use a registered insecticide with a different mode of action to reduce thrips populations before applying Exirel [®] insecticide. Allium leafminer: Begin applications when treatment thresholds have been reached. Use the high rate under heavy pest pressure.
	Allium leafminer			
<u>Leafy Vegetables</u> (Group 4): Lettuce, spinach, arugula, celery, Swiss chard, cilantro (fresh leaves), etc.	Cabbage looper	101-202 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Cutworm: Apply to foliage when rain is not expected in the next 24 hours. Apply to smaller plants or when lower portions of plant can receive adequate coverage. Aphids: Apply Hasten [®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech [®] at an application rate of 0.5% v/v.
	Armyworm	202 mL/ac		
	Beet armyworm			
	Fall armyworm			
	Corn earworm	304 mL/ac		
	Dipteran leafminers (larvae)	405-607 mL/ac		
	Flea beetles	202-405 mL/ac		
	Cutworms	202-304 mL/ac		
Aphids	202-607 mL/ac			



Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
Leafy Vegetables Parsley, celery	Carrot Weevil	405-607 mL/ac	1 day	<p>Carrot Weevil: Begin applications when scouting indicates that treatment thresholds have been reached. Consult local agricultural authorities to determine appropriate threshold levels for carrot weevil in your area.</p> <p>Use sufficient water volume to ensure thorough coverage. Use the higher rate and a higher water volume when pest pressure is high.</p>
	Cabbage looper Imported cabbageworm Diamondback moth	101-202 mL/ac	1 day	<p>Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.</p> <p>Cutworm: Apply to foliage when rain is not expected in the next 24 hours. Apply to smaller plants or when lower portions of plant can receive adequate coverage.</p> <p>Thrips: If populations are high, use a registered insecticide with a different mode of action to reduce thrips populations before applying Exirel[®] insecticide.</p> <p>Thorough coverage is important to obtain optimum control.</p> <p>For optimum control, apply Hasten[®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech[®] at an application rate of 0.5% v/v.</p>
Beet armyworm Fall armyworm	202 mL/ac			
Dipteran leafminers (larvae)	405-607 mL/ac			
Flea beetles	202-405 mL/ac			
Corn earworm	304 mL/ac			
Sweet midge Cutworms	202-304 mL/ac			
Aphids	202-607 mL/ac			
Thrips ¹	405-607 mL/ac			



Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
Fruiting Vegetables (except cucurbits) (Group 8-09): Bell pepper, eggplant, tomato, okra, etc.	Cabbage looper	101-202 mL/ac	1 day	<p>Begin applications when treatment thresholds have been reached.</p> <p>Cutworm: Apply to foliage when rain is not expected in the next 24 hours. Apply to smaller plants or when lower portions of plant can receive adequate coverage.</p> <p>Aphids: Apply Hasten[®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech[®] at an application rate of 0.5% v/v.</p> <p>Pepper Maggot: Must be controlled at the adult life stage. Control may not be possible once oviposition has occurred.</p> <p>Colorado potato beetle resistance management: DO NOT apply Exirel[®] insecticide for Colorado potato beetle control if any Group 28 insecticide was used at planting as an in-furrow, soil or seed treatment.</p>
	Armyworm Beet armyworm Fall armyworm	202 mL/ac		
	Tomato fruitworm (corn earworm) Tobacco hornworm ¹ Tomato hornworm ¹	304 mL/ac		
	European corn borer Cutworms	202-304 mL/ac		
	Flea beetles	202-405 mL/ac		
	Colorado potato beetle	304-405 mL/ac		
	Aphids	202-607 mL/ac		
	Pepper maggot Pepper weevil ¹	405-607 mL/ac		
	Cucurbit Vegetables (Group 9): Cucumber, melon, cantaloupe, pumpkin, squash, watermelon, etc.	Cabbage looper		
Armyworm Fall armyworm		202 mL/ac		
Cutworms		202-304 mL/ac		
Corn earworm		304 mL/ac		
Aphids		202-607 mL/ac		
Dipteran leafminers (larvae)		304-405 mL/ac		
Flea beetles		202-405 mL/ac		
Legume Vegetables (Group 6): Beans, chickpea, peas, lentil, soybean, etc.	Cabbage looper	101-202 mL/ac	7 days	<p>Begin applications when treatment thresholds have been reached.</p> <p>Cutworm: Apply to foliage when rain is not expected in the next 24 hours. Apply to smaller plants or when lower portions of plant can receive adequate coverage.</p> <p>Aphids: Apply Hasten[®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech[®] at an application rate of 0.5% v/v.</p>
	Armyworm Beet armyworm Fall armyworm	202 mL/ac		
	Cutworms European corn borer	202-304 mL/ac		
	Soybean aphid	304-607 mL/ac		
	Bean leaf beetle ¹	405-607 mL/ac		

Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
Pome Fruits: (Group 11-09) Apple, crabapple, pear, etc.	Codling moth Oriental fruit moth Spotted tentiform leafminer Western tentiform leafminer	202-304 mL/ac	3 days	Begin applications when treatment thresholds have been reached. 1st generation codling moth: Apply before first egg hatch (80 - 110 degree days Celsius after biofix). Monitor populations and reapply 10 - 14 days later if required. For 2nd generation codling moth, timing of the first application is based on first egg hatch after establishing a new biofix. Monitor populations and reapply 10 - 14 days later if required.
	Obliquebanded leafroller Threelined leafroller Fruittree leafroller European leafroller Eyespotted bud moth Tufted apple bud moth European sawfly	202-405 mL/ac	3 days	Oriental fruit moth: Apply at 1st egg hatch of the targeted generation. Monitor populations using pheromone traps and reapply 10 - 14 days later if required. Oblique banded leafroller: Monitor larval population in the spring, and apply when over-wintering larvae become active, from pink stage through petal fall. For summer generations, monitor adult moth flight, and apply at first egg hatch (170 - 240 degree days Celsius) after the first sustained moth catch. A repeat application approximately 10 days after the initial application may be needed to control the extended emergence of the small larvae.
	Green peach aphid Rosy apple aphid Apple leafhopper	304-607 mL/ac	3 days	Apple maggot: Apply 7-10 days after the first apple maggot fly is caught on the traps in orchard. Repeat in 10 -14 days if populations warrant. Plum curculio: Monitor trees along the edge of the orchard for the first sign of feeding damage after bloom. Repeat after 10 - 14 days if population warrants.
	Apple maggot Plum curculio Japanese beetle	405-607 mL/ac	3 days	Japanese beetle: Monitor adult populations and insect damage. Follow provincial guidelines for treatment thresholds. Do not apply using aerial equipment.



Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
Stone Fruit: (Group 12-09) Apricot, cherry, plum, nectarine, peach, prune	Oriental fruit moth	202-304 mL/ac	3 days	Begin applications when treatment thresholds have been reached. Obliquebanded leafroller: Monitor larval population in the spring, and apply when over-wintering larvae become active, from pink stage through petal fall. For summer generations, monitor adult moth flight, and apply at first egg hatch (170 – 240 Celsius degree days) after the first sustained moth catch. A repeat application approximately 10 days after the initial application may be needed to control the extended emergence of the small larvae. Green peach aphid, plum aphid, cherry fruit fly, western cherry fruit fly, and spotted wing drosophila: Tank-mix Exirel [®] insecticide with Xiameter [®] OFX-0309 Fluid at 0.03 % v/v. It is recommended that a small area be tested to demonstrate safety to fruit and leaves before using in large areas. Do not tank-mix Exirel [®] insecticide with any surfactant except as directed on its label. Plum curculio: Monitor trees along the edge of the orchard for the first sign of feeding damage after bloom. Repeat 10 – 14 days if populations warrant. Peach twig borer: Use pheromone traps to monitor the male moth activity. Follow local recommendations for thresholds information. For spring/overwintering or first summer generation larvae: Apply within 7 days of first trap catch of adult male moths. For second summer generation larvae: continue monitoring for second brood moths until at least mid-August. If required, apply a second spray within 7 days of first trap catch of adult male moths. Spotted wing drosophila: Begin applications when populations are low. Exirel [®] insecticide targets the adult life stage of spotted wing drosophila. If populations are high, use a registered insecticide with a different mode of action to reduce the pest populations. Apply a subsequent application of Exirel [®] insecticide if required. Do not apply using aerial equipment.
	Obliquebanded leafroller Threelined leafroller Fruittree leafroller European leafroller Eyespotted bud moth	202-405 mL/ac		
	Green peach aphid Plum aphid Cherry fruit fly Western cherry fruit fly	304-607 mL/ac		
	Plum curculio Japanese beetle Spotted wing drosophila	405-607 mL/ac		
	Peach twig borer	304-405 mL/ac		

Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
Bushberries (Subgroup 13-07B): Blueberry (low and high bush), currant, highbush cranberry, etc.	Blueberry gall midge	304-405 mL/ac	3 days	Begin applications when treatment thresholds have been reached. Blueberry aphid, spotted wing drosophila, blueberry maggot, and blueberry gall midge: Tank-mix Exirel [®] insecticide with an MSO surfactant at 0.5 - 1.0% v/v. It is recommended that a small area be tested to demonstrate safety to fruit and leaves before using in large areas. Do not tank-mix Exirel [®] insecticide with any surfactant except as directed on its label. Blueberry maggot: Begin applications when populations are low. If blueberry maggot populations are high, use a registered insecticide with a different mode of action to reduce the pest populations before applying Exirel [®] insecticide. Spotted wing drosophila: Begin applications when populations are low. Exirel [®] insecticide targets the adult life stage. If Spotted wing drosophila populations are high, use a registered insecticide with a different mode of action to reduce the pest populations. Apply a subsequent application of Exirel [®] insecticide if required.
	Blueberry maggot ¹ Plum curculio Japanese beetle Spotted wing drosophila Black vine weevil adults Clay coloured weevil adults	405-607 mL/ac		
	Flea beetles Cranberry fruitworm Obliquebanded leafroller Threelined leafroller Fruittree leafroller European leafroller Eyespotted bud moth	202-405 mL/ac		
	Blueberry aphid	304-607 mL/ac		
Low growing berries (Subgroup 13-07H): (except strawberry): Lowbush blueberry, cranberry, etc.	Cranberry fruitworm Black headed fire worm Sparganothis fruitworm	304-607 mL/ac	14 days	Begin applications when treatment thresholds have been reached.
Cranberry	Cranberry Weevil (<i>Anthonomus musculus</i>)	304-607 mL/ac	14 days	Begin applications when scouting indicates the presence of cranberry weevils. Consult local agricultural authorities to determine appropriate threshold levels in your area. Use sufficient water volume to ensure thorough coverage. Recommended minimum water volume of 200 L/ha. Use the high rate and a higher water volume when high pest pressure.



Insects Controlled and Application Information ²				
Crop	Pest	Rate	PHI	Application Information
Strawberries	Aphids	202-607 mL/ac	1 day	<p>Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control.</p> <p>For optimum control apply Haster[®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech[®] at an application rate of 0.5% v/v.</p> <p>If thrips populations are high, use a registered insecticide with a different mode of action to reduce thrips populations before applying Exirel[®] insecticide.</p> <p>For spotted wing drosophila begin applications when populations are low. Exirel[®] insecticide targets the adult life stage of Spotted wing drosophila. If Spotted wing drosophila populations are high, use a registered insecticide with a different mode of action to reduce the pest populations. Apply a subsequent application of Exirel[®] insecticide if required.</p> <p>Japanese beetle: Monitor adult populations and insect damage. Follow provincial guidelines for treatment thresholds.</p>
	Thrips ¹ Spotted wing drosophila Japanese beetle Black vine weevil	405-607 mL/ac		



Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
Tree Nuts (Group 14-11): Hazelnut etc.	Codling moth Oriental fruit moth	202-304 mL/ac	5 days	<p>Begin applications when treatment thresholds have been reached.</p> <p>1st generation codling moth: Apply before first egg hatch (80 – 110 degree days Celsius after biofix). Monitor populations and reapply 10 – 14 days later if required. For 2nd generation codling moth, timing of the first application is based on first egg hatch after establishing a new biofix. Monitor populations and reapply 10 – 14 days later if required.</p> <p>Oriental fruit moth: Apply at 1st egg hatch of the targeted generation. Monitor populations using pheromone traps and reapply 7 – 10 days later if required.</p> <p>Oblique banded leafroller: Monitor larval population in the spring, and apply when over-wintering larvae become active, from pink stage through petal fall. For summer generations, monitor adult moth flight, and apply at first egg hatch (170 – 240 degree days Celsius) after the first sustained moth catch. A repeat application approximately 10 days after the initial application may be needed to control the extended emergence of the small larvae.</p> <p>Peach twig borer: Use pheromone traps to monitor the male moth activity. Follow local recommendations for thresholds information. For spring/overwintering or first summer generation larvae: Apply within 7 days of first trap catch of adult male moths. For second summer generation larvae: continue monitoring for second brood moths until at least mid-August. If required, apply a second spray within 7 days of first trap catch of adult male moths.</p> <p>Do not apply using aerial equipment.</p>
	Obliquebanded leafroller Threelined leafroller Fruittree leafroller European leafroller Eyespotted bud moth	202-405 mL/ac		
	Peach twig borer	304-405 mL/ac		
Peanuts	Armyworm Fall armyworm	202 mL/ac	14 days	<p>Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control. Use the high rate under heavy pest pressure.</p>
	Cutworms	202-304 mL/ac		
	Corn earworm	304 mL/ac		
Tobacco	Tobacco hornworm ¹ Tomato hornworm ¹	304 mL/ac	7 days	<p>Begin applications when treatment thresholds have been reached.</p>
	Flea beetle	202-405 mL/ac		

Insects Controlled and Application Information²

Crop	Pest	Rate	PHI	Application Information
Greenhouse: Cucumbers, pepper, tomato, eggplant, lettuce	Cabbage looper	101 mL/ac	0 days (cucumber) 1 day (peppers, eggplant, tomato)	Begin applications when treatment thresholds have been reached. Thorough coverage is required to obtain optimum control. Select a spray volume appropriate for the size of plants and density of foliage. Use the higher listed rate and higher spray volumes for large plants or dense foliage. Repeat applications if monitoring indicates it is necessary. Foliar use only. Do not apply in irrigation water. Not for use in plants grown for transplanting. Thrips and whiteflies: Apply Hasten [®] NT Spray Adjuvant at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech ^{®*} at an application rate of 0.5% v/v. If thrips populations are above threshold, use a registered knockdown product before applying Exirel [®] insecticide.
	Thrips ¹	202-405 mL/ac		
	Whiteflies	304-405 mL/ac		
Greenhouse pepper	Pepper maggot Pepper weevil ¹	404-607 mL/ac	1 day	Pepper maggot: Must be controlled at the adult life stage. Control may not be possible once oviposition has occurred.
Caneberry (Subgroup 13-07A): Blackberry, raspberry, etc.	Black vine weevil adults Obscure root weevil adults Spotted wing drosophila Japanese beetle	404-607 mL/ac	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control. Obscure root weevil: Begin applications when adults are observed. Black vine: Apply when most of adults have emerged but before they begin to lay eggs (early summer). Spotted wing drosophila: Begin applications when populations are low. If spotted wing drosophila populations are high, use a registered insecticide with a different mode of action to reduce thrips populations before applying Exirel [®] insecticide. Spotted wing drosophila, black vine weevil and obscure root weevil: Tank-mix Exirel [®] insecticide with Hasten [®] NT Spray Adjuvant at an application rate of 0.25% v/v.
Hops	Flea beetles	500-1000 mL/Ha	1 day	Begin applications when treatment thresholds have been reached. Thorough coverage is required to obtain optimum control. Select a spray volume appropriate for the size of plants and density of foliage. Use the higher listed rate and higher spray volumes for large plants or dense foliage. Repeat applications if monitoring indicates it is necessary.
	Aphids Potato leafhopper	750-1500 mL/Ha		
	Japanese beetle Black vine weevil Strawberry root weevil	1000-1500 mL/Ha		

¹Suppression

²Do not exceed a total of 1.8 L/ac per season, unless otherwise stated.



High performing, broad spectrum insecticide for horticultural and row crops

- Stable in sunlight resulting in longer control versus other pyrethroids
- 🚫 **Crops*:** Apples, asparagus, barley, beets, blueberry, canola, carrot, cereals, cole crops, corn (field and sweet), cucumbers, flax, ginseng, grapes, horseradish, lentils, lettuce, mushrooms, nectarines, onions, ornamentals, pak-choi, peaches, pears, peas, peppers, plums, potatoes, radishes, snap peas, sugar beets, sunflowers, tobacco, tomatoes, turnips

*Do not apply during crop blooming period

- 🧪 **Insecticide Group:** Group 3
- 🔍 **Active Ingredient(s):** Permethrin
- 📦 **Packaging:** 12 x 1 L jugs per case
- 🕒 **Re-entry Period:** 12 hours

Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Beets Canola Carrots Cereals (wheat, barley, oats, rye) Cole crops Corn (excluding sweet corn) Flax Lentils Lettuce Onions Peas Peppers Potatoes Sugar beets Sunflower	Cutworms: Army, Black, Dark-sided, Pale Western, Red-backed, White	73-158 mL/ac	Beets, carrots, sugar beets, and asparagus: 2 days Cabbage, cauliflower, Brussels sprouts: 3 days Lettuce, onions, peppers, potatoes: 1 day Corn: 30 days	Ground application: To control these insects attacking seedlings (up to 5 leaves) and/or transplants of these crops, apply 73 mL/ac in sufficient water for good coverage. Under dry soil conditions, or on muck soil, or where cutworms are near full maturity (2.5 - 4 cm) apply 119-156 mL/ac. Applications should be made under warm, moist conditions in the evening or at night when cutworm activity is highest.
	Pale Western cutworm	73-158 mL/ac	Canola, flax, sunflower: NA (application staging is up to 5 leaf) Cereals, broccoli, lentils, peas: 7 days	Aerial application: To control this insect attacking seedlings; specifically crops up to 5 leaves, apply 73 mL/ac in sufficient water for good coverage. Under dry soil conditions or where cutworms are near full maturity (2.5 to 4 cm) use 119-156 mL/ac. Can only be applied by air once per season.
Asparagus	Cutworms	73-158 mL/ac	2 days	To control cutworms during the cutting season, make 1 broadcast application by ground to bare soil after cutting when damage is first noticed. Do not exceed 158 mL/ac per year.



Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Canola	Crucifer flea beetle Striped flea beetle	36-73 mL/ac	NA (application staging is up to 5 leaf)	Ground application: Apply in sufficient water for good coverage when insects are present. Application should be made when the beetles are actively feeding. For severe infestations, use 73 mL/ac (180 mL/Ha). Aerial application: Apply in 1- 4 gal/ac (11-35 L/Ha) spray water. Can only be applied by air once per season. Do not exceed 158 mL/ac per year.
Cabbage, cauliflower, broccoli, Brussels sprouts	Cabbage looper Imported cabbage worm Diamondback moth (larvae) Crucifer flea beetle	36-73 mL/ac	Cabbage, cauliflower, Brussels sprouts: 3 days Broccoli: 7 days	Ground application: Apply in 40-70 gal/ac (400-650 L/Ha) spray water on a 7-10 day schedule when insects or insect damage first appears. For severe infestations, use 73 mL/ac. Add Agral [®] 90 wetting agent at 300 mL per 1000 L of water to improve wetting and coverage. Do not apply by air. Do not exceed 315 mL/ac per season.
Sweet corn	European corn borer Corn earworm	111-152 mL/ac	1 day	Ground application: Apply specified dosage in 35-50 gal of water/ac (325-450 L/Ha). Use the higher rate when severe insect pressure is anticipated. Spray when first feeding is observed. For second brood borers in plantings, apply before tassels show. For control of corn earworm, direct the spray to ensure coverage of ears and silks. Aerial application: Application by air is permitted. Apply specified rate in 1- 4 gal/ac (11-35 L/Ha) spray water. Do not apply more than twice per year by air. Do not exceed 607 mL/ac per year.
	Fall armyworm	73 mL/ac		
Greenhouse: Tomato, cucumber	Whitefly	260 mL/1000 L	1 day	Apply to thoroughly cover all foliage. Repeat as necessary. Do not allow effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters. Do not exceed 632 mL/ac per season.
Ginseng	Cutworms: Army, Black, Pale Western, Red-backed, White, Variegated	73-158 mL/ac	40 days	Ground application: Apply in sufficient water to give thorough coverage of the plants. Use the higher rate if the infestation is heavy; maximum of two applications per year. Apply when scouting indicates presence of cutworms. Under dry soil conditions or where cutworms are near full maturity (2.5 to 4 cm) use 119-158 mL/ac. Apply a maximum of 2 applications per year. Do not apply by air. Do not exceed 315 mL/ac per season.
	Four-lined plant bug	73-105 mL/ac		



Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Pak-choi, Chinese cabbage	Cabbage looper Imported cabbage worm Diamondback moth (larvae)	73 mL/ac	3 days	Ground application: Apply in 40-70 gal/ac (400-675 L/Ha) spray water on a 7-10 day schedule when insects or insect damage first appears. Add Agral [®] 90 wetting agent at 300 mL per 1000 L of water to improve wetting and coverage. Do not apply by air. Do not exceed 315 mL/ac per season.
Chinese broccoli	Cabbage looper Imported cabbage worm Diamondback moth (larvae)	36-73 mL/ac	7 days	Ground application: Apply in 40-70 gal/ac (400-675 L/Ha) spray water on a 7-10 day schedule when insects or insect damage first appears. Add Agral [®] 90 wetting agent at 300 mL per 1000 L of water to improve wetting and coverage. Do not apply by air. Do not exceed 315 mL/ac per season.
Peppers	European corn borer	73 mL/ac	1 day	Ground application: Apply when borer is first observed between end of July to mid-September. Repeat every 7 days. Do not exceed 315 mL/ac per season.
Potato	Colorado potato beetle Potato flea beetle Potato leafhopper Tarnished plant bug	73-105 mL/ac	1 day	Ground application: Apply in sufficient water for thorough coverage. Use the higher rate for heavy infestations. Repeat as necessary. Aerial application: Application by air is permitted, provided there is no hazard of drift to other crops or to areas occupied by people or livestock. Apply specified rate in 11-35 L water/hectare. Can be applied by air once per season.
	Variiegated cutworm	73 mL/ac		Ground application: Apply when insects or damage appears - usually late July or during August, depending on location. Good control is dependent on spray penetration of dense foliage.
	European corn borer	73 mL/ac		Ground applicati on: Apply in sufficient water for good coverage. Apply when egg masses begin to hatch. Aerial application: Application by air is permitted. Apply specified rate in 1-4 gal/ac (11-35 L/Ha) spray water. Can only be applied by air once per season. Do not exceed 631 mL/ac per year.



Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Radish, horseradish, turnip	Crucifer flea beetle	73 mL/ac	2 days (1 day in turnip)	<p>Ground application: Apply when insects or insect damage appears. Repeat if required.</p> <p>Do not exceed 295 mL/ac per year (radish, horseradish) or 219 mL/ac per year (turnip).</p>
Snap beans	European corn borer	105 mL/ac	7 days	<p>Ground application: Apply at the first sign of infestation. Repeat if necessary.</p> <p>Aerial application: Apply in 2-5 gal/ac (20-45 L/Ha) at the first sign of infestation. Can be applied by air twice per season.</p> <p>Do not exceed 315 mL/ac per year.</p>
Tobacco (field)	Darksided cutworm White cutworm	71-142 mL/ac	55 days	<p>Do not apply by air. Do not exceed 142 mL/ac per year.</p> <p>Ground application: Apply in 20-50 gal/ac (220-450 L/Ha) spray water using nozzle pressure of 71 mL/ac (175-350 kPa.) Cutworm activity is greatest during the late evening and night. Application should be timed as close as possible to insect feeding activity.</p> <p>Cover crop treatment: Apply 71 mL/ac once to a rye or wheat cover crop when the crop is 10-15 cm high, 4 to 5 days before ploughdown. Application should also be made to fence rows and a 15 m strip into nearby cover crop. Cover crops treated should not be used as a green feed for animals.</p> <p>Soil treatment: Apply 71-142 mL/ac once 5 days before transplanting. Use the higher rate when the top 1 cm or more of soil is dry. Do not incorporate. Application should also be made to fence rows and a 15 m strip into nearby cover crop. Do not disturb the soil surface for at least 5 days after treatment.</p> <p>Post transplanting treatment: Apply 71 mL/ac once to transplants immediately prior to anticipated cutworm feeding damage. Under conditions of severe insect pressure, applications should also be made to fence rows and a 15 m strip into nearby cover crops.</p>



Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Tomato (field)	Colorado potato beetle Potato flea beetle Tomato hornworm Variegated (climbing) cutworm	73-105 mL/ac	1 day	Ground application: Apply in sufficient water to give thorough coverage. Do not apply by air.
	Tomato fruitworm (Corn earworm)	105 mL/ac		Ground application: Apply using the higher rate for heavy infestations. NOTE: Tomato fruitworm that has entered the fruit will not be controlled. Repeat above sprays as needed. Do not exceed 737 mL/ac per year.

For the fruit crops listed below, mL per 1000 L is for use as a dilute foliar spray. Millilitres per acre is for use with concentrate sprays.

Apple	Winter moth Eastern tent caterpillar Eyespotted bud moth	105-210 mL/ac (90-175 mL/1000 L)	7 days	Apple bark border and Dogwood border: Mix 22 mL in 100 L of water with 2 L of Superior Oil. When monitoring indicates adults are active (late June to early August) apply to apple trunks as drench spray to runoff using a knapsack, handgun, or airblast sprayer. A second application may be applied 14 days later. Toxic to bees. Do not apply during the crop blooming period. Do not exceed 566 mL/ac per year.
	Tentiform leafminer Green fruitworm Apple maggot Codling moth Leafrollers Tarnished plant bug Mullein plant bug Lesser appleworm	210 mL/ac (175 mL/1000 L)		
	Apple bark borer Dogwood borer	mix 22 mL in 100 L of water with 2 L of superior oil		
	Plum curculio White apple Leafhopper	145-210 mL/ac (125-175 mL/1000 L)		



Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Blueberries (vegetative year only)	Thrips	73 mL/ac	N/A (vegetative year)	Make one application between mid-May and early June when plants are 1-2 cm tall. Do not exceed 73 mL/ac per year.
Pear (Eastern Canada only)	Pear psylla (adults & nymphs) Codling moth Green fruitworm	210 mL/ac (175 mL/1000 L)	7 days	Toxic to bees. Do not apply during the crop blooming period. Do not exceed 445 mL/ac per year.
Pear (British Columbia)	Pre-bloom pear psylla (over-wintering adults) Codling moth	210 mL/ac (175/1000 L)	7 days	Pre-bloom pear psylla (over-wintering adults): Apply up to 1 cm green stage of pear foliage growth. Do not apply less than 7 days before harvest at the 210 mL/ac (175 mL/1000 L) rate and less than 14 days before harvest at rates greater than 210 mL/ac (175 mL/1000 L).
	Post-bloom pear psylla	210-405 mL/ac (175-350 mL/1000 L)	7-14 days	
Peaches, nectarines	Oriental fruit moth	111-210 mL/ac (90-175 mL/1000 L)	7 days	Toxic to bees. Do not apply during the crop blooming period. Do not exceed 420 mL/ac per year.
	Plum curculio Plant bugs	210 mL/ac (175 mL/1000 L)		
Plums	Plum curculio	210 mL/ac (175 mL/1000 L)		Toxic to bees. Do not apply during the crop blooming period. Do not exceed 445 mL/ac per year.
Grapes	Grape berry moth	146 mL/ac (175 mL/1000 L)	21 days	Climbing cutworm: Apply in 50 gal/ac (450 L/Ha) spray water. Maximum 2 applications per year, 7-10 days apart. Apply at the first sign of cutworm damage in the spring. Apply spray mixture to the trunk and soil surface within a radius of 0.5 m of the trunk base in the evening. Use low rate for small cutworms and high rate for larger cutworms (2-3 cm). Do not disturb soil for 5 days after application. Do not exceed 583 mL/ac per year.
	Grape leafhopper	71 mL/ac (90 mL/1000 L)		
	Climbing cutworm	73-146 mL/ac		



Insects Controlled and Application Information				
Crop	Pest	Rate	PHI	Application Information
Mushroom (mushroom house and adjacent premise areas)	Mushroom flies - <i>Sciarid and Phorid adults</i>	65-85 mL per L water per 1000 m ³	1 day	Do not apply more than two applications between each break. Maximum of 20 applications per crop cycle (including breaks). Do not apply more than 63 applications in a year. Do not exceed 5.42 mL/m ³ per year. Do not apply more than once daily. Refer to product label for specific use directions.
Peanuts	Potato leafhopper	73 mL/ac	14 days	Ground Application: Apply in sufficient water for thorough coverage when infestation exceeds 2 leafhoppers per plant. Do not apply using aerial application equipment.




The right start for a strong finish

- Delivers fast root uptake to help protect the root system from early season insect damage
- Excellent cross-spectrum insect control of both sucking and chewing pests
- Verimark[®] insecticide is a highly effective IPM product that will help manage insecticide resistance
- Resistance Management - DO NOT make a foliar application of any Group 28 insecticide for a minimum of 60 days following an in-furrow or soil application of Verimark[®] insecticide.

 **Crops:** Potatoes, brassica vegetables, root vegetables

 **Insecticide Group:** Group 28

 **Active Ingredient(s):** Cyantraniliprole

 **Packaging:** 4 x 2.365 L jugs per case

 **Re-entry Period:** 12 hours

Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Potatoes	Colorado potato beetle Potato flea beetle (early season control of spring adults)	6.75-9 mL/ 100 m of row	n/a	In-furrow application: Apply as a narrow band in-furrow. For best results, direct spray on the seed pieces in the furrow. Thorough coverage of seed pieces is important to obtain optimum control.
Root Vegetables (except sugar beets), carrot, radish, turnip, ginseng, garden beet, etc.	Flea beetle (early season damage reduction)	6.75-9 mL/ 100 m of row	21 days	In-furrow application: Apply as a narrow band in-furrow. For best results, direct spray on the seed in the furrow. Thorough coverage of seed is important to obtain optimum control.
	Cabbage maggot	10-15 mL/ 100 m of row		
Brassica Leafy Vegetables (Group 5): Broccoli, Brussels sprouts, cabbage, cauliflower, kale, etc. Greenhouse Transplants	Imported cabbage worm Diamondback moth Cabbage looper Flea beetles (early season damage reduction) Swede midge (early season damage reduction)	304-405 mL/ac Greenhouse transplant tray drench: 24-32 mL/1000 plants	n/a	Apply specified dosage as an in-furrow spray, in the transplant water at the time of transplanting. Transplant tray drench application: Apply Verimark Insecticide as a transplant tray drench before transplanting into the field. Apply in 2 L of water per 1000 plants at the rate for listed pests. Immediately after applying, apply 2 L of water per 1000 plants to rinse the product off the plants and into the soil. Do not rinse the product out of the transplant medium. Verimark Insecticide may be applied as a transplant tray drench no earlier than 72 hours prior to planting in field. See "transplant tray drench" section of label for details on transplant tray application directions.
	Cabbage maggot	10-15 mL/ 100 m of row Greenhouse transplant tray drench: 35-54 mL/1000 plants		



Insects Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Tomato (In-Furrow)	Colorado potato beetle	7- 10 mL/100 m of row. Typical row spacing for tomatoes is 90 cm. See conversion table on the product label for L/Ha rate.	n/a	In-furrow application: Apply specified dosage as an in-furrow spray, in the transplant water at the time of transplanting.

CONVERSION TABLE

Rate in mL of product/Ha based on planted row spacing in cm

		Row spacing in cm						
		50	65	75	85	90	95	100
Rate in mL/100 row	6.75	1350	1038	900	794	750	711	675
	7.0	1400	1077	933	824	778	737	700
	7.5	1500	1154	1000	882	833	789	750
	8.0	1600	1231	1067	941	889	842	800
	8.5	1700	1308	1133	1000	944	895	850
	9.0	1800	1385	1200	1059	1000	947	900
	9.5	1900	1462	1267	1118	1056	1000	950
	10.0	2000	1538	1333	1176	1111	1053	1000
	11.0	2200	1692	1467	1294	1222	1158	1100
	12.0		1846	1600	1412	1333	1263	1200
	13.0		2000	1733	1529	1444	1368	1300
	14.0		2154	1867	1647	1556	1474	1400
	15.0		2308	2000	1765	1667	1579	1500

NOTES





Fungicide

Fullback® 125 SC77



Fungicide

Fullback® 125 SC77


FULLBACK®

125 SC

FUNGICIDE


Always on the offensive

- One of the most systemic fungicides in its class
- Has both preventative and curative disease control activity
- Ideal choice as the foundation of any pest management program and can be easily tank-mixed to complement other modes of action

 **Crop:** Apples, grapes, strawberries, dry soybeans

 **Fungicide Group:** Group 3

 **Active Ingredient(s):** Flutriafol

 **Packaging:** 4 x 1.5 L jugs per case

 **Re-entry Period:** 12 hours

Disease Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Apple	Scab (<i>Venturia inaequalis</i>) (Green tip- cover sprays) ¹ Fullback® 125 SC fungicide tank-mixed with a protectant fungicide	385 mL/ac	14 days	Initiate applications at green tip or when environmental conditions are favourable for primary scab development. Applications should continue through the duration of primary scab. Spray Intervals: 7-10 days through petal fall, 10-14 days after petal fall.
	Powdery mildew (<i>Podosphaera leucotricha</i>) Quince rust (<i>Gymnosporangium clavipes</i>) Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>)	237-355 mL/ac		Initiate applications at green tip and continue through cover sprays. Spray Intervals: 10-14 days.
Grape	Powdery mildew (<i>Erysiphe necator</i> syn. <i>Uncinula necator</i>) Black rot (<i>Guignardia bidwellii</i>)	237-296 mL/ac	14 days	Apply as a foliar spray beginning at 15 to 25 cm shoots. Use the higher rate and/or shorter intervals when disease pressure is high. Spray Intervals: 14-21 days for powdery mildew, 14 days for black rot.
Strawberry	Powdery mildew (<i>Sphaerotheca aphansis</i> syn. <i>S. macularis</i>)	207-415 mL/ac	8 days	Apply as a foliar spray when conditions are favourable for disease development. Use the higher rate and/or shorter spray intervals under severe sustained disease pressure. Non-ionic surfactant at 0.25% v/v may be added to the spray solution. Spray Intervals: 7-10 days.

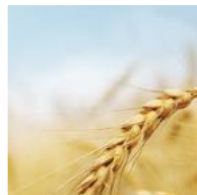
¹ Suppression



Disease Controlled and Application Information

Crop	Pest	Rate	PHI	Application Information
Dry soybeans	Asian soybean rust <i>(Phakopsora pachyrhizi)</i>	207-415 mL/ac	21 days	Apply as a broadcast foliar spray when conditions are favourable for development of soybean rust. Repeat after first application if environmental conditions are favourable for continued disease development. May be tank-mixed with Headline [®] EC fungicide at the label rates for resistance management. Spray Interval: 21-35 days. Do not feed forage or hay to animals or permit animals to graze
	Frogeye leaf spot <i>(Cercospora sojina)</i> Cercospora blight and leaf spot <i>(Cercospora kikuchii)</i> Brown spot <i>(Septoria glycines)</i>	207-415 mL/ac	21 days	Apply as a broadcast foliar spray to soybean plants in R3 growth stage (early pod fill) or when environmental conditions are favourable for disease development. Apply second application if conditions are conducive for heavy disease development. Use the higher rate and shorter spray interval under severe sustained disease pressure. Spray Interval: 14-21 days. Do not feed forage or hay to animals or permit animals to graze.

Do not exceed 829 mL/ac per season.



Other

Herbicide Mixing Instructions	83
The Benefits of Solumax®	84
Product Storage	85
FMC Tank Mix Policy.....	85



Other

Herbicide Mixing Instructions	83
The Benefits of Solumax®	84
Product Storage	85
FMC Tank Mix Policy.....	85

Herbicide Mixing Instructions

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

Wettable powders, dispersible granules, soluble granules (WG, DF, SG, WP, SP)

Agitate tank-mix thoroughly

Micro-encapsulated suspensions (ME)

Liquid flowables and suspensions (SC, SL, SN, Li, SU, SE)

Emulsifiable concentrate formulations (EC)

- Fill spray tank nearly full with water

Glyphosate formulations

Surfactants

- Complete filling the spray tank to the desired level

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

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

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

The Benefits of Solumax® Soluble Granules



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

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

Here are the three (3) key benefits:

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

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

2. Lower risk to sensitive crops.

It is easier to remove product residue from the tank, thus the potential impact to subsequently sprayed sensitive crops is minimized.

3. Consistent weed control.

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



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

Product Storage

Storage requirements		
Heated storage required	Aim® EC Authority® 480 Authority® Supreme Barricade® M Command® 360 ME Coragen® MaX	Cygon® 480-AG Cygon® 400EC Exirel® Focus® Pounce® 384 EC Verimark®
Heated storage NOT required	Altacor® MaX Beleaf® 50SG Express® FX Express® SG Fullback® 125 SC Muster®	Pinnacle® SG Refine® M Refine® SG Spartan® UpBeet®

FMC Tank Mix Policy:

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

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact FMC of Canada Limited at 1-833-362-7722 for information before applying any tank mix that is not specifically recommended on an FMC product label.



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Always read and follow label instructions. Member of CropLife Canada.

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