

2018 Guide to Crop Protection

Spring Update

Herbicides

Corrections:

Authority (page 98): PCP#32846. Re-cropping interval for winter wheat is 4 months. There is no grazing restriction listed on the label.

Authority Supreme (page 101): PCP#32562. Tankmixes with any formulation of glyphosate. There is no grazing restriction listed on the label.

Command 360 ME (page 146): Rainfall required for activation has been reduced to 5 to 10 mm. Re-cropping Interval: Soybeans and canola may be seeded any time after treatment. Winter wheat can be seeded 4 months after application. Beans (navy, kidney), field corn, peas, potatoes, wheat (spring, durum), barley, oats, or lentils may be seeded the year after application. Sprayer Cleaning: Refer to 'Method A or B' in the general section on pages 12 and 13.

Additions and other changes:

Aim (page 90): Pre-seed application rates range from 14.8 to 47.3 mL per acre. Add potatoes to the eligible pre-seed burndown crops. For potato desiccation – should a second desiccation application be required after a first application of *Aim* plus *Reglone* tank mix, use *Aim* at 94.3 to 142 mL/acre alone or as a tank mix with *Reglone* at 0.5 L/acre.

Davai 80SL (imazamox page 242): is registered for early postemergence use in field peas and soybean for broad-spectrum weed control. See the mock-up page at the end of this document for details.

Express Pro (Tribenuron/Metsulfuron page 367): Recropping restrictions: Faba beans, field corn and soybeans are added to the list of crops that may be planted 10 months following application.

Focus (page 209): Weeds controlled: Stinkweed is suppression only, wormseed mustard is controlled. Grazing restrictions removed for corn and soybean. Re-cropping interval: Lentils added to the list of rotational crops. Hazard ratings: None.

Inferno Duo (page 249): 45% flucarbazone and 23.9% tribenuron formulated as a water dispersible granule.

Edge Granular (page 170): is registered for the control of labelled weeds in industrial hemp in Western Canada at the rate of 6.9 to 11.3 kilograms per acre depending upon soil type. See crop specific section of the product label for additional details. Make only one application per year. Hemp varieties may vary in their tolerance to herbicides, including to *Edge Granular Herbicide*. Since this use is registered under the Minor Use program (URMULE), the manufacturer assumes no responsibility for herbicide performance. Those who apply this use do so at their own risk.

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Esteem (refer to *Prestige XC/XL* page 309):

Company: Adama Canada

Formulation:

The *Esteem* package has 3 components:

Clopyralid 360 (PCP#32898): 360 g/L clopyralid

- Container size – 3.34 L

Fluroxypyr 180 EC (PCP#30815): 180 g/L fluroxypyr

- Container size – 9.6 L

MCPA 2 EH Ester 600 (PCP#31669): 600 g/L MCPA ester

- Container size – 11.01 L

Staging and weeds controlled are similar to *Prestige* brands.

At **40 acres per case**, *Esteem* will control:

Wild buckwheat, burdock, cleavers, Canada thistle (low infestations), cocklebur, field horsetail (top growth), volunteer flax, flixweed, kochia, lamb's quarters, wild mustard, plantain (top growth), prickly lettuce, ragweeds, shepherd's purse, stinkweed, stork's bill, volunteer sunflowers, annual sunflowers, vetch, wild radish

At **30 acres per case**, *Esteem* will also control:

Tartary buckwheat, Canada thistle (medium to high infestations, season long control), volunteer canola, chickweed, dandelions, common groundsel, hempnettle, roundleaf mallow, redroot pigweed, Russian pigweed, scentless chamomile, smartweed, annual sow-thistle, perennial sow-thistle (season long control)

Flucarbazone (page 200): *Everest 3.0* (PCP#32602), *Sierra 3.0* (PCP#32941): Yellow foxtail and barnyard grass are suppressed at application rates of 48.2 mL or 58.2 mL per acre and controlled at those same rates when tankmixed with *Inferno WDG*.

Heat LQ (page 235): Soybean pre-seed or pre-emergent application rate range is registered at 21.4-29.5 mL/acre. Do not use rates higher than 29.5 mL/acre or injury could result. When applying 29.5 mL/acre pre-emergent to soybeans, DO NOT apply to coarse textured soils with less than 2% organic matter. See crop specific section of the product label for additional details. Some soybeans cultivars may be more sensitive to saflufenacil and injury might occur.

Shieldex 400SC (new product): *Shieldex 400SC* is a new herbicide registered for post-emergent application in all types of field corn, seet corn and seed corn. See the mock-up page at the end of this document for details.

Zidua SC (new product): *Zidua SC* is a new herbicide registered for residual control of key annual grasses and select broadleaf weeds in corn and soybean. See the mock-up page at the end of this document for details.

Foliar Fungicides

Additions:

Cercobin (new product): *Cercobin* is a new foliar fungicide from Engage Agro for white mould control in white beans. See the mock-up page at the end of this document for details.

Diplomat 5SC (new product): *Diplomat 5SC* is a new foliar fungicide from Engage Agro for suppression of early blight in potatoes. See the mock-up page at the end of this document for details.

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Seed Treatments

Corrections:

Mancozeb (Page 526): *Solan MZ* and *Tuberseal* are registered to Engage Agro. The PCP number for *Tuberseal* is 29378.

Insecticides

Additions and other changes:

Beleaf (PCP#29796) (page 606-607): The label for *Beleaf* has been expanded to include the following insects in alfalfa (expanded from seed production only to include other alfalfa uses) and clovers:

Crop	Insect	Rate (g/acre)	Preharvest interval (days)	Application (A=aerial; G=ground)
Alfalfa	Aphids	49 – 65	7	G
	Lygus bugs	81-121	7	G
Clovers	Aphids	49 – 65	7	G
	Lygus bugs	81-121	7	G

Do not apply more than 3 applications per year.

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Davai 80 SL

Herbicide Group
2 – imazamox
(Refer to page 45)

Company:

ADAMA Canada (PCP#32929)

Formulation:

80 g/L imazamox (present as ammonium salt) formulated as a solution.

Container size: 2 x 8L, 96 L

Crops and Staging:

Soybean: emergence up to 3 expanded trifoliolate leaves

Field pea: 1 to 6 true leaf stage

Weeds, Rates and Staging:

At 75 mL per acre + 0.5% v/v Merge® in field pea:

- **Grasses – 1-4 true leaf:**
 - Volunteer spring wheat (non-Clearfield varieties)
- **Broadleaf Weeds – cotyledon to 4 leaf stage:**
 - Lamb's-quarters
 - Stinkweed
 - Wild mustard

At 100 mL per acre + 0.5% v/v Merge® in soybean:

- **Grasses – 1-4 true leaf:**
 - Barnyard grass
 - Green foxtail
 - Japanese bromet
 - Persian darnel
 - Volunteer barley
 - Volunteer canaryseed
 - Volunteer oat
 - Volunteer wheat (not CLEARFIELD varieties)
 - Wild oat (including Group 1 resistant biotypes)
 - Yellow foxtail
 - **Broadleaf Weeds – cotyledon to 4 leaf stage:**
 - Cleavers†
 - Cow cockle
 - Green smartweed
 - Lamb's-quarters
 - Redroot pigweed
 - Shepherd's-purse
 - Stinkweed
 - Volunteer canola (not CLEARFIELD varieties)
 - Wild buckwheat†
 - Wild mustard
- † Suppression only.

Merge adjuvant (sold separately): Must be used with *Davai 80SL* at a rate of 0.5 L of *Merge* per 100 L of total mixed spray solution.

DO NOT apply *Davai 80 SL* more than once or follow this product with any other products containing imazamox in the same year.

Refer to the product label for complete mixing instructions for this product and its mixes. A general guide to mixing can be found on page 11.

Application Information:

Water Volume: 40 L per acre.

Nozzles and Pressure: Use a combination of nozzles and pressure designed to deliver thorough, even coverage with ASABE (S572.1) medium or larger droplets.

Screens: Use 50-mesh (or coarser) filter screen.

How it Works:

Refer to Table 9 on page 49.

Effects of Growing Conditions:

When weeds are stressed due to drought, flooding, hot or prolonged cool temperatures (15°C or less), control can be reduced or delayed. Do not make applications to weeds stressed longer than 20 days due to lack of moisture, as unsatisfactory control can result.

Tank Mixes:

Herbicides:

- *Phantom 240 SL* (26.3 mL per acre)

Note: The above mix is listed on the *Davai 80 SL* label only. Adding ingredients in the correct order is critical for optimum performance. Check labels of both products to be mixed for directions. General guidelines can be found on page 11.

Restrictions:

Rainfall: No rainfast period is specified on the label; required interval may be up to 8 hours. Contact manufacturer for more information.

Re-Entry Interval: DO NOT enter treated fields for 12 hours.

Grazing: DO NOT graze the treated crops; field peas may be fed to livestock 30 days after application.

Pre-harvest Interval: Do NOT apply to peas within 60 days of harvest. DO NOT apply to soybean within 85 days of harvest.

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New Herbicide Page Drafts

Re-cropping Interval: barley, canary seed, canola, chickpea, corn (field), field pea, flax, lentil, oat, soybean, CLEARFIELD sunflower and wheat (spring, durum) may be grown the year after application.

Aerial Application: DO NOT apply by air.

Storage: DO NOT freeze. Store above 5° C in original, tightly closed container as from other fertilizers, food, feed or seed.

Buffer Zones: Avoid spraying in situations where drift may occur. DO NOT apply during periods of dead calm.

Tank Cleaning: Refer to 'Method C' in the general section on sprayer cleaning on page 12 and 13.

Hazard Rating:

Warning – Poison

Caution – Eye Irritant

Method of Application	Buffer Zones (metres [†]) Required for the Protection of Terrestrial habitat:
Ground*	1

See page 36 for an explanation of the different habitats.

* Buffer zones may be reduced when using drift reduction measures. See the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

† Distance measured as metres from the downwind edge of the spray boom to sensitive habitat.

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Shieldex 400SC

Herbicide Group
27 – tolpyralate
(Refer to page 45)

Company:

ISK Biosciences Corporation, distributed in Canada by Engage Agro Corp (PCP#32943)

Formulation:

400 g/L tolpyralate formulated as a suspension concentrate.
Container size: 4 x 600 mL

Crops and Staging:

Corn: up to 50 cm tall or up to and including 6 leaf collars (V6), whichever is more restrictive.

Weeds, Rates and Staging:

Apply to actively growing weeds less than 10 cm tall.

Broadleaf Weeds	30.4 mL/ac	40.5 mL/ac
Amaranth (Palmer, Powell)	S	S
Cocklebur	S	C
Lamb’s-quarters	S	C
Redroot pigweed	S	C
Smooth pigweed	C	C
Purslane	S	S
Ragweed (common, giant)	S	S
Shepherd’s-purse	S	S
Smartweed (Pennsylvania)	S	S
Waterhemp, common	S	S
Waterhemp, tall	C	C

Apply to grasses less than 10 cm tall or before tillering.

Grasses	30.4 mL/ac	40.5 mL/ac
Barnyard grass	S	S
Crabgrass, large	C	C
Foxtail (giant, yellow)	S	S
Green foxtail	S	C

C = Control S = Suppression

MSO Concentrate (sold separately): Apply 1% v/v or 10 L MSO Concentrate per 1000L of spray mixture.

Refer to the product label for complete mixing instructions for this product and its mixes. A general guide to mixing can be found on page 11.

Application Information:

Water Volume: 57 to 190 L per acre.

Nozzles and Pressure: Use a combination of nozzles and pressure designed to deliver thorough, even coverage with ASABE (S572.1) medium or larger droplets.

Screens: Use 50-mesh (or coarser) filter screen.

How it Works:

Refer to Table 9 on page 49.

Effects of Growing Conditions:

Poor weed control or crop injury may result from applications made to plants under stress from abnormally hot or cold weather; environmental conditions such as drought, water-saturated soils, hail damage or frost; disease, insect or nematode injury; or prior herbicide or carryover from a previous year’s herbicide application.

Tank Mixes:

Herbicides:

- Atrazine (.227 kg ai per acre) – Do not apply atrazine if corn is greater than 30 cm tall.

Fertilizers: Use 12.5 to 25 L/1000L spray solution of a high-quality urea ammonium nitrate (UAN) such as 28% N or 32% N or 8.4 to 20.4 kg/1000L of a spray grade AMS, recommended.

Adding ingredients in the correct order is critical for optimum performance. Check labels of both products to be mixed for directions. General guidelines can be found on page 11.

Restrictions:

Rainfall: Rainfast in 1 hour.

Re-Entry Interval: DO NOT enter treated fields for 12 hours.

Grazing: DO NOT graze or feed treated corn forage or silage for 21 days after application.

Pre-harvest Interval: DO NOT apply to field corn within 85 days of harvest.

Re-cropping Interval: The following crops may be grown 9 months after application: alfalfa, barley, bean (dry), canola,

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New Herbicide Page Drafts

grass (grown for seed or forage), oat, pea, potato, sorghum, soybean, sunflower, spring wheat. Winter wheat or rye (annual and fall) may be seeded 3 months after application.

Aerial Application: DO NOT apply by air.

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

Buffer Zones: Avoid spraying in situations where drift may occur. DO NOT apply during periods of dead calm.

	Buffer Zones (metres †) Required for the Protection of:		
	Aquatic Habitats of Depths		Terrestrial habitat
	Less than 1 m	Greater than 1 m	
Ground*	1	1	2

See page 36 for an explanation of the different habitats.

* Buffer zones may be reduced when using drift reduction measures. See the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

† Distance measured as metres from the downwind edge of the spray boom to sensitive habitat.

Tank Cleaning: Refer to 'Method A' in the general section on sprayer cleaning on page 12 and 13.

Hazard Rating:

None listed.

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Zidua SC

Herbicide Group
15 – pyroxasulfone
(Refer to page 45)

Company:

BASF Canada (PCP#32542)

Formulation:

500 g/L pyroxasulfone formulated as a suspension concentrate.
Container size: 2 x 4.05L

Crops and Staging:

Field corn:

- Pre-plant (up to 30 days)
- Pre-emergence
- Post-emergent: up to 4-leaf

Herbicide-tolerant soybean:

- Pre-seed, pre-emergence

Weeds, Rates and Staging:

For pre-emergent control of the following weeds:

Grasses:

- Barnyard grass
- Crabgrass (large)
- Foxtail (giant, green, yellow)
- Ryegrass (Italian)

Broadleaf Weeds:

- Common waterhemp
- Redroot pigweed

DO NOT apply more than one application of Zidua SC or other products containing pyroxasulfone per season.

Rate/ac by soil texture			
Coarse	Medium-Fine soil		Fine
	OM ≤ 3%	3% < OM < 7%	
101 mL/ac	134 mL/ac	169 mL/ac	200 mL/ac

Soil Textures

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

All applications require rainfall for proper activation. (See “Effects of Growing Conditions”)

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Application Information:

Water Volume: Minimum of 40 L per acre.

Nozzles & Pressure: Consult nozzle manufacturers’ recommendations for spray pressure for specific nozzles.

DO NOT APPLY *Zidua SC* on peat or muck soils and soils with 7% or more organic matter content.

How it Works:

Refer to Table 9 on page 49.

Effects of Growing Conditions:

Applications to crops under stress due to either inadequate or excess of moisture for normal crop development, cool and hot temperatures, sodic soils, poorly drained soils, hail damage, flooding, pesticide injury, mechanical injury or widely fluctuating temperatures may result in crop injury.

Tank Mixes:

Herbicides:

In field corn:

- *Aatrex Liquid 480* (0.85 to 1.25 L per acre)
- Glyphosate (Pre-seed or pre-emergence only. Glyphosate present as IPA, DA or K+ salt.)

In soybean:

- Glyphosate (Pre-seed or pre-emergence only. Glyphosate present as IPA, DA or K+ salt.)

BASF also supports the following mixes that are not on the *Zidua SC* label. Apply mixes according to the most restrictive use limitations for either product:

• **Herbicides:**

In field corn: *Armezon, Engenia, Heat LQ.*

In soybean: *Engenia, Heat LQ.*

Adding ingredients in the correct order is critical for optimum performance. Check labels of both products to be mixed for directions. General guidelines can be found on page 11.

Restrictions:

Rainfall: Moisture is necessary to activate the active ingredient pyroxasulfone in soil for weed control.

Re-Entry Interval: DO NOT enter treated fields for 12 hours.

New Herbicide Page Drafts

Re-cropping Interval: corn (field) and soybean may be grown the year after application. Conduct a field bioassay to confirm crop safety prior to seeding to any other rotational crops.

Aerial Application: DO NOT apply by air.

Storage: Store in original containers in cool, dry, well-ventilated location away from food or feed.

Tank Cleaning: Refer to 'Method B' in the general section on sprayer cleaning on page 12 and 13.

Hazard Rating:

Warning – Contains the allergen soy

Buffer Zones:

	Buffer Zones (metres [†]) Required for the Protection of:		
	Aquatic Habitats of Depths		Terrestrial habitat
	Less than 1 m	Greater than 1 m	
Ground	5	3	1

See the key to product pages on page 35 for an explanation of the different habitats.

[†] Distance measured as metres from the downwind edge of the spray boom to sensitive habitat.

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Cercobin

Fungicide Group – 1

Refer to page 399

Company:

Nippon Soda Co. - PCP#32093
 Distributed by Engage Agro Canada

Formulation:

500 g per L thiophanate-methyl formulated as a suspension concentrate.
 Container size – 1 to 1060 L

Crops, Rates, Diseases and Timing:

Crops:	Application rate (per acre):	Diseases controlled:	Timing:
White bean **Not labelled for use on other dry bean types	0.99 to 1.27 L	White mould (<i>Sclerotinia sclerotiorum</i>)	Apply at early stages of bloom prior to the rows closing in. If disease conditions persists, a second application may be warranted with a minimal retreatment interval of 7 days.

Application Information:

Water Volume:

Ground: Apply in a minimum of 404 L of water per acre. Engage Agro recommends applying at a minimum of 57 L of water per acre.

Aerial: Apply in a minimum of 20 L of water per acre.

How it Works:

The active ingredient thiophanate-methyl is a benzimidazole fungicide with systemic activity. For more information refer to “Fungicide Modes of Action” on page 398.

Tank Mixes:

None registered.

Restrictions:

Resistance management: Refer to page 398.

Maximum number of applications: DO NOT make more than two applications per season.

Grazing: DO NOT graze or feed to livestock.

Preharvest interval: DO NOT apply within 21 days of harvest.

Re-entry: None listed.

Re-cropping: None listed.

Storage: None listed.

Environment: DO NOT contaminate domestic or irrigation water supplies, lakes, streams, and ponds.

Hazard Rating:



Warning – Poison

For an explanation of the symbols used here see page 4.

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Diplomat 5SC

Fungicide Group – 19
Refer to page 399

Company:

Engage Agro Canada - PCP#32918

Formulation:

5.0% polyoxin D zinc salt formulated as a suspension concentrate.
 Container size – 1 to 1000 L

Crops, Rates, Diseases and Timing:

Crops:	Application rate (per acre):	Diseases suppressed:	Timing:
Potato	217 to 375 mL	Early blight (<i>Alternaria solani</i>)	Apply as a preventative application when conditions favour disease development and continue on a 7 to 14 day interval as needed to maintain suppression.

Application Information:

Apply as a foliar spray in sufficient water to provide thorough coverage of foliage.
 DO NOT apply by air.

How it Works:

The active ingredient polyoxin D zinc salt is a chitin synthase that controls pathogenic plant fungi by inhibiting the formation of chitin, a vital component of fungal cell walls. For more information refer to “Fungicide Modes of Action” on page 398.

Tank Mixes:

None registered.

Restrictions:

Resistance management: Refer to page 398.

Maximum number of applications: DO NOT make more than three applications per season.

Grazing: None listed.

Preharvest interval: 0 days.

Re-entry: DO NOT enter treated areas until sprays have dried unless wearing appropriate personal protective equipment.

Re-cropping: None listed.

Storage: Store this product in the original container in a dry location away from food or feed.

Environment: Avoid application to areas with a moderate to steep slope, compacted soil, or clay. A vegetative strip may be used to reduce runoff to aquatic areas.

Hazard Rating:

Potential skin sensitizer.

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