



An Agricultural
Sciences Company



AGRONOMIC GUIDE

PRECISION  PAC
APPLICATION INNOVATION

2026

PRECISIONPAC®

APPLICATION INNOVATION

The flexibility of PrecisionPac® herbicides gives growers the power to customize their weed control.

The end result is:



High Performing
Weed Control



Customized
Weed Control



Easy to Use



Right Product,
Right Rate,
Right Acre



Multiple
Modes of Action



Pick Length
Of Herbicide Activity



Reduced Waste



Constantly Evolving

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WAMLEGS

TANK-MIXING INSTRUCTIONS

STEP 1. Start with a clean empty sprayer. Ensure sprayer is equipped with 50 mesh screens or filters when using FMC products.

STEP 2. Fill sprayer tank 1/2 full of clean water in order to ensure enough water for added products to dilute properly.

STEP 3. With the agitator running, slowly add the FMC products using the **WAMLEGS** procedure.

W **Wettable powders (WG, DF, SG, WP, SP)**

Dispersible granules, soluble granules

FMC Products: Ally® herbicide, Carbine® insecticide, Express® brand herbicides, Intruvix® II herbicide, Muster® herbicide, Pinnacle® SG herbicide, PrecisionPac® herbicide blends, Refine® SG herbicide, Barricade® SG herbicide, UpBeet® herbicide, Predicade® Broadleaf herbicide



A **Agitate tank-mix thoroughly**



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

FMC Products: Command® 360 ME herbicide, Command® Charge A herbicide



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

FMC Products: Authority® brand herbicides, Coragen® MaX insecticide, Focus® herbicide, Travallas® herbicide, Predicade® Grass herbicide



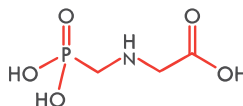
E **Emulsifiable concentrate formulations (EC)**

Fill spray tank nearly full of water

FMC Products: Aim® EC herbicide, Command® Charge B herbicide, Pounce® 384EC insecticide, Cygon® 480-AG insecticide, Perimeter® II herbicide, MCPA Ester 600

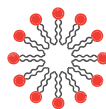


G **Glyphosate formulations**



S **Surfactants**

Complete filling the spray tank to the desired level



WATCH OUR FMC HOW TO MIX DRY HERBICIDES VIDEO



Burnoff Weed Control

PrecisionPac® CF herbicide	6
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A flexible tank-mix partner for enhanced burnoff

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CF-09 CF-14 CF-18	Group 14	Carfentrazone-ethyl: 40%	Wettable granules	20 to 320 acres per grower bag

Crops, Staging and Rates

Crop	Staging	Comments
Barley, corn (field, sweet, pop), oats, wheat (winter, spring, durum), chickpeas, dry beans, field peas, lentils, soybeans, canola (rapeseed), fallow	Pre-plant/pre-emergent to registered crops or post-harvest if registered crops are planted in the spring	When using CF herbicide alone, use a non-ionic surfactant at 0.25% v/v or use Merge® at 1% v/v

Product (Rate)	Weeds Controlled (up to 10 cm stage unless otherwise indicated)
CF-09 (9 g product/ac)	Lamb's-quarters, common (up to 7.5 cm tall), morning glory (up to 3 leaves), nightshade, black (up to 5 cm tall), nightshade (Eastern black - up to 5 cm tall), pigweed, redroot, velvetleaf, waterhemp (tall and common - up to 5 cm tall)
CF-14 (14 g product/ac)	<i>All of the above weeds, plus:</i> Flixweed, lamb's-quarters (common), round-leaved mallow, morning glory, nightshade (hairy), pennycress, field (stinkweed), pigweed (prostrate), pigweed (smooth), pigweed (tumble), purslane (common), smartweed (Pennsylvania seedling), mustard (tansy), waterhemp (tall and common)
CF-18 (18 g product/acre)	<i>All of the above weeds, plus:</i> Carpetweed, cleavers, cocklebur, jimsonweed, kochia, nightshade (black), nightshade (Eastern black), thistle (Russian - up to 5 cm tall), shepherd's purse, volunteer canola (including glyphosate-tolerant)

Registered Tank-Mixes (Weeds, Staging)

The following tank-mixes will control weeds listed on this label, corresponding to the rate of CF herbicide applied, as well as those listed in the following tables.

Crops and Staging: All Registered Crops		
Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled ¹
Glyphosate	182 g ae/ac	Green foxtail, lady's thumb, volunteer barley, volunteer wheat, wild mustard, wild oats
	182-277 g ae/ac	<i>All of the above weeds, plus:</i> Canada fleabane (less than 8 cm in height), common ragweed (less than 8 cm in height), downy brome, giant foxtail, hemp-nettle, Persian dandelion, volunteer flax, narrow-leaved hawk's-beard ² , wild buckwheat ³
	328 g ae/ac	<i>All of the above weeds, plus:</i> Annual bluegrass, annual sow thistle, crab grass, narrow-leaved vetch, prickly lettuce
	362 g ae/ac	<i>All of the above weeds, plus:</i> Canada thistle (rosette stage; summer-fallow), dandelion (less than 15 cm), quackgrass (light to moderate infestations, 3-4 green leaves or more)

¹ Weeds up to 15 cm in height are controlled by this rate unless otherwise specified

² Narrow-leaved hawk's-beard: use 182 g ae/ac if less than 8 cm in height or 277 g ae/ac if 8-15 cm

³ Wild buckwheat: use 182 g ae/ac if less than 3 leaves or 277 g ae/ha if 3-4 leaf stage



Crops and Staging: Barley, wheat (winter, spring and durum) and fallow

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled ¹
2,4-D Ester	134-214 g ae/ac	Annual sow thistle, bluebur (before the 4-leaf stage), burdock (before the 4-leaf stage), common ragweed, daisy fleabane, false flax, false ragweed, giant ragweed, goat's beard, horsetail, mustards (except dog mustard), narrow-leaved hawk's-beard (1-2 leaf stage), plantain, prickly lettuce, Russian pigweed, stinging nettle, sweet clover (seedling), thyme-leaved spurge, wild buckwheat, wild radish, wild (prairie) sunflower

¹ Weeds up to 8 cm in height are controlled by this rate unless otherwise specified

Crops and Staging: Pre-Seed to Canola

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled
NuFarm Koril® 235 or Bromotril® II 240 EC	243 mL/acre	Volunteer canola (all types including LibertyLink®, Clearfield, and Roundup Ready®) (up to the 4-leaf stage). No adjuvant required when using this tank-mix with glyphosate.
IPCO Brotex® 240 or Bromotril® 240 EC	236 mL/ac	
IPCO Brotex® 480 or Brotex® 4AT	118 mL/ac	

Crops and Staging: Pre-seed (minimum 24 hours prior to planting) prior to spring wheat (including durum), winter wheat, spring barley, oats, dry bean*, field pea*, soybean* and fallow. Fields treated with this tank-mix post-harvest may be seeded the following spring to any of the crops listed above, as well as canola³, chickpeas, corn and lentils³.

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled	Weed Stage
Express® SG herbicide or NC-0050 herbicide + Glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	6 g/ac + 182 g ae/ac	Canada fleabane, common ragweed, narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm
		Common chickweed	Up to 8 leaf
		Wild carrot ¹	Up to 10 cm
		Dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, kochia ² , lady's thumb, lamb's-quarters, Persian dandelion, redroot pigweed, Russian thistle, tufted vetch ¹ , stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm
		Cow cockle, wild buckwheat	Up to 3 leaf
		White cockle ¹ , Canada thistle ¹	Rosette
	6 g/ac + 328 g ae/ac	<i>All annual grasses listed above plus:</i> crab grass (large and smooth) and annual bluegrass. <i>All annual broadleaf weeds listed above plus:</i> prickly lettuce, shepherd's purse, annual sow thistle, narrow-leaved vetch	Up to 15 cm

¹ Suppression

² When tank-mixed with 18 g CF herbicide/ac, Group 2 and 9 resistant kochia will be controlled.

³ Contact manufacturer for specific timing information.

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



Crops and Staging: Pre-seed (minimum 24 hours prior to planting) or post-harvest prior to spring wheat (including durum), winter wheat, spring barley, oats and fallow. Fields treated with this tank-mix post-harvest may be seeded the following spring to any of the above crops listed, as well as canola³, corn³, lentils³, soybeans³ or white beans³.

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled	Weed Stage
Express® FX herbicide or DB-878 herbicide + glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	46.5 g/ac + 182 g ae/ac	Canada fleabane, common ragweed, kochia ² , narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm
		Wild buckwheat, common chickweed	Up to 8 leaf
		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 dandelion, redroot pigweed, Russian thistle, stinkweed, tufted vetch ¹ , volunteer barley, volunteer canola (including glyphosate-tolerant), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm
		Cow cockle	Up to 3 leaf
		White cockle ¹ , Canada thistle ¹	Rosette
	46.5 g/ac + 328 g ae/ac	<i>All annual grasses listed above plus:</i> Crab grass (large and smooth) and annual bluegrass <i>All annual broadleaf weeds listed above plus:</i> Prickly lettuce, shepherd's purse, annual sow thistle and narrow-leaved vetch	Up to 15 cm

¹ Suppression

² When tank-mixed with 18 g CF herbicide/ac, Group 2 and 9 resistant kochia will be controlled.

³ Contact manufacturer for specific timing information.

Crops and Staging: Pre-seed (minimum 24 hours prior to planting) to spring wheat (including durum), winter wheat, spring barley, oats and fallow. Field treated post-harvest with this mix in the fall can be seeded in the spring to wheat (spring, durum), barley, oats or fallow.

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled	Weed Stage
Express® PRO herbicide or NC-00439 herbicide + glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	7 g/ac + 182 g ae/ac	Canada fleabane, common ragweed, cleavers ^E , narrow-leaved hawk's-beard ^E , scentless chamomile, night flowering catchfly ¹	Up to 8 cm
		Common chickweed	1 to 6 leaf
		Dandelion ^E , downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, kochia ² , lady's thumb, lamb's-quarters, Persian dandelion, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola ^E (including glyphosate-tolerant), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm
		Cow cockle, wild buckwheat	Up to 3 leaf
		White cockle, Canada thistle ¹	Rosette

¹ Suppression

² When tank-mixed with 18 g CF herbicide/ac, Group 2 and 9 resistant kochia will be controlled.

^E Extended control. Degree and duration of extended control will depend on environmental conditions at and following treatment and weed infestation levels.


Crops and Staging: Pre-Seed to Canola

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled	Notes
Command® 360 ME herbicide with or without glyphosate ²	101 mL/ac	Cleavers (early season suppression), common chickweed (suppression)	Apply with a registered surfactant unless tank-mixed with glyphosate.
	134 mL/ac	Cleavers (early season control), common chickweed (suppression)	Apply as a single, soil-applied application to control cleavers prior to emergence (early season control). When applied with glyphosate, control of the weeds at those registered rates.

Crops and Staging: Pre-seed, or up to 3 days after seeding, or as a post-harvest application prior to seeding chickpeas, field peas, soybeans and wheat* (spring and durum)

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled (Applied as a single, soil applied application prior to weed emergence for extended weed control)
Authority® 480 herbicide ^{2,3}	88 mL/ac	Kochia, lamb's quarters, pigweed (redroot, green), Russian thistle ¹
	118 mL/ac	<i>Above weeds plus:</i> Cleavers ¹ , common groundsel, common purslane, common waterhemp, Eastern black nightshade, lamb's-quarters, large crabgrass, pigweed (redroot, green), Powell pigweed, smooth crabgrass, wild buckwheat, yellow wood-sorrel

*Low rate of Authority® 480 herbicide only for spring and durum wheat.

¹ Suppression

² This tank-mix may be applied with or without glyphosate. When applied without glyphosate, it requires the addition of a non-ionic surfactant at 0.25% v/v (0.25 litres per 100 litres of spray solutions) or use Merge® at 1% v/v (1 litre per 100 litres of spray solution).

³ Make one pre-plant application every other year. Soil restrictions apply, see label for all restrictions.

Crops and Staging: Pre-seed, or up to 3 days after seeding, or as a post-harvest application prior to seeding chickpeas, field peas, soybeans and wheat (spring and durum)

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled (Applied as a single, soil applied application prior to weed emergence for extended weed control)
SZ-75 herbicide ^{2,3}	57 g product/ac	Kochia, Russian thistle ¹

¹ Suppression

Note: Soil restrictions apply. Refer to SZ-75 herbicide label.

² This tank-mix may be applied with or without glyphosate. When applied without glyphosate, it requires the addition of a non-ionic surfactant at 0.25% v/v (0.25 litres per 100 litres of spray solution) or use Merge® at 1% v/v (1 litre per 100 litres of spray solution).

³ Make one pre-plant application every other year. Soil restrictions apply, see label for all restrictions.



Crops and Staging: Pre-seed (minimum of 24 hours) prior to field pea*, soybean* or wheat (spring and durum).

Tank-Mix Partner	Tank-Mix Partner Rate	Weed Application Stage	Additional Weeds Controlled
SZ-0050 herbicide ³ + glyphosate	63 g of SZ-0050 herbicide/ac + glyphosate (182 g ae/ac)	Pre-emergent	Kochia, Russian thistle ¹
		Up to 8 cm	Canada fleabane, common ragweed, kochia (including Group 2 and Group 9 resistant biotypes), narrow-leaved hawk's-beard, scentless chamomile ¹
		Up to 15 cm	Cleavers, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, lady's thumb, lamb's-quarters, Persian dandelion, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats
		Up to 3 leaf	Cow cockle, wild buckwheat
		Up to 8 leaf	Common chickweed
		Rosette	Canada thistle ¹ , white cockle ¹
	63 g of SZ-0050 herbicide/ac + glyphosate (328 g ae/ac)	Up to 15 cm	<i>All annual grasses listed above plus:</i> Crab grass (large and smooth) and annual blue grass <i>All annual broadleaf weeds listed above plus:</i> Prickly lettuce, shepherd's purse, annual sow thistle and narrow-leaved vetch

*Injury to pulse crops may occur on coarse-textured soils, low in organic matter (less than 3%) or in fields with variable soils, gravelly areas, sandy areas or eroded knolls. Avoid spraying SZ-0050 herbicide when planting pulse crops in soils containing more than 50% sand.

¹Suppression

³Make one pre-plant application every other year. Soil restrictions apply, see label for all restrictions.

Crops and Staging: Pre-seed, or up to 3 days after seeding, or as a post-harvest application prior to seeding chickpeas, field peas, soybeans.

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled (Applied as a single, soil applied application prior to weed emergence for extended weed control)
Authority® Supreme herbicide ^{2,3}	202 mL/ac (O.M. 1%-3%)	Barnyard grass, brome (downy, Japanese), cleavers, crab-grass (large, smooth), cow cockle, foxtail (green, yellow, giant), groundsel (common), kochia, lamb's-quarters, nightshade (Eastern black), pigweed (green, redroot, Powell), purslane (common), ragweed (common) ¹ , stinkweed, waterhemp (common), wild buckwheat, wild mustard ¹ , wild oats ¹ , witchgrass, wood-sorrel (yellow)
	243 mL/ac (O.M. 3%-6%)	

¹Suppression

Note: Soil restrictions apply. Refer to Authority® Supreme herbicide label.

²This tank-mix may be applied with or without glyphosate. When applied without glyphosate, it requires the addition of a non-ionic surfactant at 0.25% v/v (0.25 litres per 100 litres of spray solution) or use Merge® at 1% v/v (1 litre per 100 litres of spray solution).

³Make one pre-plant application every other year. Soil restrictions apply, see label for all restrictions.



Application Information

Apply with ground equipment. Do not apply by air. **Water Volume:** 10 gal/acre (40 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Avoid the overnight storage of CF herbicide spray mixtures. When using CF herbicide alone, use a non-ionic surfactant at 0.25% v/v (0.25 litres per 100 litres of spray solution) or use Merge® at 1% v/v (1 litre per 100 litres of spray solution).

How It Works

CF herbicide is rapidly absorbed through the foliage of plants. Coverage of the weeds is essential for good control.

Expected Results

Weed control is optimized when the product is applied to actively growing weeds up to 10 cm in height or as specified. CF herbicide is a contact herbicide. Within a few hours following application, the foliage of susceptible weeds shows signs of desiccation and in subsequent days, necrosis and death of the plant occur. Extremes in environmental conditions such as temperature, moisture, soil conditions and cultural practices may affect the activity of CF herbicide. Under warm moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicide symptoms may be reduced as weeds hardened off by drought are less susceptible to CF herbicide.

Restrictions

Rainfall: If rain occurs soon after application, control may be reduced.

Grazing and Harvesting Restrictions: No restrictions for pre-plant/pre-emergence use. For post-harvest application, do not allow livestock to feed on treated stubble.

Re-Cropping: Following a spring application of CF herbicide, a treated field may be rotated at any time to the crops listed on this label. All other crops may be planted after 12 months. All crops listed on this label may be planted the following spring after post-harvest application. All other crops may be planted after 12 months.

Re-Entry Interval: 12 hours.

CF herbicide, or other products containing carfentrazone-ethyl, can be applied up to two times per growing season, such that a pre-plant or pre-emergence application can be followed by a post-harvest application in same year. Maximum two applications per year.

Environmental Precautions

CF herbicide is toxic to non-target terrestrial and aquatic plants. To reduce run-off from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay. Avoid application when heavy rain is forecast. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. Observe a 5-metre buffer with terrestrial habitats.

Toxicity

Carfentrazone-ethyl Oral LD₅₀ (rats) = >5000 mg/kg. Carfentrazone-ethyl: Low oral toxicity. Oral LD₅₀ (rats) = >5000 mg/kg. Caution eye and skin irritant.

Storage

Store in a cool, dry place.



CF-09-878

HERBICIDE

Our most versatile
burnoff with powered-up
performance and no
re-cropping restrictions

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CF-09-878	Group 2, 4 & 14	Carfentrazone-ethyl: 6.42% Dicamba, (present as sodium salt): 51.09% Tribenuron-methyl: 5.48%	Wettable granules	20 to 120 acres per grower bag

Note: CF-09-878 herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Rate: 55.07 g/ac

Crop	Staging	Comments
Barley, wheat (spring, durum, winter), oats, chemfallow	Minimum 24 hours prior to seeding	Must be tank-mixed with glyphosate

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ac	Black nightshade, Eastern black nightshade, tall waterhemp	Up to 5 cm in height
		Canada fleabane, common ragweed, kochia (including Group 2 and Group 9 resistant biotypes), narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm in height
		Velvet leaf	Up to 10 cm in height
		Cleavers, dandelion, downy brome, flaxweed, giant foxtail, green foxtail, hemp-nettle, lady's thumb, lamb's-quarters, Persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm in height
		Cow cockle, morning glory	Up to 3 leaf
		Wild buckwheat	Up to 8 leaf
		Canada thistle ¹ , white cockle ¹	Rosettes
	328 g ae/ac	<i>All weeds listed above plus:</i> annual blue grass, annual sow thistle, crab grass (large and smooth), narrow-leaved vetch, prickly lettuce and shepherd's purse	Up to 15 cm in height

¹ Suppression



Application Information

Apply with ground equipment. Do not apply by air. **Water Volume:** 10 gal/acre (40.5 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution.

How It Works

Stops the growth of susceptible weeds immediately. It is rapidly absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism. It also inhibits the PPO enzyme involved in chlorophyll and heme synthesis. This action results in leaky cell membranes and rapid browning and death. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Expected Results

CF-09-878 herbicide stops the growth of susceptible weeds immediately. Within a few hours following application, the foliage of susceptible weeds shows signs of desiccation. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: If rain occurs soon after application, control may be reduced.

Grazing and Harvesting Restrictions: No restrictions for pre-plant use. For post-harvest application, do not allow livestock to feed on treated stubble.

Re-Cropping: Fields treated with CF-09-878 herbicide may be seeded to wheat (spring, durum, winter), spring barley or oats a minimum of 24 hours after application. Fields treated in the spring or with a chemfallow application can be seeded to any crop the following season. **Re-Entry Interval:** 12 hours.

CF-09-878 herbicide can be applied only one time per growing season. When using one of the herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use of the active ingredient tribenuron-methyl to two applications per year (maximum 6.07 grams per acre of tribenuron-methyl active ingredient per year).

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Observe a 5-metre buffer zone for terrestrial habitat. Observe a 1-metre buffer zone for freshwater habitat.

Toxicity

Oral LD₅₀ (rats) = >5000 mg/kg. Potential skin sensitizer.

Storage

Store in a cool, dry place.

CF-18-50



HERBICIDE

**Most versatile burnoff
with powered-up
performance and no
re-cropping restrictions**

Formulation

Product	Mode of Action	Active ingredient	Formulation	Container size
PrecisionPac® blend: CF-18-50	Group 2 & 14	Carfentrazone-ethyl: 30% Tribenuron-methyl: 12.5%	Wettable granules	20 to 240 acres per grower bag

Note: CF-18-50 herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Rate: 24.07 g/acre

Crop	Staging	Comments
Barley, wheat (spring, durum, winter), oats, dry beans, field peas, lupin, soybean, and chemfallow	A minimum of 24 hours prior to seeding	Must be tank-mixed with glyphosate

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: All registered crops			
Tank-Mix partner	Tank-Mix partner rate	Weeds controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ ac	Canada fleabane, common ragweed, narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm in height
		Black nightshade, carpetweed, cleavers, cocklebur, Eastern black nightshade, hairy nightshade, kochia (including Group 2 and Group 9 resistant biotypes), jimsonweed, morning glory, prostrate pigweed, round-leaved mallow, shepherd's purse, smooth pigweed, tansy mustard, tumble pigweed, purslane (common), Pennsylvania smartweed (seedling), velvetleaf, waterhemp (tall, common)	Up to 10 cm in height
		Dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, lady's thumb, lamb's-quarters, Persian dandelion, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm
		Cow cockle, wild buckwheat	Up to 3 leaf
		Common chickweed	Up to 8 leaf
		White cockle ¹ , Canada thistle ¹	Rosette

¹ Suppression

Application Information

Make only one application of CF-18-50 herbicide per season. Apply with ground equipment. Do not apply by air. **Water Volume:** 10 gal/acre (40.5 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.



Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution.

How it Works

The active ingredient tribenuron-methyl stops the growth of susceptible weeds immediately. It is rapidly absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism. The active ingredient carfentrazone-ethyl inhibits the PPO enzyme involved in chlorophyll and heme synthesis. This action results in leaky cell membranes and rapid browning and death. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Expected Results

CF-18-50 herbicide stops the growth of susceptible weeds immediately. Within a few hours following application, the foliage of susceptible weeds shows signs of desiccation. However, typical symptoms (discoloration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: If rain occurs soon after application control may be reduced. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury.

Grazing & Harvesting Restrictions: No restrictions for pre-plant use. For post-harvest application, do not allow livestock to feed on treated stubble.

Re-cropping: Fields treated with CF-18-50 herbicide may be seed to wheat (spring, durum, winter), spring barley, oats, or pulse crops (including dry bean, field pea, lupin, and soybean) a minimum of 24 hours after application. Fields treated with CF-18-50 herbicide may be seeded to canola or flax 60 days after application. Any crop can be seeded in the year following a spring application.

CF-18-50 herbicide can be applied only one time per growing season. When using one of the herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use of the active ingredient tribenuron-methyl to two applications per year (maximum 6.07 grams per acre of tribenuron-methyl active ingredient per year).

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Observe a 5-metre buffer zone for terrestrial habitat. Observe a 1-metre buffer zone for aquatic habitat.

Toxicity

Oral LD₅₀ (rats) = >5000 mg/kg. Potential skin sensitizer.

Storage

Store in a cool, dry place.



CF-18-439

Powerful burnoff blend
for long-lasting weed
control

HERBICIDE

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CF-18-439	Group 2 & 14	Carfentrazone-ethyl: 28.8% Tribenuron-methyl: 12.0% Metsulfuron-methyl: 2.4%	Wettable granules	50 to 240 acres per grower bag

Note: CF-18-439 herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Rate: 25.08 g/ac

Crop	Staging	Comments
Barley, wheat (spring, durum, winter)	Minimum 24 hours prior to seeding	Must be tank-mixed with glyphosate
Summerfallow	Allow at least 10 days to elapse between treatment and tillage	Must be tank-mixed with glyphosate

Do not apply to wheat and barley underseeded to legumes or grass. Make only one application of CF-18-439 herbicide, or any product containing metsulfuron-methyl, per season.

Weeds and Staging

CF-18-439 herbicide (25.08 g/ac) + glyphosate (182 g ae/ac)	
Weeds Controlled	Stage
Canada fleabane, cleavers ^E , common ragweed, narrow-leaved hawk’s-beard ^E , scentless chamomile, night flowering catchfly ¹	Up to 8 cm
Black nightshade, carpetweed, cocklebur, common waterhemp, Eastern black nightshade, hairy nightshade, jimsonweed, kochia (including Group 2 and Group 9 resistant biotypes), morning glory, Pennsylvania smartweed (seedling), prostrate pigweed, purslane (common), round-leaved mallow, shepherd’s purse, smooth pigweed, tall waterhemp, tansy mustard, tumble pigweed, velvet leaf	Up to 10 cm
Dandelion ^E , downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, lady’s thumb, lamb’s-quarters, Persian dandelion, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola ^E (including glyphosate tolerant), volunteer flax, volunteer wheat, wild mustard, wild oats	up to 15 cm
Cow cockle, wild buckwheat	Up to 3 leaf
Common chickweed	1-6 leaf
White cockle, Canada thistle ¹	Rosette

^E Degree and duration of residual control will depend on environmental conditions at and following treatment and weed infestation levels; there will be no extended control on volunteer Group 2 tolerant canola

¹ Suppression

Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Ground application only.

Water Volume: 10 gal/acre (40.5 L/acre).



Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Make only one application of CF-18-439 herbicide per year. With any summerfallow treatment, allow at least 10 days to elapse between treatment and tillage. Weeds must be actively growing at time of application or control might be reduced. Spray preparation should be used within 24 hours or product degradation may occur. Do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls or calcium deposits. CF-18-439 herbicide applied to fields to be planted to spring wheat, durum wheat, winter wheat or barley that are stressed by severe conditions such as drought, low fertility, saline soils, water-logged soils (soils at or near field capacity), disease or insect damage may result in crop injury. Drought, disease or insect damage following application may also result in crop injury, grade or yield loss. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury.

How It Works

CF-18-439 herbicide rapidly stops growth of susceptible weeds. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions. Activity of the herbicide mixture may be delayed by cold, dry conditions after application.

Restrictions

Rainfall: Heavy rainfall immediately after application may wash the herbicide off the foliage, which may reduce the effectiveness of CF-18-439 herbicide. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury. Do not apply if rain is forecast for the time of application.

Grazing and Harvesting Restrictions: No restrictions for pre-plant use. For post-harvest application, do not allow livestock to feed on treated stubble.

Re-Cropping: Fields treated with CF-18-439 herbicide may be seeded to wheat (spring, durum or winter) or spring barley a minimum of 24 hours after application. The following crops may be seeded 10 months after application: canola, dry beans, faba bean, field corn, flax, lentils, field peas and soybeans. Oats may be seeded anytime in the following season.

Re-Entry Interval: 12 hours.

CF-18-439 herbicide, or other products containing carfentrazone-ethyl, can be applied only one time per growing season. If using other herbicides containing the active ingredient metsulfuron-methyl, restrict total use of metsulfuron-methyl to 0.6 grams active ingredient per acre, per year. Do not apply to crops underseeded to legumes or grasses.

Environmental Precautions

Do not contaminate irrigation water. Toxic to aquatic organisms.

Toxicity

Very low acute mammalian toxicity. Acute oral LD₅₀ (rats) = > 5,000 mg/kg. Potential skin sensitizer.

Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed.

CF-18-878

HERBICIDE

Our best resistance management burnoff to help control the toughest-to-kill weeds

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CF-18-878	Group 2, 4 & 14	Carfentrazone-ethyl: 11.25% Dicamba, (present as sodium salt): 43.75% Tribenuron-methyl: 4.69%	Wettable granules	20 to 120 acres per grower bag

Note: CF-18-878 herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Rate: 64.07 g/ac

Crop	Staging	Comments
Barley, wheat (spring, durum, winter), oats, chemfallow	A minimum of 24 hours prior to seeding	Must be tank-mixed with glyphosate

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ac	Canada fleabane, common ragweed, narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm in height
		Black nightshade, carpetweed, cocklebur, common waterhemp, Eastern black nightshade, hairy nightshade, jimsonweed, kochia (including Group 2 and Group 9 resistant biotypes), morning glory, Pennsylvania smartweed (seedling), prostrate pigweed, purslane (common), round-leaved mallow, shepherd's purse, smooth pigweed, tall waterhemp, tansy mustard, tumble pigweed, velvet leaf	Up to 10 cm in height
		Cleavers, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, lady's thumb, lamb's-quarters, Persian dandelion, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm in height
		Cow cockle	Up to 3 leaf
		Wild buckwheat	Up to 8 leaf
		Canada thistle ¹ , white cockle ¹	Rosettes
	328 g ae/ac	<i>All weeds listed above plus:</i> annual blue grass, annual sow thistle, crabgrass (large and smooth), narrow-leaved vetch, prickly lettuce, shepherd's purse	Up to 15 cm in height

¹ Suppression



Application Information

Make only one application of CF-18-878 herbicide per year. Apply with ground equipment.

Do not apply by air.

Water Volume: 10 gal/acre (40.5L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Apply CF-18-878 herbicide when air temperature is between 10° and 25°C. Do not apply when there is a risk of severe drop in night temperature.

How It Works

Stops the growth of susceptible weeds immediately. It is rapidly absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism. Also inhibits the PPO enzyme involved in chlorophyll and heme synthesis. This action results in leaky cell membranes and rapid browning and death. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Expected Results

CF-18-878 herbicide stops the growth of susceptible weeds immediately. Within a few hours following application, the foliage of susceptible weeds shows signs of desiccation. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: If rain occurs soon after application, control may be reduced.

Grazing and Harvesting Restrictions: No restrictions for pre-plant use. For post-harvest application, do not allow livestock to feed on treated stubble.

Re-Cropping: Fields treated with CF-18-878 herbicide may be seeded to wheat (spring, durum, winter), spring barley or oats a minimum of 24 hours after application. Fields treated in the spring or with a chemfallow application can be seeded to any crop the following season. **Re-Entry Interval:** 12 hours.

CF-18-878 herbicide can be applied only one time per growing season. When using one of the herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use of the active ingredient tribenuron-methyl to two applications per year (maximum 6.07 grams per acre of tribenuron-methyl active ingredient per year).

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Observe a 5-metre buffer zone for terrestrial habitat. Observe a 1-metre buffer zone for aquatic habitat.

Toxicity

Oral LD₅₀ (rats) = >5000 mg/kg. Potential skin sensitizer.

Storage

Store in a cool, dry place.

NEW

CF-18-878

PRO

HERBICIDE



**Powerful burnoff control
and top-notch
resistance management**

Formulation

Product	Mode of Action	Active ingredient	Formulation	Container size
PrecisionPac® blend: CF-18-878 PRO	Group 2, 4 & 14	Carfentrazone-ethyl: 11.08% Dicamba (present as sodium salt): 43.09% Tribenuron-methyl: 4.62% Metsulfuron-methyl: 0.91%	Wettable granules	50 to 120 acres per grower bag

Note: CF-18-878 PRO herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Rate: 65.08 g/acre

Crop	Staging	Comments
Spring barley, wheat (spring, durum, winter) and chemfallow	A minimum of 24 hours prior to seeding or applied post-harvest prior to seeding registered crops	Must be tank-mixed with glyphosate

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: All registered crops			
Tank-mix partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ ac	Canada fleabane, cleavers ^E , common ragweed, narrow-leaved hawk's-beard ^E , scentless chamomile, night flowering catchfly ¹	Up to 8 cm in height
		Black nightshade, carpetweed, cocklebur, Eastern black nightshade, kochia (including Group 2, 4 and Group 9 resistant biotypes), hairy nightshade, jimsonweed, morning glory, prostrate pigweed, round-leaved mallow, shepherd's purse, smooth pigweed, tansy mustard, tumble pigweed, purslane (common), Pennsylvania smartweed (seedling), velvetleaf, waterhemp (tall, common), wild carrot ¹	Up to 10 cm in height
		Common chickweed	1-6 leaf
		Dandelion ^E , downy brome,flixweed, giant foxtail, green foxtail, hemp-nettle, lady's thumb, lamb's-quarters, Persian dandel, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola ^E (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats, tufted vetch ¹	Up to 15 cm
		Cow cockle	Up to 3-leaf
		Wild buckwheat	Up to 8-leaf
		White cockle, Canada thistle ¹	Rosette

¹ Suppression

^E Up to 15 days of extended control, there will be no extended control on volunteer canola Group 2 herbicide-tolerant canola or Group 2 resistant biotypes



Application Information

Apply with ground equipment. Do not apply by air.

Water Volume: 10 gal/acre (100 L/Ha).

Mixing Instructions

For complete mixing instructions, see page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Apply CF-18-878 PRO herbicide when air temperature is between 10° and 25° C. Do not apply when there is a risk of severe drop in night temperature. Do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls or calcium deposits. Control of weeds growing in wheel tracks may be reduced if CF-18-878 PRO herbicide is applied under dry, dusty conditions. CF-18-878 PRO herbicide applied to fields to be planted to spring wheat, durum wheat, winter wheat or barley that are stressed by severe conditions such as drought, low fertility, saline soils, waterlogged soils (soils at or near field capacity), disease or insect damage may result in crop injury. Drought, disease or insect damage following application may also result in crop injury, grade or yield loss.

How it Works

Stops the growth of susceptible weeds immediately. It is rapidly absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism. Also inhibits the PPO enzyme involved in chlorophyll and heme synthesis. This action results in leaky cell membranes and rapid browning and death. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Expected Results

CF-18-878 PRO herbicide stops the growth of susceptible weeds immediately. Within a few hours following application, the foliage of susceptible weeds shows signs of desiccation. However, typical symptoms (discoloration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: If rain occurs soon after application control may be reduced. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury.

Grazing & Harvesting Restrictions: No restrictions for pre-plant use. For post-harvest application, do not allow livestock to feed on treated stubble.

Re-cropping: Fields treated with CF-18-878 PRO herbicide may be seeded to wheat (spring, durum, winter), and spring barley minimum of 24 hours after application. Fields treated with a chemfallow application can be seeded to any crop the following season. Ten (10) months after application the following crops can be planted; canola, faba beans, field corn, field peas, soybeans, lentils, dry beans and flax. Oats may be seeded any time in the following season. Fields treated with a post-harvest application of CF-18-878 PRO herbicide in the fall may be seeded in the spring to wheat (spring or durum), spring barley or oats, or fields may be summerfallowed.

**Re-entry Interval:** 12 hours

Make only one application of CF-18-878 PRO herbicide per growing season. When using other herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use tribenuron-methyl to 6.07 grams active ingredient per acre per year. When using other herbicides containing the active ingredient metsulfuron-methyl, follow the instructions on the label and restrict total use of metsulfuron-methyl to 0.6 grams active ingredient per acre per year. When using other herbicides containing the active ingredient carfentrazone-ethyl, follow instructions on the label and restrict the total use of carfentrazone-ethyl to 22.40 grams active ingredient per acre per year.

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Observe a 5-metre buffer zone for terrestrial habitat. Observe a 1-metre buffer zone for aquatic habitat.

Toxicity

Oral LD₅₀ (rats) = >5000 mg/kg. Eye Irritant. Potential skin sensitizer.

Storage

Store in a cool, dry place.



DB-878

HERBICIDE

Resistance management
customized to your weed
spectrum

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: DB-878	Group 2 & 4	Dicamba, present as sodium salt: 60.87% a.e. + Tribenuron-methyl: 6.52%	Wettable granules	20 to 160 acres per grower bag

Note: DB-878 herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Rate: 46.07 g/ac

Crop	Staging	Comments
Barley, wheat (spring, durum, winter), oats, chemfallow, post-harvest	Minimum 24 hours prior to seeding	Must be tank-mixed with glyphosate. With any chemfallow or post-harvest treatment, allow at least 10 days to elapse between treatment and tillage.

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ac	Common ragweed, kochia (including Group 2 and Group 9 resistant biotypes), narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm
		Canada fleabane (including Group 9 resistant biotypes) ¹ , wild carrot ¹	Up to 10 cm
		Cleavers, dandelion, downy brome, flaxweed, giant foxtail, green foxtail, hemp-nettle, lady's thumb, lamb's-quarters, Persian damel, 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 leaf
		Common chickweed, wild buckwheat	Up to 8 leaf
		Canada thistle ¹ , white cockle ¹	Rosettes
	328 g ae/ac	<i>All annual grasses listed above plus:</i> Crab grass (large and smooth), annual blue grass <i>All annual broadleaved weeds listed above plus:</i> prickly lettuce, shepherd's purse, annual sow thistle and narrow-leaved vetch	Up to 15 cm

¹ Suppression

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt) + Aim® EC herbicide	Glyphosate at 182 g ae/ac + Aim® EC herbicide at 15-47 ml/ac (26-80 ac/ 1.2 L jug)	All the weeds listed for DB-878 herbicide + glyphosate, plus the weeds listed on the Aim® EC herbicide label at the respective rates	See appropriate labels for staging

**Crops and Staging:** All Registered Crops

Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt) + CF herbicide	Glyphosate at 182 g ae/ac + CF herbicide at 9-18 g/ac	All the weeds listed for DB-878 herbicide + glyphosate, plus the weeds listed on the CF herbicide label at the respective rates	See appropriate labels for staging

Crops and Staging: Pre-seed (minimum 24 hours prior to seeding) wheat (spring and durum)

Tank-Mix Partner	Tank-Mix Partner Rate	Additional Weeds Controlled (Applied as a single, soil-applied application prior to weed emergence for extended weed control)
Glyphosate + SZ-75 herbicide	Glyphosate at 182 g ae/acre + SZ-75 at 57 g/ac	Kochia (including Group 2 and Group 9 resistant biotypes), lamb's quarters, pigweed (redroot and green), Russian thistle ¹

¹ Suppression

Note: Soil restrictions apply. Refer to SZ-75 herbicide label.

Application Information

Apply with ground equipment. Do not apply by air.

Water Volume: 5-10 gal/acre (22-45 L/acre).**Mixing Instructions**

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Apply DB-878 herbicide when air temperature is between 10° and 25°C. Do not apply when there is a risk of severe drop in night temperature.

How It Works

Absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism. Only weeds emerged at time of application will be controlled.

Expected Results

DB-878 herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions**Rainfall:** If rain occurs soon after application, control may be reduced.**Grazing and Harvesting Restrictions:** Do not graze or feed to livestock within 7 days of application.

Re-Cropping: Fields treated with DB-878 herbicide may be seeded to wheat (spring, durum, winter), spring barley or oats a minimum of 24 hours after application. Fields treated with a chemfallow application can be seeded to any crop the following season. Fields treated with DB-878 herbicide may be seeded to winter wheat a minimum of 24 hours after application. Fields treated with a post-harvest application in the fall can be seeded in the spring to: spring wheat, durum wheat, barley and oats. To seed canola, lentils, field corn, soybeans or white beans the following spring, after a post-harvest application of DB-878 herbicide, please contact the manufacturer for specific fall application timing recommendations. Restrict the total use of tribenuron-methyl to 12 grams product (6 grams active ingredient) per acre per year.

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Observe a 5-metre buffer zone for terrestrial habitat. Observe a 1-metre buffer zone for freshwater habitat.

ToxicityOral LD₅₀ (rats) = >2000 mg/kg. Potential skin sensitizer.**Storage**

Store in a cool, dry place.



DB-878 PRO

HERBICIDE

Trusted kochia
control with
extended activity
on key weeds

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: DB-878 PRO	Group 2 & 4	Dicamba, present as sodium salt: 59.57% a.e. Tribenuron-methyl: 6.38% Metsulfuron-methyl: 1.28%	Wettable granules	50 to 160 acres per grower bag

Crops, Staging and Rates

Rate: 47.08 g/ac

Note: DB-878 PRO herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crop	Staging	Comments
Barley, wheat (spring, durum, winter), oats, chemfallow, post-harvest	Apply a minimum of 24 hours prior to seeding	Must be tank-mixed with glyphosate. Do not apply to wheat, barley or oats underseeded to legumes or grass. Make only one application of DB-878 PRO herbicide, or any product containing metsulfuron-methyl, per 12-month period.

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ac	Canada fleabane, common ragweed, cleavers ^E , kochia (including Group 2 and Group 9 resistant biotypes), narrow-leaved hawk's-beard ^E , scentless chamomile, night flowering catchfly ¹	Up to 8 cm
		Wild carrot	Up to 10 cm
		Dandelion ^E , downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, lady's thumb, lamb's-quarters, Persian dandelion, redroot pigweed, Russian thistle, stinkweed, tufted vetch ¹ , volunteer barley, volunteer canola ^E (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm
		Chickweed	1-6 leaf
		Cow cockle	Up to 3 leaf
		Wild buckwheat	Up to 8 leaf
		Canada thistle ¹ , white cockle	Rosette

¹ Suppression

^E Up to 15 days of extended control; there will be no extended control on volunteer Group 2 herbicide-tolerant canola or Group 2 resistant biotypes.

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, IPA salt or ammonium salt) + Aim® EC herbicide	Glyphosate at 182 g ae/ac + Aim® EC herbicide at 15-47 ml/ac (26 - 80 ac/ 1.2 L jug)	All the weeds listed for DB-878 PRO herbicide + glyphosate, plus the weeds listed on the Aim® EC herbicide label at the respective rates	See appropriate labels for staging


Crops and Staging: All Registered Crops

Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt) + CF herbicide	182 g ae/ac + 9-18 g/ac	All the weeds listed for DB-878 PRO herbicide + glyphosate, plus the weeds listed on the CF herbicide label at the respective rates	See appropriate labels for staging

Application Information

Apply with ground equipment. Do not apply by air.

Water Volume: 5 gal/acre (22 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Apply DB-878 PRO herbicide when air temperature is between 10° and 25° C. Do not apply when there is a risk of severe drop in night temperature. Do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls or calcium deposits. Control of weeds growing in wheel tracks may be reduced if DB-878 PRO herbicide is applied under dry, dusty conditions.

DB-878 PRO herbicide applied to fields to be planted to spring wheat, durum wheat, winter wheat or barley that are stressed by severe conditions such as drought, low fertility, saline soils, waterlogged soils (soils at or near field capacity), disease or insect damage may result in crop injury. Drought, disease or insect damage following application may also result in crop injury, grade or yield loss. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury.

How It Works

Absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism.

Expected Results

DB-878 PRO herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: If rain occurs soon after application, control may be reduced. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury. Do not apply if rain is forecast for the time of application. **Grazing and Harvesting Restrictions:** Do not graze or feed to livestock within 7 days of application. **Re-Cropping:** Fields treated with DB-878 PRO herbicide may be seeded to wheat (spring, durum, winter) spring barley or oats a minimum of 24 hours after application. The following crops may be seeded **10 months after application:** canola, dry beans, faba beans, field corn, flax, lentils, peas and soybeans. Fields treated with a post-harvest application in the fall can be seeded in the spring to: spring wheat, durum wheat, barley and oats, or fields can be summerfallowed. **Re-Entry Interval:** 12 hours.

When using other herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use of tribenuron-methyl to 6.07 grams active ingredient per acre per year.

When using other herbicides containing the active ingredient metsulfuron-methyl, follow the instructions on the label and restrict total use of metsulfuron-methyl to 0.6 grams active ingredient per acre per year.

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Observe a 5-metre buffer zone for terrestrial habitat and 1-metre buffer zone for aquatic habitats.

Toxicity

Oral LD₅₀ (rats) = >2000 mg/kg. Potential skin sensitizer.

Storage

Store in a cool, dry place. DB-878 PRO herbicide is non-corrosive, non-flammable, non-volatile and does not freeze.



NC-0050

HERBICIDE

Hard-hitting burnoff
weed control with
maximum flexibility

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: NC-0050	Group 2	Tribenuron-methyl: 50%	Soluble granules	40 to 320 acres per grower bag

Note: NC-0050 herbicide is purchased alone but must be tank-mixed with either 2,4-D or glyphosate before use.

Crops, Staging and Rates

Crops or Timing	Rate	Staging	Comments
Barley, wheat (spring, durum, winter), oats, canary seed, pulses (including dry beans*, faba beans*, lupins*, field peas*, soybeans*)	6.07 g/ac	Minimum 24 hours prior to seeding	Must be tank-mixed with glyphosate. Use a minimum of 5 gal/acre of water
Alfalfa*, red clover*, alsike clover*, smooth brome-grass*, meadow brome-grass*, timothy* and creeping redfescue* (grown for seed or forage), yellow sweet clover, sainfoin, hybrid brome-grass, meadow fescue, tall fescue, slender wheatgrass, crested wheatgrass	6.07 g/ac	Minimum 24 hours prior to seeding	
Pasture and rangeland	6.07 to 12.14 g/ac	Early bud to pre-bloom for weeds	Use a minimum of 5 gal/acre of water. Live-stock may graze without restriction following treatment
Summerfallow	6.07 g/ac	Allow at least 10 days to elapse between treatment and tillage	Must be tank-mixed with 2,4-D or glyphosate
Post-harvest	6.07 g/ac	Apply in the fall, after harvest, to actively growing weeds	Fields treated with a post-harvest application may be seeded in the spring to: spring wheat, durum wheat, spring barley, oats, canary seed or pulse crops (including dry bean, chickpea, faba bean, field pea, lupin, lentil and soybean), alfalfa, red clover or alsike clover, smooth brome-grass, meadow brome-grass, timothy, yellow sweet clover, sainfoin, hybrid brome-grass, meadow fescue, tall fescue, slender wheatgrass, crested wheatgrass and creeping red fescue or fields may be summerfallowed To seed canola, field corn or flax in the spring, after a post-harvest application, please contact the manufacturer for specific fall application timing recommendations

* NC-0050 herbicide should not be used prior to seeding listed pulse or forage crops on soils with greater than 50% sand or less than 3% organic matter.



Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: Fallow, post-harvest and pre-seed (24 hours prior) to spring wheat (including durum), winter wheat, spring barley, oats, canary seed, pulse crops (including dry bean, faba bean, field pea, lupin, soybean), alfalfa, red clover, alsike clover, smooth brome grass, meadow brome grass, timothy, yellow sweet clover, sainfoin, hybrid brome grass, meadow fescue, tall fescue, slender wheatgrass, crested wheatgrass and creeping red fescue

Tank-Mix Partner	NC-0050 at 6 g/ac + Tank-Mix Partner	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ac	Canada fleabane, common ragweed, narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm
		Wild carrot ¹	Up to 10 cm
		Dandelion, downy brome, flaxweed, giant foxtail, green foxtail, hemp-nettle, kochia (except Group 2 & 9 resistant), lady's thumb, lamb's-quarters, Persian dandelion, 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, wild buckwheat	Up to 3 leaf
		Common chickweed	Up to 8 leaf
		Canada thistle ¹ , white cockle ¹	Rosettes
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	328 g ae/ac	<i>All annual grasses and broadleaved weeds listed above plus:</i> Crab grass (large and smooth), annual blue grass, prickly lettuce, shepherd's purse, annual sow thistle and narrow-leaved vetch	Up to 15 cm

¹ Suppression

Note: If using lower than the ½ L rate of glyphosate, adjuvant is required with the mix.

Crops and Staging: Fallow and pre-seed (24 hours prior) to spring wheat (including durum), winter wheat, spring barley, oats and pulse crops (including dry bean, faba bean, field pea, lupin, soybean)

Tank-Mix Partner	NC-0050 at 6 g/ac + Tank-Mix Partner	Additional Weeds Controlled	Stage
Glyphosate + Aim® EC herbicide	Glyphosate at 182 g ae/ac + Aim® EC herbicide at 15 ml/ac (80 ac/ 1.2 L jug)	Morning glory (up to 3 leaves), nightshade (Eastern black), velvetleaf, waterhemp, tall (up to 5 cm)	Up to 10 cm in height unless otherwise specified
	Glyphosate at 182 g ae/ac + Aim® EC herbicide at 24 ml/ac (50 ac/ 1.2 L jug)	<i>All weeds above plus:</i> Morning glory, pigweed (prostrate, smooth, tumble), purslane (common), round leaved-mallow, smartweed (Pennsylvania, seedling), tansy mustard, waterhemp (tall, common), nightshade (hairy)	
	Glyphosate at 182 g ae/ac + Aim® EC herbicide at 30 ml/ac (40 ac/ 1.2 L jug)	<i>All weeds above plus:</i> Carpetweed, cleavers, cocklebur, kochia (including Group 2 and Group 9 resistant biotypes), jimsonweed, shepherd's purse	
	Glyphosate at 182 g ae/ac + Aim® EC herbicide at 47 ml/ac (26 ac/ 1.2 L jug)	<i>All weeds above plus:</i> Burclover, corn spurry, mallow (venice, up to 5 cm tall), prickly lettuce	

Crops and Staging: Pre-seed (24 hours prior) to faba bean, field pea and soybean

Tank-Mix Partner	NC-0050 at 6 g/ac + Tank-Mix Partner	Additional Weeds Controlled	Stage
Glyphosate + Authority® 480 herbicide	Glyphosate at 182 g ae/acre + Authority® 480 herbicide at 89 ml/ac (43 ac/ jug)	Kochia (including Group 2 and Group 9 resistant biotypes), lamb's quarters, pigweed (redroot and green), Russian thistle ¹	Authority® 480 herbicide controls weeds prior to emergence
	Glyphosate at 182 g ae/acre + Authority® 480 herbicide at 118 ml/ac (32 ac/ jug)	<i>Control of above weeds plus:</i> Cleavers ¹ , common groundsel, common purslane, Eastern black nightshade, smooth crabgrass, large crabgrass, waterhemp (common), yellow wood-sorrel	

¹ Suppression

Crops and Staging: Pre-seed (24 hours prior) to wheat (spring and durum)

Tank-Mix Partner	NC-0050 at 6 g/ac + Tank-Mix Partner	Additional Weeds Controlled	Stage
Glyphosate + Authority® 480 herbicide	Glyphosate at 182 g ae/ac + Authority® 480 herbicide at 89 ml/ac (43 ac/ jug)	Kochia (including Group 2 and Group 9 resistant biotypes), lamb's quarters, pigweed (redroot and green), Russian thistle ¹	Authority® 480 herbicide controls weeds prior to emergence

¹ Suppression

Refer to Authority® 480 herbicide label for specific soil restrictions.

Crops and Staging: Summerfallow and post-harvest

Tank-Mix Partner	NC-0050 at 6 g/ac + Tank-Mix Partner	Weeds Controlled	Stage
2,4-D Ester LV-700	243 ml/ac (or 170 g ae/ac)	Flixweed, stinkweed This tank-mixture will also control the broadleaf weeds controlled by 2,4-D Ester at 170 g ae/ac	Fall rosettes and spring seedlings

Crops and Staging: Rangeland and pasture

Tank-Mix Partner	Weeds Controlled	Stage
NC-0050: 6 g/ac plus non-ionic surfactant at 0.2% v/v (2 L/1000 L spray solution)	Tall buttercup, narrow-leaved hawk's-beard	Early bud to pre-bloom
NC-0050: 12 g/ac plus non-ionic surfactant at 0.2% v/v (2 L/1000 L spray solution)	<i>Control of above weeds plus:</i> Dandelion, white cockle, common tansy	Early bud to pre-bloom



Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Apply with ground equipment. Do not apply by air.

Water Volume: 22 L/acre (5 gal/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Injury to pulse crops or forage crops may occur on coarse-textured soils, low in organic matter (less than 3%) or in fields with variable soils, gravelly areas, sandy areas or eroded knolls. Avoid planting pulse crops or forage crops in soils containing more than 50% sand.

How It Works

Absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism.

Expected Results

NC-0050 herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: If rain occurs soon after application, control may be reduced.

Grazing and Harvesting Restrictions: Livestock may graze without restriction following treatment.

Re-Cropping: Any crop can be seeded in the year following a spring application. The following crops can be seeded 60 days after application of NC-0050 herbicide: canola, flax. Fields treated with NC-0050 herbicide may be seeded to winter wheat 24 hours after application.

Fields treated with a post-harvest application of NC-0050 herbicide in the fall may be seeded in the spring to spring wheat (including durum), spring barley, oats, field corn, canary seed or pulse crops (including chickpea, dry bean, faba bean, field pea, lentil, lupin and soybean), canola, flax, alfalfa, red clover or alsike clover, smooth brome grass, meadow brome grass, timothy, creeping red fescue, crested wheatgrass, slender wheatgrass, meadow fescue, tall fescue, hybrid brome grass, yellow sweet clover and sainfoin, or fields may be summerfallowed. To seed canola, field corn or flax in the spring, after a post-harvest application, please contact the manufacturer for specific fall application timing recommendations.

When using one of the herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use of tribenuron-methyl to 6 grams active ingredient per acre per year.

Environmental Precautions

Do not contaminate irrigation water. Toxic to aquatic organisms.

Toxicity

Very low acute mammalian toxicity. Acute oral LD₅₀ (rats) = > 5,000 mg/kg. May irritate eyes, nose, throat and skin.

Storage

Store in a cool, dry place.



NC-00439

Multi-active burnoff with extended control

HERBICIDE

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: NC-00439	Group 2	Tribenuron-methyl: 42.9% Metsulfuron-methyl: 8.6%	Soluble granules	50 to 320 acres per grower bag

Note: NC-00439 herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Rate: 7.08 g/ac

Crop	Staging	Comments
Barley, wheat (spring, durum, winter), oats	Minimum 24 hours prior to seeding	Must be tank-mixed with glyphosate
Summerfallow	Allow at least 10 days to elapse between treatment and tillage	
Post-harvest	Only wheat (spring, durum), barley, oats may be seeded the following spring	

Do not apply to wheat, barley and oats underseeded to legumes or grass. Make only one application of NC-00439 herbicide, or any product containing metsulfuron-methyl, per season.

Weeds and Staging

NC-00439 herbicide (7.08 g/ac) + glyphosate (182 g ae/ac)

Weeds Controlled	Stage
Canada fleabane, cleavers ^E , common ragweed, narrow-leaved hawk's-beard ^E , scentless chamomile, night flowering catchfly ¹	Up to 8 cm
Chickweed	1-6 leaf
Stork's-bill, wild carrot ¹	Up to 10 cm
Dandelion ^E , downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, kochia (except Group 2 & 9 resistant), lady's thumb, lamb's-quarters, Persian damel, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola ^E (including glyphosate-tolerant), volunteer flax, volunteer wheat, wild mustard, wild oats	Up to 15 cm
Cow cockle, wild buckwheat	Up to 3 leaf
White cockle, Canada thistle ¹	Rosette

^E Up to 15 days of extended control; there will be no extended control on volunteer Group 2 tolerant canola.

¹ Suppression

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt) + Aim® EC herbicide	Glyphosate at 182 g ae/ac + Aim® EC herbicide at 15, 24, 30 or 47 ml/ac (26-80 ac/ 1.2 L jug)	All the weeds listed for NC-00439 herbicide + glyphosate, plus the weeds listed on the Aim® EC herbicide label at the respective rates	See appropriate labels for staging

Crops and Staging: All Registered Crops			
Tank-Mix Partner	Tank-Mix Partner Rate	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt) + CF herbicide	Glyphosate at 182 g ae/ac + CF herbicide at 9, 14 or 18 g/ac	All the weeds listed for NC-00439 herbicide + glyphosate, plus the weeds listed on the CF label at the respective rates	See appropriate labels for staging



Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Ground application only.

Water Volume: Ground 5-10 gal/acre (22.5-45 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Do not use more than 7.08 g/acre of NC-00439 herbicide per year. **Do not** apply to crops underseeded to legumes or grasses. With any summerfallow treatment, allow at least 10 days to elapse between treatment and tillage. Only weeds emerged at time of application will be controlled, with the exception of extended control on weed species listed on the previous page. Weeds must be actively growing at time of application or control might be reduced. **Do not** re-enter treated fields until 12 hours after application. Once dissolved, NC-00439 herbicide will not settle out. Spray preparation should be used within 24 hours or product degradation may occur.

NC-00439 herbicide applied to fields to be planted to spring wheat, durum wheat, winter wheat, barley or oats that are stressed by severe conditions such as drought, low fertility, saline soils, waterlogged soils (soils at or near field capacity), disease or insect damage may result in crop injury as crop injury may occur.

Do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls or calcium deposits.

How It Works

NC-00439 herbicide rapidly stops growth of susceptible weeds. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions. Activity of the herbicide mixture may be delayed by cold, dry conditions after application.

Restrictions

Rainfall: Heavy rainfall immediately after application may wash the herbicide off the foliage, which may reduce the effectiveness of NC-00439 herbicide. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury. **Do not** apply if rain is forecast for the time of application.

Grazing and Harvesting Restrictions: **Do not** graze or feed to livestock within 7 days of application.

Re-Cropping: Fields treated with NC-00439 herbicide may be seeded to wheat (spring, durum or winter), spring barley or oats a minimum of 24 hours after application. The following crops may be seeded 10 months after application: Canola, dry bean, faba bean, field corn, flax, lentils, field peas, oats and soybeans. Fields treated with a post-harvest application of NC-00439 herbicide in the fall may be seeded in the spring to wheat (spring or durum), spring barley or oats, or fields may be summerfallowed.

If using other herbicides containing the active ingredient metsulfuron-methyl, restrict total use of metsulfuron-methyl to 0.6 grams active ingredient per acre, per year.

Environmental Precautions

Do not contaminate irrigation water. Toxic to aquatic organisms.

Toxicity

Very low acute mammalian toxicity. Acute oral LD₅₀ (rats) = > 5,000 mg/kg.

Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed.



NOTES

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Extended Weed Control

PrecisionPac® SZ herbicide 36



Give your crop the clean start it deserves

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: SZ herbicide	Group 14	Sulfentrazone: 75%	Water dispersible granules	SZ-75: 20 to 140 acres per grower bag SZ-100: 20 to 100 acres per grower bag

Crops, Staging and Rates

Rate	Crop	Weeds Controlled	Application Timing
SZ-75 (57 g/ac)	Chickpeas, field peas, soybeans, wheat (spring, durum)	Kochia (including Group 2 and Group 9 resistant biotypes), lamb's quarters, pigweed (redroot and green), Russian thistle ¹	Pre-plant or up to 3 days after seeding. In Western Canada only, SZ-75 herbicide can be applied in the fall prior to planting chickpeas, field peas, soybeans or wheat the following spring.
SZ-100 (75 g/ac)	Chickpeas, field peas, soybeans	Above weeds plus: Common groundsel, common purslane, common waterhemp, Eastern black nightshade, large crabgrass, smooth crabgrass, wild buckwheat, yellow woodsorrel, cleavers ¹	Pre-plant or up to 3 days after seeding. In Western Canada only, SZ-100 herbicide can be applied in the fall prior to planting chickpeas, field peas and soybeans the following spring.

¹Suppression

Registered Tank-Mixes

The following tank-mixes control weeds at the respective rates of each tank-mix partner:

Tank-Mix	Crops	Use Rate of SZ herbicide	Use Rate of Glyphosate
SZ-75 herbicide + glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	Wheat (spring and durum), chickpeas, field peas, soybeans	57 g/ac	182-360 g ae/ac
SZ-100 herbicide + glyphosate (present as potassium salt, isopropylamine salt, or ammonium salt)	Chickpeas, field peas, soybeans	75 g/ac	

Tank-Mix	Crops	Use Rate of SZ herbicide	Use Rate of Express® SG	Application Timing
SZ-75 herbicide + Express® SG herbicide + glyphosate	Wheat (spring, durum), field peas*, soybeans*	57 g/ac	Express® SG herbicide (6 g/ac) + glyphosate (182 g ae/ac)	Apply a minimum of 24 hours prior to seeding or as a fall application prior to seeding registered crops in the spring
SZ-100 herbicide + Express® SG herbicide + glyphosate	Field peas*, soybeans*	75 g/ac		Apply a minimum of 24 hours prior to seeding registered crops in the spring

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

Do not apply this tank-mix to spring wheat if an application of Focus® herbicide (or any other product containing pyroxasulfone) was applied in the previous fall. Follow all directions on the Express® SG herbicide or NC-0050 herbicide and glyphosate product labels.



Tank-Mix	Crops	Use Rate of SZ herbicide	Use Rate of Express® FX	Application Timing
SZ herbicide + Express® FX herbicide + glyphosate	Wheat (spring, durum)	57 g/ac	Express® FX herbicide (46.5 g/ac) + glyphosate (182 g ae/ac)	Apply a minimum of 24 hours prior to seeding registered crops in the spring

Tank-Mix	Crops	Use Rate of SZ herbicide	Use Rate of CF herbicide	Application Timing
SZ herbicide + CF herbicide	Wheat (spring, durum)	57 g/ac	9-18 g/ac	Pre-plant or up to 3 days after seeding
SZ herbicide + CF herbicide	Chickpeas, field peas, soybeans	75 g/ac		

Note: Do not apply this tank-mix to spring wheat if an application of Focus® herbicide (or any other product containing pyroxasulfone) was applied in the previous fall. Follow all directions on the Express® FX herbicide, DB-878 herbicide and glyphosate product labels.

Application Information

Apply with ground equipment. Do not apply by air. **Water Volume:** 10 gal/ac (40 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

All soil applications of SZ herbicide require adequate rainfall (13 mm) for herbicide activation. Use 50 mesh filter screens or larger (metal or nylon).

Do not apply SZ herbicide (or any sulfentrazone products) in consecutive years. In case of drought in any of those years, a subsequent application of SZ herbicide should be further delayed by the equivalent number of years in which drought occurred.

Do not apply to soils classified as coarse-textured.

Do not apply to soils with organic matter content less than 1.5% organic matter or greater than 6%.

Do not use on soils with a pH of 7.8 or greater. If using irrigation with water that has a pH greater than 7.5, please review the label for potential adverse crop response.

Fall Application: SZ herbicide should be applied to stubble or soil surface to allow moisture from rainfall or snow melt to move the product into the soil. Apply the product in the fall when the average soil temperature is below 10° C. Do not mechanically incorporate, after application, in the fall or spring as this can destroy the herbicide barrier, allowing weeds to escape. Do not apply to frozen soils or existing snow cover to prevent run-off of SZ herbicide. Refer to label for full application instructions for each crop.

Do not store the sprayer overnight or for an extended period with the sulfentrazone spray mixture in the tank.

How It Works

Sulfentrazone controls weeds by the process of protoporphyrinogen oxidase inhibition (membrane disruption), a mode of action commonly referred to as PPO inhibition. Sulfentrazone is primarily taken up by the roots of treated plants.

Expected Results

Plants emerging from treated soil turn necrotic and die after exposure to light. Shoot-root soil placement studies indicate that sulfentrazone is primarily absorbed by the roots of the plant following soil applications. Dry conditions after application may result in weed escapes. Moist soils are required for weed uptake.



Restrictions

Rotational Crop	Re-plant Interval (months)
Chickpea, field pea, soybean, wheat (spring, durum; low rate only)	0 months
Winter wheat	4 months
Alfalfa, barley, canola, canary seed, field corn, faba bean, flax, potato, oats, sunflower, tame mustard, wheat (spring, durum; high rate)	12 months
Corn (sweet and pop), lentil, sorghum	24 months

Re-Cropping: If there is a lack of adequate or normal soil moisture due to drought conditions, especially in June, July and August, following an application of SZ herbicide, the minimum rotational crop interval listed in the table 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 SZ herbicide.

Rainfall: Rainfall is required following application to activate the sulfentrazone component and for adequate weed control.

Grazing: Do not allow grazing of stubble immediately after application. There are no grazing restrictions of an established treated crop after the pre-seed application. If applied as a post-harvest treatment in the fall, do not allow cattle to graze treated stubble.

Environmental Precautions

Observe a 1-metre buffer zone between aquatic habitats and 10-metres between sensitive plants and treated area.

Toxicity

Oral (rats) $LD_{50} = 2,084$ mg/kg.

Storage

Store in original containers only. Store containers in a dry location.



NOTES

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Complete Solutions

PrecisionPac® PF-100-0050 herbicide	42
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PF-100-0050

HERBICIDE

A complete solution
blend with extended
control of grassy and
broadleaf weeds

Formulation

Product	Mode of Action	Active ingredient	Formulation	Container size
PrecisionPac® blend: PF-100-0050	Group 2 & 15	Pyroxasulfone: 78.4% Tribenuron-methyl: 3.9%	Wettable granules	20 to 100 acres per grower bag

Note: PF-100-0050 herbicide is purchased alone but must be tank-mixed with glyphosate before use.

Crops, Staging and Rates

Crops or Timing	Rate	Staging	Comments
Wheat (spring and winter) Do not apply to durum wheat	77.70 g/acre medium-fine/fine texture soils, OM 3-7%	Minimum 24 hours prior to seeding	Must be tank-mixed with glyphosate

Registered Tank-Mixes (Weeds, Staging)

Crops and Staging: Pre-seed (24 hours prior) to spring wheat, winter wheat.

Tank-Mix	PF-100-0050 at 77.70 g/acre + tank-mix partner	Weeds Controlled	Stage
Glyphosate (present as potassium salt, isopropylamine salt or ammonium salt)	182 g ae/ac	Extended control (prior to weed emergence)	
		Annual grasses: Barnyard grass, crabgrass (large), downy brome, foxtail (green, yellow, giant), Japanese brome, ryegrass (Italian), wild oats ¹ ,	
		Annual Broadleaf Weeds: Common waterhemp, lamb's quarters ¹ , redroot pigweed, cleavers, kochia ¹	
		Burndown (Emerg ed weeds only)	
		Canada fleabane, common ragweed, narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm
		Wild carrot ¹	Up to 10 cm
		Cleavers, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, kochia, lady's thumb, lamb's-quarters, Persian dandelion, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats, tufted vetch ¹	Up to 15 cm
		Cow cockle, wild buckwheat	Up to 3 leaf
		Common chickweed	Up to 8 leaf
		Canada thistle ¹ , white cockle ¹	Rosette
	328 g ae/ac	<i>All annual grasses and broadleaved weeds listed above plus:</i> Crab grass (large and smooth), annual blue grass, prickly lettuce, shepherd's purse, annual sow thistle, narrow-leaved vetch	Up to 15 cm

¹ Suppression



Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Apply with ground equipment. Do not apply by air. **Water Volume:** 10 gal/acre (40.5 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

PF-100-0050 herbicide should be applied to uniform seedbed that is firm and free of clods. Before applying to spring or winter wheat, verification of PF-100-0050 herbicide selectivity on wheat varieties must be confirmed with your local seed company or supplier to avoid potential injury or yield losses to sensitive varieties. Wheat seeds must be planted a minimum of 2.5 cm deep.

Do not use on peat or muck soils and soils with 7% or more organic matter content.

Do not use on soils with a pH greater than 7.8.

Do not use on coarse textured soils. PF-100-0050 herbicide is intended for medium-fine to fine soil textures.

Do not apply to wheat in combination with products containing sulfentrazone.

Do not apply to wheat in the spring if a product containing sulfentrazone was applied the previous fall.

Do not apply with any other products containing pyroxasulfone.

Do not apply if products containing pyroxasulfone were applied the previous fall.

Do not apply products containing saflufenacil with, before or after application of PF-100-0050 herbicide as crop injury may occur.

Do not apply products containing tiafenacil with, before or after application of PF-100-0050 herbicide as crop injury may occur.

How it Works

PF-100-0050 herbicide rapidly stops growth of susceptible weeds. Tribenuron-methyl active is absorbed by weed foliage, inhibits cell elongation and disrupts metabolism. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Pyroxasulfone is absorbed by roots and emerging shoots of susceptible weeds, and inhibits the elongation of the primary shoot, causing a failure to emerge from the soil.

Expected Results

The active ingredient, tribenuron-methyl, in PF-100-0050 herbicide rapidly stops growth of susceptible weeds. However, typical symptoms (discoloration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility.

The active ingredient, pyroxasulfone, in PF-100-0050 herbicide provides pre-emergent (extended) control of certain weed species. Moisture is necessary to activate PF-100-0050 herbicide in soil for pre-emergent weed control. Dry weather following applications of PF-100-0050 herbicide may reduce effectiveness. However, when adequate moisture is received after dry conditions, PF-100-0050 herbicide will control susceptible germinating weeds. The pyroxasulfone in PF-100-0050 herbicide may not provide extended control on weeds that germinate after application but prior to an activating rainfall/irrigation or weeds that germinate through cracks resulting from dry soil.



Restrictions

Rainfall: If rain occurs soon after application, burndown control may be reduced. Moisture (0.5") is necessary to activate PF-100-0050 herbicide in soil for pre-emergent weed control. Heavy rainfall soon after application may result in visual crop injury or possible yield reduction. Conditions such as thin crop stand, sandy soil or low soil organic matter may increase the severity of injury.

Grazing & Harvesting Restrictions: Do not graze or feed to livestock within 42 days of application.

Re-cropping: Spring wheat and winter wheat may be seeded 24 hours after application. Barley, canola, chickpea, durum wheat, field corn, field peas, flax, lentil, mustard, oats, potato, safflower, soybean, sunflower may be planted 12 months after application. If there is a lack of adequate or normal soil moisture due to drought conditions, especially in June, July and August, following an application of PF-100-0050 herbicide, the minimum rotational crop interval listed 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 PF-100-0050 herbicide.

Re-Entry Interval: 12 hours

When using one of the herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use of tribenuron-methyl to 6.07 grams active ingredient per acre per year.

Do not apply to durum wheat.

Do not make more than one application per season.

Environmental Precautions

Do not contaminate irrigation water. Toxic to aquatic organisms.

Toxicity

Very low acute mammalian toxicity. Acute oral LD₅₀ (rats) = > 5,000 mg/kg. May irritate eyes, nose, throat and skin.

Storage

Store in a cool, dry place.



Enhancing control during
weed-friendly conditions

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: SZ-0050	Group 2 & 14	Tribenuron-methyl: 4.84% Sulfentrazone: 67.74%	Water dispersible granules	20 to 120 acres per grower bag

Note: SZ-0050 herbicide is purchased alone but **must** be tank-mixed with glyphosate before use.

Crops, Timing and Rates

Rate: 63.07 g/ac

Crop	Timing	Comments
Field peas, soybeans, wheat (spring, durum)	Apply a minimum of 24 hours prior to seeding	Must be tank-mixed with glyphosate

Weeds Controlled and Staging

Use Rate of SZ-0050 Herbicide	Use Rate of Glyphosate	Weeds Controlled	Weed Application Stage
63 g/ac	182 g ae/ac	Kochia (including Group 2 and Group 9 resistant biotypes), Russian thistle ¹	Pre-emergent; Extended weed control
		Canada fleabane, common ragweed, narrow-leaved hawk's-beard, scentless chamomile ¹	Up to 8 cm in height
		Cleavers, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp-nettle, kochia (except Group 2 & 9 resistant), lady's thumb, lamb's-quarters, wild mustard, Persian dandel, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild oats	Up to 15 cm in height
		Cow cockle, wild buckwheat	Up to 3 leaf
		Common chickweed	Up to 8 leaf
		Canada thistle ¹ , white cockle ¹	Rosette
63 g/ac	360 g ae/ac	<i>All annual grasses listed above plus: Crab-grass (large and smooth), annual blue grass</i> <i>All annual broadleaved weeds listed above plus: Prickly lettuce, shepherd's purse, annual sow thistle, narrow-leaved vetch</i>	Up to 15 cm in height

¹Suppression



Tank-Mixes

None registered. Must be tank-mixed with glyphosate.

Application Information

Apply with ground equipment. Do not apply by air. **Water Volume:** 10 gal/ac (40 L/acre). Use the SZ-0050 herbicide mixture immediately after mixing. Do not store the sprayer overnight or for any extended period of time with the SZ-0050 herbicide spray mixture remaining in the tank. Premixing SZ-0050 herbicide spray solutions in nurse tanks is not recommended.

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

Make one pre-plant application every other year (1 per 24 months).

Do not use on any type of soil with an organic matter content greater than 6%.

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

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

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

Follow all directions on the glyphosate product labels.

Note: If using less than 182 g ae/acre glyphosate, adjuvant is required with the mix.

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution. Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. All soil applications of SZ-0050 herbicide require adequate rainfall (13 mm) for herbicide activation.

How It Works

Sulfentrazone controls weeds by the process of protoporphyrinogen oxidase inhibition (membrane disruption), a mode of action commonly referred to as PPO inhibition. Sulfentrazone is primarily taken up by the roots of treated plants. Tribenuron-methyl is absorbed by foliage and roots, inhibits cell elongation and disrupts metabolism.

Expected Results

The tribenuron-methyl in SZ-0050 herbicide stops the growth of susceptible emerged weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions. The sulfentrazone in SZ-0050 herbicide acts on plants emerging from treated soil, which turn necrotic and die after exposure to light. Shoot-root soil placement studies indicate that sulfentrazone is primarily absorbed by the roots of the plant following soil applications. Dry conditions after application may result in weed escapes. Moist soils are required for weed uptake.



Restrictions

Do not apply SZ-0050 herbicide to fields previously treated with SZ-75 herbicide or Authority® 480 herbicide or any other product that contains sulfentrazone in consecutive years (24 months).

Do not apply SZ-0050 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.

Do not tank-mix with Valtera® herbicides (flumioxazin) or with other products containing sulfentrazone.

Rainfall: Best results are obtained when the soil is moist at the time of application and the application will be followed by at least 13 mm of rainfall or sprinkler irrigation within two weeks after application. It is important to note that irrigation with highly alkaline water (high pH) following an SZ-0050 herbicide soil application can also significantly increase the amount of sulfentrazone available in the soil solution. Irrigation with water having a pH greater than 7.5 could result in adverse crop response.

Re-Entry Interval: 12 hours

Re-Cropping Guidance

Rotational Crop	Replant Interval (months)
Field pea, soybeans, spring and durum wheat	0 months
Flax	2 months
Winter wheat	4 months
Alfalfa, barley, canola, chickpea, corn (field), faba bean, potatoes, sunflowers, tame mustard	12 months
Corn (sweet and pop), lentil, sorghum	24 months

For crops listed in the rotational crop table, the minimum replant interval listed in the table must be observed. For crops not listed in the rotational crop table, A MINIMUM ROTATIONAL CROP INTERVAL OF 36 MONTHS must be observed, and a representative bioassay of the field must be conducted with the rotational crop and adequate soil moisture to evaluate potential crop sensitivity.

If there is a lack of adequate or normal soil moisture due to drought conditions, especially in June, July and August, following an application of SZ-0050 herbicide, the minimum rotational crop interval listed in the table 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 SZ-0050 herbicide.

Environmental Precautions

Do not contaminate irrigation water. Toxic to aquatic organisms.

Toxicity

Low acute mammalian toxicity. Acute oral LD₅₀ (rats) = > 2,000 mg/kg. May irritate eyes, nose, throat and skin. Skin sensitizer.

Storage

Store in a cool, dry place.



SZ-75-18

HERBICIDE

**Fast burnoff and
extended control of kochia
and other challenging
broadleaf weeds**

Formulation

Product	Mode of Action	Active ingredient	Formulation	Container size
PrecisionPac® blend: SZ-75-18 herbicide	Group 14	Sulfentrazone: 56.75% Carfentrazone-ethyl: 9.73%	Wettable granules	20 to 100 acres per grower bag

Crops, Staging and Rates

Rate	Crop	Weeds Controlled	Application timing
75 g/acre + non-ionic surfactant (0.25% v/v) or Merge® (1% v/v)	Chickpeas, field peas, soybeans and wheat (spring, durum)	Extended control (prior to weed emergence)	Pre-plant or up to 3 days after seeding
		Kochia (including Group 2 and Group 9 resistant biotypes), Russian thistle ¹	
		Burndown (Emerg ed weeds only - up to 10 cm unless otherwise indicated) Carpetweed, cleavers, cocklebur, flixweed, jimsonweed, kochia, lamb's-quarters, morning glory, mustard (tansy), nightshade (black, Eastern black, hairy), pigweed (prostrate, redroot, smooth, tumble), purslane (common), round-leaved mallow, Russian thistle (up to 5 cm tall), shepherd's purse, smartweed (Pennsylvania seedling), stinkweed, velvetleaf, volunteer canola (including glyphosate-tolerant), waterhemp (tall and common)	

¹Suppression

Note: This product requires the addition of a non-ionic surfactant at 0.25% v/v or Merge® at 1% v/v

Registered Tank-Mixes

The following tank-mixes control weeds at the respective rates of each tank-mix partner:

Tank-Mix	Crops	Use rate of SZ-75-18 herbicide	Use rate of glyphosate	Application timing
SZ-75-18 herbicide + Glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	Wheat (spring and durum), chickpeas, field peas, soybeans	75 g/acre	182-360 g ae/acre	Apply pre-plant or up to 3 days after seeding

Tank-Mix	Crops	Use rate of SZ-75-18 herbicide	Use rate of Express® SG herbicide	Application timing
SZ-75-18 herbicide + Express® SG herbicide + Glyphosate	Wheat (spring and durum), field peas*, soybeans*	75 g/acre	Express® SG herbicide (6 g/ac) + glyphosate (182 g ae/acre)	Apply a minimum of 24 hours prior to seeding or as a fall application prior to seeding registered crops in the spring

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

Do not apply this tank-mix to spring wheat if an application of Focus® herbicide (or any other product containing pyroxasulfone) was applied in the previous fall. Follow all directions on the Express® SG herbicide or NC-0050 herbicide and glyphosate product labels.



Tank-Mix	Crops	Use rate of SZ-75-18 herbicide	Use rate of Express® SG herbicide	Application timing
SZ-75-18 herbicide + Express® FX herbicide + Glyphosate	Wheat (spring and durum)	75 g/acre	Express® FX herbicide (46.5 g/ac) + glyphosate (182 g ae/acre)	Apply a minimum of 24 hours prior to seeding registered crops in the spring

Do not apply this tank-mix to spring wheat if an application of Focus® herbicide (or any other product containing pyroxasulfone) was applied in the previous fall. Follow all directions on the Express® FX herbicide, DB-878 herbicide and glyphosate product labels.

Application Information

Apply with ground equipment. Do not apply by air. **Water Volume:** 10 gal/acre (40.5 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

All soil applications of SZ-75-18 herbicide require adequate rainfall (13 mm) for herbicidal activation. Use 50 mesh filter screens or larger (metal or nylon).

Do not apply SZ-75-18 herbicide (or any sulfentrazone products) in consecutive years. In case of drought in any of those years, a subsequent application of SZ-75-18 herbicide should be further delayed.

Do not apply to soils classified as coarse-textured.

Do not apply to soils with organic matter content less than 1.5% organic matter or greater than 6%.

Do not use on soils with a pH of 7.8 or greater. If using irrigation with water that has a pH greater than 7.5, please review the label for potential adverse crop response.

Do not store the sprayer overnight or for an extended period, with the sulfentrazone spray mixture in the tank.

How it Works

Sulfentrazone controls weeds by the process of protoporphyrinogen oxidase inhibition (membrane disruption), a mode of action commonly referred to as PPO inhibition. Sulfentrazone is primarily taken up by the roots of treated plants.

Carfentrazone is rapidly absorbed through the foliage of plants. Coverage of the weeds is essential for good control.

Expected Results

Plants emerging from treated soil turn necrotic and die after exposure to light. Shoot-root soil placement studies indicate that sulfentrazone is primarily absorbed by the roots of the plant following soil applications. Dry conditions after application may result in weed escapes. Moist soils are required for weed uptake.

Restrictions

Rotational Crop	Replant Interval (months)
Chickpea, field pea, soybean, wheat (spring, durum)	0 months
Winter wheat	4 months
Alfalfa, barley, canola, field corn, faba bean, flax, potatoes, sunflower, tame mustard	12 months
Corn (sweet and pop), lentil, sorghum	24 months



Re-cropping: For crops not listed above, a minimum rotational crop interval of 36 months must be observed, and a representative bioassay of the field must be conducted with the rotational crop and adequate soil moisture to evaluate potential crop sensitivity. If there is a lack of adequate or normal soil moisture due to drought conditions, especially in June, July and August, following an application of SZ-75-18 herbicide, the minimum rotational crop interval listed in the table 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 SZ-75-18 herbicide. Do not apply SZ-75-18 herbicide to fields previously treated with SZ-75-18 herbicide or any other product that contains sulfentrazone in consecutive years (24 months).

Rainfall: Rainfall is required following application to activate the sulfentrazone component and for adequate weed control. If rain occurs soon after application, burndown control may be reduced.

Grazing: Do not allow grazing of stubble immediately after application. There are no grazing restrictions of an established treated crop, after the pre-seed application.

Environmental Precautions

Observe a 1-metre buffer zone between aquatic habitats and 10-metres between sensitive plants and treated area.

Toxicity

Oral (rats) $LD_{50} = 2,084 \text{ mg/kg}$.

Storage

Store in original containers only. Store containers in a dry location.



NOTES

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NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Post-Emergent Broadleaf Weed Control

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DB-6654

HERBICIDE

Superior perennial and
biennial weed control
for the brown soil zone

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: DB-6654	Group 2 & 4	Dicamba (present as sodium salt): 53.8% a.e. Thifensulfuron-methyl: 5.77% Tribenuron-methyl: 5.77%	Wettable granules	20 to 130 acres per grower bag

Crops, Staging and Rates

Rate: 52.63 g/ac + recommended adjuvant at 0.2% v/v

Crop	Staging	Comments
Wheat (spring, durum), spring barley, not underseeded to legumes	Post-emergent application from the 2 to 5-leaf stage of spring wheat, durum, spring barley	Adjuvants: Agral® 90, Ag-Surf® or Citowett® Plus at 0.2% v/v (2 L/ 1000 litres of spray solution)

Weeds Controlled

Annual smartweed (green smartweed, lady's thumb)	Narrow-leaved hawk's-beard
Chickweed ⁴	Night-flowering catchfly
Russian thistle	Redroot pigweed
Cow cockle	Stinkweed
Flixweed	Volunteer rapeseed ²
Hemp-nettle	Wild buckwheat
Kochia (including Group 2 resistant) ¹	Wild mustard
Lamb's-quarters	

Weeds Suppressed

Canada thistle³

¹ Apply to kochia (including Group 2 resistant kochia) from the seedling to 8-leaf stage. Expect superior results when kochia is small.

² DB-6654 herbicide alone will not control imazethapyr-tolerant canola varieties (e.g., Clearfield varieties or other varieties with the Pursuit Smart trait).

³ Apply when the majority of thistles have emerged and are actively growing. For best top-growth control, apply before bud stage when thistles are no larger than 15 cm in height and before crop canopy prevents thorough coverage of weeds. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled.

⁴ Apply when chickweed is small (1-6 leaf) and actively growing but before crop canopy prevents thorough coverage of weeds. Chickweed emerging after application will not be controlled.

Registered Tank-Mixes

Crops: Wheat (spring, durum), barley, not underseeded to legumes		
Product	Rate	Additional Weeds Controlled
DB-6654 herbicide + 2,4-D Ester 700 LV herbicide	52.63 g/ac + 243 ml/ac (or 170 g ae/ac equivalent)	Broadleaf weeds controlled or suppressed by DB-6654 herbicide alone, as well as weeds controlled by 2,4-D Ester
Agral® 90, Ag-Surf® or Citowett® Plus	0.2% v/v (2 L/1000 litres of spray solution)	
Timing: Post-emergent application from the 3 to 5 leaf stage of spring wheat (including durum) and barley		



Application Information

Ground only application. Do not apply by air. **Water Volume:** 5 gal/ac (22 L/acre).

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result. Use 50 mesh screens.

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

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Apply DB-6654 herbicide when air temperature is between 10° and 25° C. Do not apply when there is a risk of severe drop in night temperature. Warm, moist growing conditions promote active weed growth and enhance the activity of DB-6654 herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and regrowth may occur. For best results, ensure thorough spray coverage of target weeds.

Do not apply past the 5-leaf stage, or if the first node is present.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

DB-6654 herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 4 hours.

Grazing and Harvesting Restrictions: Do not graze or feed to livestock within 7 days of application.

Do not harvest forage or cut hay within 30 days after application. Withdraw meat animals from treated fields at least 3 days before slaughter.

Re-Cropping: Any crop may be planted in the year following the use of DB-6654 herbicide.

Re-Entry Interval: 12 hours. **Do not** apply more than 52.6 g/ac of DB-6654 herbicide per year.

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. **Do not** contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Follow label buffer zones between application area and sensitive areas.

Toxicity

Oral LD₅₀ (rats) = >2000 mg/kg.

Storage

Store in a cool, dry place. DB-6654 herbicide is non-corrosive, non-flammable and does not freeze. Should product be exposed to freezing temperatures, warm to room temperature prior to use.



DB-8454

HERBICIDE

Weed control for the brown soil zone

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: DB-8454	Group 2 & 4	Dicamba (present as sodium salt): 53.8% a.e. Thifensulfuron-methyl: 7.7% Tribenuron-methyl: 3.9%	Wettable granules	20 to 130 acres per grower bag

Crops, Staging and Rates

Rate: 52.64 g/ac + recommended adjuvant at 0.2% v/v

Crop	Staging	Comments
Wheat (spring, durum), spring barley, not underseeded to legumes	Post-emergent application from the 2 to 5-leaf stage of spring wheat, durum, spring barley	Adjuvants: Agral® 90, Ag-Surf® or Citowett® Plus at 0.2% v/v (2 L/1000 litres of spray solution)

Weeds Controlled

Annual smartweed (green smart- weed, lady's thumb) Ball mustard Chickweed ¹ Corn spurry Cow cockle Dandelion (spring or fall rosettes, less than 15 cm in diameter)	Flixweed Groundsel (common) Hemp-nettle Kochia (including Group 2 resistant; seedling to 8-leaf stage) Lamb's-quarters Narrow-leaved hawk's-beard Redroot pigweed	Russian thistle Shepherd's purse Stinkweed Tartary buckwheat Volunteer rapeseed ² Volunteer sunflower Wild buckwheat ³ Wild mustard
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Weeds Suppressed

Canada thistle ⁴ Cleavers (1-3 whorls)	Round-leaved mallow ⁵ Scentless chamomile Sow thistle ⁴	Stork's-bill (2-6 leaf) Toadflax ⁶
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¹ Apply when chickweed is small (1-6 leaf) and actively growing but before crop canopy prevents thorough coverage of weeds. Chickweed emerging after application will not be controlled.

² DB-8454 herbicide alone will not control Group 2 herbicide-tolerant canola varieties (e.g., Clearfield® varieties or other varieties with the Pursuit Smart® trait).

³ Apply to actively growing wild buckwheat in the cotyledon to 5-leaf stage. Under environmental stress, such as dry weather, control may be reduced. Large plants may continue to grow after treatment.

⁴ Apply when the majority of thistles have emerged and are actively growing. For best top-growth control, apply before bud stage when thistles are no larger than 15 cm in height and before crop canopy prevents thorough coverage of weeds. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled.

⁵ Apply to actively growing round-leaved mallow from the 2 to 6-leaf stage (10-12 cm in height). DB-8454 herbicide will keep mallow stunted but may not reduce overall populations.

⁶ Apply to toadflax that is no larger than 15 cm in height. A control program for this weed includes both frequent tillage and chemical application.

Registered Tank-Mixes

Crops: Wheat (spring, durum), not underseeded to legumes

Product	Rate	Additional Weeds Controlled
DB-8454 herbicide + Horizon® NG herbicide	52.64 g/ac + 376 ml/ac	Ground: Broadleaf weeds controlled or suppressed by DB-8454 herbicide alone, green foxtail and wild oats Aerial: Broadleaf weeds controlled or suppressed by DB-8454 herbicide alone, as well as wild oats

TIMING: Post-emergent application from the 2 to 5-leaf stage of spring wheat; seedling stage to 8-leaf stage of kochia



Application Information

Ground application: **Water Volume:** 5 gal/ac (22 L/acre).

Aerial application: **Water volume:** 2-5 gal/ac (10-20 L/acre); When a tank mixture is used, consult the labels of the tank-mix partners.

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result. Use 50 mesh screens.

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

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Apply DB-8454 herbicide when air temperature is between 10° and 25°C. Do not apply when there is a risk of severe drop in night temperature. Warm, moist growing conditions promote active weed growth and enhance the activity of DB-8454 herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and regrowth may occur. For best results, ensure thorough spray coverage of target weeds. Do not apply past the 5-leaf stage, or if the first node is present.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

DB-8454 herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 4 hours.

Grazing and Harvesting Restrictions: Do not graze or feed to livestock within 7 days of application.

Do not harvest forage or cut hay within 30 days after application. Withdraw meat animals from treated fields at least 3 days before slaughter.

Re-Cropping: Any crop may be planted in the year following the use of DB-8454 herbicide.

Re-Entry Interval: 12 hours.

Do not apply more than 52.6 grams/acre of DB-8454 herbicide per year.

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. **Do not** contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Follow label buffer zones between application area and sensitive areas.

Toxicity

Oral LD₅₀ (rats) = >2000 mg/kg.

Storage

Store in a cool, dry place. DB-8454 herbicide is non-corrosive, non-flammable and does not freeze. Should product be exposed to freezing temperatures, warm to room temperature prior to use.



PP-2525

HERBICIDE

Gentle on crops, tough on
the toughest weeds

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: PP-2525	Group 2	Thifensulfuron-methyl: 25% Tribenuron-methyl: 25%	Soluble granules	20 to 320 acres per grower bag

Crops, Staging and Rates

Rate: 12.14 g/ac

Apply with 0.2% v/v of registered adjuvant

Crop	Staging	Comments
Spring wheat, durum wheat, winter wheat, barley	Wheat, barley: 2 leaf to before the flag leaf	Registered adjuvants: Agral® 90, Ag-Surf®, Citowett® Plus, Liberate® Adjuvant, Ag-Surf® II, HiActivate® Non-Ionic Liquid Spreader/Activator, Super Spreader Adjuvant, Enhance®
Oats: only when tank-mixed with MCPA Ester	Oats: 3 leaf to before the flag leaf	

Weeds Controlled

Apply to young, actively growing weeds that are less than 10 cm in height or diameter, unless otherwise indicated.

Annual smartweed (green smartweed, lady's thumb)	Night-flowering catchfly
Canada thistle (suppression)	Redroot pigweed
Common chickweed (1-6 leaf)	Russian thistle
Cow cockle	Sow thistle (perennial)
Flixweed	Stinkweed
Hemp-nettle	Volunteer canola (excluding Group 2 herbicide-tolerant varieties)
Lamb's-quarters	Wild buckwheat
Narrow-leaved hawk's-beard	Wild mustard

Registered Tank-Mixes

Refer to label for staging as crop staging for tank-mixes may differ from PP-2525 herbicide applied alone.

Product	Rate	Additional Weeds Controlled
Wheat (spring, durum, winter), barley, oats		
MCPA Ester 500 or MCPA Ester 600	226 ml/ac (MCPA Ester 500) 190 ml/ac (MCPA Ester 600)	White cockle, dandelion (spring and fall rosettes, up to 15 cm in diameter), scentless chamomile, volunteer Group 2 herbicide-tolerant canola (2-4 leaf stage)

Product	Rate	Additional Weeds Controlled
Wheat (spring, durum, winter), barley		
2,4-D Ester 700 LV + 0.2% v/v adjuvant	243 ml/ac + 0.2% v/v adjuvant	Weeds also controlled by 2,4-D Ester at this rate.
Perimeter® II herbicide + 0.2% v/v adjuvant	85 ml/ac + 0.2% v/v adjuvant	Cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes; up to 10 cm), volunteer flax, stork's bill (1-6 leaf), round-leaved mallow (1-5 leaf), shepherd's purse (up to 20 cm)
Perimeter® II herbicide + MCPA Ester 500 or MCPA Ester 600	85 ml/ac + 190 ml/ac (Ester 600) or 226 ml/ac (Ester 500)	Dandelion (spring and fall rosettes, up to 15 cm in diameter), cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes; up to 10 cm), round-leaved mallow (1-5 leaf), scentless chamomile, stork's bill (1-6 leaf), volunteer flax (up to 12 cm in height), volunteer Group 2 herbicide-tolerant canola varieties (2-4 leaf stage), white cockle
Wheat (spring, durum), barley		
Banvel® II + 0.2% v/v adjuvant	44.5-59 ml/ac + 0.2% v/v adjuvant	Group 2 resistant kochia
Banvel® II + 2,4-D Ester 700 LV + 0.2% v/v adjuvant	44.5-59 ml/ac + 243 ml/ac + 0.2% v/v adjuvant	Broadleaf weeds controlled by 2,4-D, plus Group 2 resistant kochia
Spring wheat, barley		
Axial® 100 EC + Adigor®	243 ml/ac + 283 ml/ac (Adigor® adjuvant)	Wild oats, volunteer oats, green foxtail, yellow foxtail, volunteer canary seed, proso millet
Spring wheat, durum wheat, winter wheat		
Varro®	202 ml/ac	Broadleaf weeds controlled or suppressed by PP-2525 herbicide alone, plus weeds listed on the Varro® label
Spring wheat, durum wheat		
Horizon® NG	376 ml/ac	Wild oats, green foxtail
Simplicity® + 0.25% v/v adjuvant	202 ml/ac + 0.25% v/v	Broadleaf weeds controlled or suppressed by PP-2525 herbicide alone, plus weeds listed on the Simplicity® label.
Simplicity® + Perimeter® II + MCPA Ester 500 or 600 + 0.25% v/v adjuvant	202 ml/ac + 85 ml/ac + 190 ml/ac (Ester 600) or 226 ml/ac (Ester 500) + 0.25% v/v	Wild oats, dandelion, cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes; up to 10 cm), round-leaved mallow (1-5 leaf), scentless chamomile, stork's bill (1-6 leaf), volunteer Group 2 tolerant canola (2-4 leaf), volunteer flax (up to 12 cm in height), white cockle
Traxos®	485 ml/ac	Broadleaf weeds controlled or suppressed by PP-2525 herbicide alone, plus weeds listed on the Traxos® herbicide label.
Traxos® + Perimeter® II + MCPA Ester 500 or 600	485 ml/ac + 85 ml/ac + 190 ml/ac (Ester 600) or 226 ml/ac (Ester 500)	Wild oats, dandelion, cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes; up to 10 cm), round-leaved mallow (1-5 leaf), scentless chamomile, stork's bill (1-6 leaf), volunteer Group 2 tolerant canola (2-4 leaf), volunteer flax (up to 12 cm in height), white cockle

^sSuppression only



Application Information

Ground application: **Water Volume:** 5 gal/ac (22 L/acre)

Aerial application: **Water Volume:** 2-5 gal/ac (10-20 L/acre); When a tank-mixture is used, consult the labels of the tank-mix partners.

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result. Use 50 mesh screens. Do not use with tank additives that alter the pH of the spray solution.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

PP-2525 herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 1 hour.

Grazing and Harvesting Restrictions: Do not graze or feed to livestock within 7 days of application.

Re-Cropping: Canola, flax, lentils, alfalfa 2 months after application. All crops may be seeded the year following application.

Re-Entry Interval: 12 hours

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Follow label buffer zones between application area and sensitive areas.

Toxicity

Low acute toxicity. Oral LD₅₀ (rats) = >5000 mg/kg.

Storage

Store in a cool, dry place.



PP-23235

HERBICIDE

Biennial and perennial weed specialist for dark brown, black and grey soil zones

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: PP-23235	Group 2	Thifensulfuron-methyl: 23.1% Tribenuron-methyl: 23.1% Metsulfuron-methyl: 4.6%	Soluble granules	50 to 320 acres per grower bag

Crops, Staging and Rates

Rate: 13.15 g/ac

If used alone, must have 0.2% v/v of registered adjuvant added.

Crop	Staging	Comments
Spring wheat, durum wheat, barley	2 leaf to before the flag leaf	Registered adjuvants: Agral® 90, Ag-Surf®, Citowett® Plus, Liberate® Adjuvant, Ag-Surf® II, HiActivate® Non-Ionic Liquid Spreader/Activator, Super Spreader Adjuvant, Enhance®
Established creeping red fescue grown for forage and seed production	Crop has been established for one year; 2 leaf up to the shot blade stage	Minor Use Label Expansion; Apply at 13.15 gm/ac plus a non-ionic surfactant at 0.2% v/v; Crop must be established for one year

Weeds Controlled

Apply to young, actively growing weeds that are less than 10 cm in height or diameter, unless otherwise indicated.

Annual smartweed (green smartweed, lady's thumb)	Round-leaved mallow (1-6 leaf)
Canada thistle (suppression-top growth control)	Russian thistle
Common chickweed (1-6 leaf)	Scentless chamomile
Cow cockle	Shepherd's purse (up to 20 cm)
Dandelion (spring or fall rosettes up to 20 cm in diameter)	Sow thistle (perennial)
Flixweed	Stinkweed
Hemp-nettle	Stork's-bill
Lamb's-quarters	Volunteer canola (excluding Group 2 herbicide-tolerant varieties)
Narrow-leaved hawk's-beard (up to 20 cm)	White cockle
Night-flowering catchfly	Wild buckwheat
Redroot pigweed	Wild mustard

Registered Tank-Mixes

Product	Rate	Additional Weeds Controlled
Wheat (spring, durum), barley		
MCPA Ester 500 or MCPA Ester 600	226 ml/ac (MCPA Ester 500) 190 ml/ac (MCPA Ester 600)	Annual sow thistle, volunteer Group 2 herbicide-tolerant canola (2-4 leaf stage)
2,4-D Ester 700 LV + 0.2% v/v adjuvant	243 ml/ac + 0.2% v/v adjuvant	Weeds also controlled or suppressed by 2,4-D Ester
Perimeter® II herbicide + 0.2% v/v adjuvant	85 ml/ac + 0.2% v/v adjuvant	Cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes; up to 10 cm), volunteer flax (up to 12 cm in height)
Perimeter® II herbicide + MCPA Ester 500 or 600	85 ml/ac + 226 ml/ac (MCPA Ester 500) or 190 ml/ac (MCPA Ester 600)	Cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes, up to 10 cm), volunteer flax (up to 12 cm in height), volunteer Group 2 herbicide-tolerant canola (2-4 leaf stage)
Spring wheat (excluding durum), barley		
Axial® 100 EC + Adigor®	243 ml/ac + 283 ml/ac (Adigor®)	Wild oats, volunteer oats, green foxtail, yellow foxtail, volunteer canary seed, proso millet
Axial® 100 EC + MCPA Ester 500 or 600 + Adigor®	243 ml/ac + 226 ml/ac (MCPA Ester 500) or 190 ml/ac (MCPA Ester 600) + 283 ml/ac (Adigor®)	Volunteer Group 2 herbicide-tolerant canola, wild oats, yellow foxtail, volunteer oats, volunteer canary seed, proso millet, suppression of green foxtail and barnyard grass
Axial® + Perimeter® II herbicide	486 ml/ac + 85 ml/ac	Cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes; up to 10 cm), volunteer flax (up to 12 cm in height), wild oats, volunteer oats, green foxtail, yellow foxtail, volunteer canary seed, proso millet
Axial® + Perimeter® II herbicide + MCPA Ester 500 or 600	486 ml/ac + 85 ml/ac + 226 ml/ac (MCPA Ester 500) or 190 ml/ac (MCPA Ester 600)	Cleavers (1-6 whorl), kochia (including Group 2 resistant biotypes; up to 10 cm), volunteer flax (up to 12 cm in height), volunteer Group 2 herbicide-tolerant canola, wild oats, volunteer oats, yellow foxtail, volunteer canary seed, proso millet, suppression of green foxtail and barnyard grass
Spring wheat, durum wheat		
Horizon® NG, or MPower Aurora® Clodinafop, NuFarm Clodinafop herbicide, NuFarm Signal®	376 ml/ac for Horizon® NG; or 93 ml/ac Adjuvant: Add the required adjuvant recommended on the clodinafop product label	Wild oats (1 to 6-leaf stage, prior to emergence of the 4th tiller), green foxtail (1 to 5-leaf stage, prior to emergence of the 3rd tiller)
Clodinafop (listed above) + MCPA Ester 500 or 600 + adjuvant	376 mL/ac or 93 ml/ac + 190 ml/ac (Ester 600) or 226 ml/ac (Ester 500) + Adjuvant: Add the required adjuvant recommended on the clodinafop product label	Wild oats (1 to 6-leaf stage, prior to emergence of the 4th tiller), green foxtail (1 to 5-leaf stage, prior to emergence of the 3rd tiller), volunteer Group 2 herbicide-tolerant canola (2-4 leaf)



Application Information

Ground application: **Water Volume:** 5 gal/ac (22 L/acre).

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result. Use 50 mesh screens. Do not use with tank additives that alter the pH of the spray solution.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

PP-23235 herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 1 hour.

Grazing and Harvesting Restrictions: Do not graze or feed to livestock within 7 days of application.

Re-Cropping: Canola, dry beans, faba beans, field corn, flax, lentils, oats, peas and soybeans may be seeded 10 months after application.

Re-Entry Interval: 12 hours

Do not apply more than one application of PP-23235 herbicide per year. If using other herbicides containing the active ingredient metsulfuron-methyl, restrict total use of metsulfuron-methyl to 0.6 grams active ingredient per acre, per year.

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Under certain conditions, such as heavy rainfall, prolonged cool weather, frost or wide fluctuations in day/night temperatures, temporary lightening in crop colour, and occasionally, a slight reduction in crop height may occur. Follow label buffer zones between application area and sensitive areas.

Toxicity

Low acute toxicity. Oral LD₅₀ (rats) = >5000 mg/kg. Potential skin sensitizer.

Storage

Store in a cool, dry place.



PP-3317

HERBICIDE

Proven performance with
maximum flexibility

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: PP-3317	Group 2	Thifensulfuron-methyl: 33.35% Tribenuron-methyl: 16.65%	Soluble granules	20 to 320 acres per grower bag

Crops, Staging and Rates

Rate: 12.15 g/ac

Crop	Staging	Comments
Spring wheat, durum wheat, winter wheat, barley, oats	2 leaf to flag leaf (shot blade), prior to head emergence	If used alone, must have 0.2% v/v of registered adjuvant added. Registered adjuvants: Agral® 90, Ag-Surf®, Citowett® Plus, Liberate® Adjuvant, Ag-Surf® II, HiActivate® Non-Ionic Liquid Spreader/Activator, Super Spreader Adjuvant, Enhance®
Bromegrass (meadow, smooth), wheatgrass (pubescent, tall, slender, streambank, northern, crested, western, intermediate), fescue (creeping red, tall), orchard grass	Seedling or established stands (2-leaf to flag leaf)	
Kentucky bluegrass	Established stands only (2-leaf to flag leaf)	

Weeds and Staging

Apply to young, actively growing weeds that are less than 10 cm in height or diameter, unless otherwise indicated.

Weeds Controlled	
Annual smartweed (green smartweed, lady's thumb)	Redroot pigweed
Ball mustard	Russian thistle
Common chickweed (1-6 leaf)	Shepherd's purse
Corn spurry	Stinkweed
Cow cockle	Tartary buckwheat
Common groundsel	Volunteer canola (excluding Group 2 herbicide-tolerant varieties)
Flixweed	Volunteer sunflower
Hemp-nettle	Wild buckwheat (1-5 leaf)
Lamb's-quarters	Wild mustard
Narrow-leaved hawk's-beard	
Weeds Suppressed	
Canada thistle (before bud stage, <15 cm tall)	Sow thistle
Cleavers (1-3 whorls)	Stork's-bill (2-6 leaf)
Round-leaved mallow (2-6 leaf)	Toadflax (< 15 cm tall)
Scentless chamomile	



Registered Tank-Mixes

Product	Rate	Additional Weeds Controlled
Wheat (spring, durum, winter), barley, oats		
MCPA Ester 500 or MCPA Ester 600	226 ml/ac (MCPA Ester 500) 190 ml/ac (MCPA Ester 600)	Dandelion (spring and fall rosettes, up to 15 cm in diameter), volunteer Group 2 tolerant canola (2 to 4 leaf stage)
Wheat (spring, durum, winter), barley		
2,4-D Amine 500 or 2,4-D Ester LV 600 or 2,4-D Ester LV 700 + 0.2% v/v adjuvant	340-445 ml/ac (2,4-D Amine 500) 283-364 ml/ac (2,4-D Ester LV 600) 243-324 ml/ac (2,4-D Ester LV 700) + 0.2% v/v adjuvant	Burdocks (seedling), cocklebur, common ragweed, false ragweed, giant ragweed, hare's-ear mustard, Indian mustard, kochia, plantain (common), prickly lettuce, Russian pigweed, stork's-bill (suppression; 2-6 leaf, 2,4-D Ester only), tumble mustard, volunteer Group 2 tolerant canola, wild radish, wormseed mustard
Wheat (spring, durum), barley		
Banvel® II + 0.2% v/v adjuvant	44-59 ml/ac + 0.2% v/v adjuvant	44 ml/ac for kochia including Group 2 resistant; 59 ml/ac for kochia including Group 2 resistant, dandelion (spring or fall rosettes, <15 cm diameter)
Perimeter® II herbicide + 0.2% v/v adjuvant	63 ml/ac + 0.2% v/v adjuvant	Cleavers and kochia (including Group 2 resistant kochia)
Spring wheat, barley		
Axial® 100 EC + Adigor®	243 ml/ac + 283 ml/ac (Adigor®)	Wild oats, volunteer oats, green foxtail, yellow foxtail, volunteer canary seed, proso millet
Axial® 100 EC + MCPA Ester 500 or 600 + Adigor®	243 ml/ac + 226 ml/ac (MCPA Ester 500) or 190 ml/ac (MCPA Ester 600) + 283 ml/ac (Adigor®)	Volunteer Group 2 herbicide-tolerant canola (2-4 leaf), wild oats, green foxtail, yellow foxtail, volunteer oats, volunteer canary seed, proso millet
Curtail® M + 0.2% v/v adjuvant	608 ml/ac + 0.2% v/v adjuvant	Canada thistle (<15 cm)
Lontrel® 360 + 0.2% v/v adjuvant	85 ml/ac + 0.2% v/v adjuvant (anti-foaming agent may be required)	Canada thistle (<15 cm)
Lontrel® 360 + MCPA Ester 500 or MCPA Ester 600 or 2,4-D Ester 600 + 0.2% v/v adjuvant	85 ml/ac + 340 ml/ac MCPA Ester 500 or 283 ml/ac MCPA Ester 600 or 283 ml/ac 2,4-D Ester 600 + 0.2% v/v adjuvant	Canada thistle (<15 cm), cleavers (suppression), perennial sow thistle, volunteer Group 2 herbicide-tolerant canola
Spring wheat, durum wheat		
Simplicity™ + 0.25% v/v adjuvant	202 ml/ac	Controls the additional weeds listed on the Simplicity™ label

Application Information

Ground application: **Water Volume:** 5 gal/acre (22 L/acre).

Aerial application: **Water Volume:** 2-5 gal/ac (10-20 L/acre); When a tank-mixture is used, consult the labels of the tank-mix partners.

Mixing Instructions

For complete mixing instructions, see Page 81.



Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result. Use 50 mesh screens. Do not use with tank additives that alter the pH of the spray solution.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

PP-3317 herbicide stops the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 1 hour.

Grazing and Harvesting Restrictions: Do not graze or feed to livestock within 7 days of application.

Re-Cropping: Canola, flax, lentils and alfalfa may be planted 2 months after application. All crops may be seeded the year following application.

Re-Entry Interval: 12 Hours

Environmental Precautions

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders, or woodlots should be avoided. Do not contaminate irrigation water. Toxic to aquatic organisms and non-target terrestrial plants. Avoid application when heavy rain is forecast. Follow label buffer zones between application area and sensitive areas.

Toxicity

Low acute toxicity. Oral LD₅₀ (rats) = >5000 mg/kg.

Storage

Store in a cool, dry place.



NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Cross-Spectrum Grassy and Broadleaf Weed Control

PrecisionPac® CS-75-2525 herbicide	70
PrecisionPac® CS-100-2525 herbicide	72
PrecisionPac® CS-75-23235 herbicide	74
PrecisionPac® CS-100-23235 herbicide	76



CS-75-2525

HERBICIDE

Great weed control,
exceptional value

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CS-75-2525	Group 2	Pyroxsulam: 13.6% Thifensulfuron-methyl: 9.2% Tribenuron-methyl: 9.2%	Wettable granules	20 to 220 acres per grower bag

Crops, Staging and Rates

Rate: 33.14 g/ac

Crop	Staging	Comments
Wheat (spring, durum)	3-leaf to before the flag leaf	Must have 0.25% v/v of registered adjuvant added. Registered adjuvants: Agral® 90, Ag-Surf® II, Liberate® Adjuvant, HiActivate® Non-Ionic Liquid Spreader/Activator, Super Spreader Adjuvant, Enhance®, ProSurf™ II and Sentry™

Weeds Controlled

Apply to young, actively growing weeds that are less than 10 cm in height or diameter, unless otherwise indicated.

Broadleaf Weeds Controlled:

Annual smartweed (green smartweed, lady's thumb), common chickweed (1-6 leaf), cow cockle, flixweed, hemp-nettle, lamb's-quarters, narrow-leaved hawk's-beard, night-flowering catchfly, redroot pigweed, Russian thistle, sow thistle (perennial), stinkweed, volunteer canola (except Group 2, herbicide tolerant), wild buckwheat, wild mustard

Broadleaf Weeds Suppressed:

Canada thistle (top-growth control, apply before bud stage, <15 cm in height).

Grass Weeds Controlled:

Wild oats (up to 4 leaf, 2 tiller). For control of low wild oat populations (<75 plants/m²), Japanese brome (1-4 leaf, 2 tiller stage; under good growing conditions)

Registered Tank-Mixes

Product	Rate	Additional Weeds Controlled
Wheat (spring, durum)		
MCPA Ester 500 or MCPA Ester 600 + 0.25% v/v adjuvant	226 ml/ac (MCPA Ester 500) 190 ml/ac (MCPA Ester 600)	Weeds controlled or suppressed by CS-75-2525 herbicide alone, as well as white cockle, dandelion (spring and fall rosettes, up to 15 cm in diameter), scentless chamomile, Group 2 herbicide-tolerant canola (1 to 6-leaf stage)
Perimeter® II + 0.25% v/v adjuvant	85 ml/ac	85 ml/ac for control of kochia (including Group 2 resistant biotypes, seedling to 8 leaf), cleavers (1-6 whorl), stork's-bill (1-6 leaf), volunteer flax



Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution.

Ground application: **Water Volume:** 5 gal/ac (22 L/acre).

Aerial application: **Water Volume:** 3-5 gal/ac (12-20 L/acre); When a tank-mixture is used, consult the labels of the tank-mix partners.

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

PrecisionPac® Cross Spectrum herbicides stop the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 2 hours.

Grazing: May not be grazed or fed to livestock within 7 days of application.

Pre-Harvest Intervals: Allow 60 days between application and harvest.

Re-Cropping: The following crops can be seeded 11 months after an application of the herbicide: barley, brown mustard, canola, dry bean (of the species *Phaseolus vulgaris*), flax, canola-quality Brassica juncea, lentils, oats, field peas, chickpea, spring wheat, soybean and yellow mustard or fields can be summerfallowed. The following crops can be seeded 10 months after an application of the herbicide: field corn, sunflower and potatoes.

Environmental Precautions

Toxic to aquatic organisms and non-target terrestrial plants. Overspray or drift to important wildlife habitats such as ponds, wetlands, streams, woodlots and shelterbelts should be avoided. A 1-metre buffer zone should be established between the area to be sprayed and aquatic habitats; for terrestrial habitats, a 4-metre buffer zone is required for ground applications. For aerial applications: a 125 metre (fixed wing) or 100 metre (rotary wing) is required for terrestrial habitats.

Toxicity

Low oral toxicity. Oral LD₅₀ (rats) > 5000 mg/kg. Potential skin sensitizer, eye irritant.

Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed.



CS-100-2525

HERBICIDE

**One-pass grassy
and broadleaf weed
control tailored to
your farm**

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CS-100-2525	Group 2	Pyroxsulam: 15.0% Thifensulfuron-methyl: 7.5% Tribenuron-methyl: 7.5 %	Wettable granules	20 to 200 acres per grower bag

Crops, Staging and Rates

Rate: 40.14 g/ac

Crop	Staging	Comments
Wheat (spring, durum)	3-leaf to before the flag leaf	Must have 0.25% v/v of registered adjuvant added. Registered adjuvants: Agra® 90, Ag-Surf® II, Liberate® Adjuvant, HiActivate® Non-Ionic Liquid Spreader/Activator, Super Spreader Adjuvant, Enhance®, ProSurf™ II and Sentry™

Weeds Controlled

Apply to young, actively growing weeds that are less than 10 cm in height or diameter, unless otherwise indicated.

Broadleaf Weeds Controlled
Annual smartweed (green smartweed, lady's thumb), cleavers (up to 6 whorl), common chickweed (up to 10 cm), corn spurry (up to 2 whorl stage, < 10 cm in height), cow cockle, flixweed, hemp-nettle, lamb's-quarters, narrow-leaved hawk's-beard, night-flowering catchfly, redroot pigweed, round-leaved mallow (up to 6 leaf stage, <10 cm in size), Russian thistle, shepherd's purse (up to 30 cm tall), sow thistle (perennial), stinkweed (up to 30 cm tall), volunteer canola (1-6 leaf excluding Group 2 herbicide-tolerant varieties), wild buckwheat, wild mustard
Broadleaf Weeds Suppressed
Canada thistle (top-growth control, apply before bud stage, <30 cm in height), dandelion (seedlings and overwintered rosettes less than or equal to 20 cm), white cockle (up to the first flower stage, less than 20 cm in height)
Grassy Weeds Controlled
Barnyard grass (1-5 leaf), Japanese brome (1-6 leaf), wild oats—high populations (>75 plants/m ²) (up to 4 leaf, 2 tiller), yellow foxtail (1-5 leaf)
Grassy Weeds Suppressed
Downy brome (2-6 leaf, 4 tillers), green foxtail (1-5 leaf), Persian darnel (1-4 leaf, 2 tiller)

Registered Tank-Mixes

Crops: Wheat (spring, durum)		
Product	Rate	Additional Weeds Controlled
MCPA Ester 500 or MCPA Ester 600 + 0.25% v/v adjuvant	226 ml/ac (MCPA Ester 500) 190 ml/ac (MCPA Ester 600)	Weeds controlled or suppressed by CS-100-2525 herbicide alone, as well as white cockle, dandelion (spring and fall rosettes, up to 15 cm in diameter), scentless chamomile, Group 2 herbicide-tolerant canola (1 to 6-leaf stage)
Perimeter® II herbicide + 0.25% v/v adjuvant	85 ml/ac	85 ml/ac for control of kochia (including Group 2 resistant biotypes, seedling to 8 leaf), stork's-bill (1-6 leaf), volunteer flax



Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution.

Ground application: **Water Volume:** 5 gal/ac (22 L/acre).

Aerial application: **Water Volume:** 3-5 gal/ac (12-20 L/acre); When a tank-mixture is used, consult the labels of the tank-mix partners.

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

PrecisionPac® Cross Spectrum herbicides stop the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 2 hours.

Grazing: May not be grazed or fed to livestock within 7 days of application.

Pre-Harvest Intervals: Allow 60 days between application and harvest.

Re-Cropping: The following crops can be seeded 11 months after an application of the herbicide: barley, brown mustard, canola, dry bean (of the species *Phaseolus vulgaris*), flax, canola-quality Brassica juncea, lentils, oats, field peas, chickpea, spring wheat, soybean and yellow mustard or fields can be summerfallowed. The following crops can be seeded 10 months after an application of the herbicide: field corn, sunflower and potatoes.

Environmental Precautions

Toxic to aquatic organisms and non-target terrestrial plants. Overspray or drift to important wildlife habitats such as ponds, wetlands, streams, woodlots and shelterbelts should be avoided. A 1-metre buffer zone should be established between the area to be sprayed and aquatic habitats; for terrestrial habitats, a 4-metre buffer zone is required for ground applications. For aerial applications: a 125 metre (fixed wing) or 100 metre (rotary wing) is required for terrestrial habitats.

Toxicity

Low oral toxicity. Oral LD₅₀ (rats) > 5000 mg/kg. Potential skin sensitizer, eye irritant.

Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed.



CS-75-23235

HERBICIDE

**Wild oat activity,
broadleaf performance,
exceptional value**

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CS-75-23235	Group 2	Pyroxulam: 13.2% Thifensulfuron-methyl: 8.9% Tribenuron-methyl: 8.9% Metsulfuron-methyl: 1.8%	Wettable granules	50 to 220 acres per grower bag

Crops, Staging and Rates

Rate: 34.15 g/ac

Crop	Staging	Comments
Wheat (spring, durum)	3-leaf to before the flag leaf	Must have 0.25% v/v of registered adjuvant added. Registered adjuvants: Agral® 90, Ag-Surf® II, Liberate® Adjuvant, HiActivate® Non-Ionic Liquid Spreader/Activator, Super Spreader Adjuvant, Enhance®, ProSurf™ II and Sentry™

Weeds Controlled

Apply to young, actively growing weeds that are less than 10 cm in height or diameter, unless otherwise indicated.

Broadleaf Weeds Controlled:

Annual smartweed (green smartweed, lady's thumb), common chickweed (1-6 leaf), cow cockle, dandelion (spring or fall rosettes up to 20 cm in diameter), flixweed, hemp-nettle, lamb's-quarters, narrow-leaved hawk's-beard (up to 20 cm), night-flowering catchfly, redroot pigweed, round-leaved mallow (1-6 leaf), Russian thistle, scentless chamomile, sow thistle (perennial), stinkweed, stork's-bill, volunteer canola (excluding Group 2 herbicide-tolerant varieties), white cockle, wild buckwheat, wild mustard

Broadleaf Weeds Suppressed:

Canada thistle (top-growth control, apply before bud stage, <15 cm in height)

Grass Weeds Controlled:

Wild oats (up to 4 leaf, 2 tiller). For control of low wild oat populations (<75 plants/m²), Japanese brome (1-4 leaf, 2 tiller; under good growing conditions)

Registered Tank-Mixes

Product	Rate	Additional Weeds Controlled
Wheat (spring, durum)		
MCPA Ester 500 or MCPA Ester 600 + 0.25% v/v adjuvant	226 ml/ac (MCPA Ester 500) 190 ml/ac (MCPA Ester 600)	Weeds controlled or suppressed by CS-75-23235 herbicide alone, as well as annual sow thistle and volunteer Group 2 herbicide-tolerant canola varieties. Apply when volunteer canola is in the 2 to 4-leaf stage.
Perimeter® II herbicide + 0.25% v/v adjuvant	85 ml/ac	85 ml/ac for control of kochia (including Group 2 resistant biotypes, seedling to 8 leaf), cleavers (1-6 whorl), volunteer flax



Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution.

Ground application: **Water Volume:** 5 gal/ac (22 L/acre).

When a tank-mixture is used, consult the labels of the tank-mix partners.

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

PrecisionPac® Cross Spectrum herbicides stop the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 2 hours.

Grazing: May not be grazed or fed to livestock within 7 days of application.

Pre-Harvest Intervals: Allow 60 days between application and harvest.

Re-Cropping: The following crops may be seeded 11 months after application: barley, dry beans, canola, flax, lentils, oats, peas, soybeans and spring wheat. The following crop may be seeded 10 months after application: field corn.

Environmental Precautions

Toxic to aquatic organisms and non-target terrestrial plants. Overspray or drift to important wildlife habitats such as ponds, wetlands, streams, woodlots and shelterbelts should be avoided. A 1-metre buffer zone should be established between the area to be sprayed and aquatic habitats. For terrestrial habitats, a 4-metre buffer zone is required for ground applications. Under certain conditions, such as heavy rainfall, prolonged cool weather, frost or wide fluctuations in day/night temperatures, temporary lightening in crop colour, and occasionally, a slight reduction in crop height may occur.

Toxicity

Low oral toxicity. Oral LD₅₀ (rats) > 5000 mg/kg. Potential skin sensitizer, eye irritant.

Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed.



CS-100-23235

HERBICIDE

One pass,
one solution for
your most
challenging fields

Formulation

Product	Mode of Action	Active Ingredient	Formulation	Container Size
PrecisionPac® blend: CS-100-23235	Group 2	Pyroxsulam: 14.7% Thifensulfuron-methyl: 7.3% Tribenuron-methyl: 7.3% Metsulfuron-methyl: 1.5%	Wettable granules	50 to 200 acres per grower bag

Crops, Staging and Rates

Rate: 41.15 g/ac

Crop	Staging	Comments
Wheat (spring, durum)	3-leaf to before the flag leaf	Must have 0.25% v/v of registered adjuvant added. Registered adjuvants: Agral® 90, Ag-Surf® II, Liberate® Adjuvant, HiActivate® Non-Ionic Liquid Spreader/Activator, Super Spreader Adjuvant, Enhance®, ProSurf™ II and Sentry™

Weeds Controlled

Apply to young, actively growing weeds that are less than 10 cm in height or diameter, unless otherwise indicated.

Broadleaf Weeds Controlled:

Annual smartweed (green smartweed, lady's thumb), cleavers (up to 6 whorl), common chickweed (up to 10 cm), corn spurry (up to 2 whorl stage, < 10 cm in height), cow cockle, dandelion (spring or fall rosettes up to 20 cm in diameter), flixweed, hemp-nettle, lamb's-quarters, narrow-leaved hawk's-beard (up to 20 cm), night-flowering catchfly, redroot pigweed, round-leaved mallow (1-6 leaf, < 10 cm in size), Russian thistle, scentless chamomile, shepherd's purse (up to 30 cm tall), sow thistle (perennial), stinkweed (up to 30 cm tall), stork's-bill, volunteer canola (1-6 leaf, excluding Group 2 herbicide-tolerant varieties), white cockle, wild buckwheat, wild mustard

Broadleaf Weeds Suppressed:

Canada thistle (top-growth control, apply before bud stage, <30 cm in height)

Grass Weeds Controlled:

Barnyard grass (1-5 leaf), Japanese brome (1-6 leaf), wild oats—high populations (>75 plants/m²) (up to 4 leaf, 2 tiller), yellow foxtail (1-5 leaf)

Grassy Weeds Suppressed:

Downy brome (2-6 leaf, 4 tillers), green foxtail (1-5 leaf), Persian dandel (1-4 leaf, 2 tiller)

Registered Tank-Mixes

Product	Rate	Additional Weeds Controlled
Wheat (spring, durum)		
MCPA Ester 500 or MCPA Ester 600 + 0.25% v/v adjuvant	226 ml/ac (MCPA Ester 500) 190 ml/ac (MCPA Ester 600)	Weeds controlled or suppressed by CS-100-23235 herbicide alone, as well as annual sow thistle and volunteer Group 2 herbicide-tolerant canola varieties. Apply when volunteer canola is in the 1 to 6-leaf stage.
Perimeter® II herbicide + 0.25% v/v adjuvant	85 ml/ac	85 ml/ac for control of kochia (including Group 2 resistant biotypes, seedling to 8 leaf), volunteer flax



Application Information

Use 50 mesh filter screens or larger (metal or nylon). Do not use with tank additives that alter the pH of the spray solution.

Ground application: **Water Volume:** 5 gal/ac (22 L/acre).

When a tank-mixture is used, consult the labels of the tank-mix partners.

Mixing Instructions

For complete mixing instructions, see Page 81.

Application Tips

Effectiveness may be reduced if spray mixture remains in the tank for more than 24 hours. Do not apply to crops underseeded to legumes or grasses as injury to forage may result.

How It Works

Absorbed by foliage. Inhibits cell elongation.

Expected Results

PrecisionPac® Cross Spectrum herbicides stop the growth of susceptible weeds immediately. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1-3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions.

Restrictions

Rainfall: 2 hours.

Grazing: May not be grazed or fed to livestock within 7 days of application.

Pre-Harvest Intervals: Allow 60 days between application and harvest.

Re-Cropping: The following crops may be seeded 11 months after application: barley, dry beans, canola, flax, lentils, oats, peas, soybeans and spring wheat. The following crop may be seeded 10 months after application: field corn.

Environmental Precautions

Toxic to aquatic organisms and non-target terrestrial plants. Overspray or drift to important wildlife habitats such as ponds, wetlands, streams, woodlots and shelterbelts should be avoided. A 1-metre buffer zone should be established between the area to be sprayed and aquatic habitats. For terrestrial habitats, a 4-metre buffer zone is required for ground applications. Under certain conditions, such as heavy rainfall, prolonged cool weather, frost or wide fluctuations in day/night temperatures, temporary lightening in crop colour, and occasionally, a slight reduction in crop height may occur.

Toxicity

Low oral toxicity. Oral LD₅₀ (rats) > 5000 mg/kg. Potential skin sensitizer, eye irritant.

Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed.



NOTES

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Other Resources

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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 to deliver active ingredients that completely dissolve in water, creating 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 save you time, money and water with easier sprayer cleanup.

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

2. Lower risk to sensitive crops.

Because it is easier to remove product residue from the tank, the impact to subsequently sprayed crops like peas or canola 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.



**Dry flowable
(DF)**

**Soluble granules
(SG)**

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



Herbicide mixing instructions, sprayer cleanout & Sulfonyleureas and pH Adjusters

1. Start with a clean empty sprayer. Ensure sprayer is equipped with 50 mesh screens or filters when using FMC products.
2. Fill sprayer tank 1/2 full with clean water in order to ensure enough water for added product to dilute properly.
3. With agitator running, add the FMC products according to their formulation as shown below in the **WAMLEGS** chart. Add the products slowly.
4. If loading FMC granular products, agitate well to ensure granules are completely dissolved prior to moving to the next step. This can take longer in spring with cold water sources. Do not aggressively agitate SE, SC or EC formulations. Moderate agitation is sufficient. If the spray mixture looks like its boiling, then there is too much agitation.
5. If using a mix & fill tank, add the FMC product to as large a volume of water as possible in a chemical handler.
6. If combining multiple products, ensure application water volume is sufficient to dilute the mixture.
7. Proceed with adding additional products as per the **WAMLEGS** chart and water while maintaining agitation. Slowly add each tank-mix partner, before proceeding to the next tank-mix partner.
8. For repeat tank loads, start off with an empty tank or ensure spray solution is reduced to 10%, or less, of the original volume.
9. (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.
10. (Recommended) When spraying an FMC extended weed control liquid formulated product multiple days in a row, it is important, at the end of each day to fill the sprayer with water overnight, to prevent any film from developing on the tank walls.

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 granular herbicides when using a CHEM HANDLER:

1. Ensure the chem handler is clean (rinsed with ammonia).
2. For best results, add the granular herbicide to the top of the sprayer tank.
3. If you do use a chem handler, make sure that all of the granular herbicide is completely dissolved and injected into the main tank with agitation before adding other chemicals.

Herbicide mixing instructions, sprayer cleanout & Sulfonylureas and pH Adjusters

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 granular herbicide 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.

Sprayer Cleanout Procedure

1. Empty tank completely and flush entire spraying system with clean water. Ensure the boom is flushed well by removing boom end caps or opening boom end valves.
2. Visually inspect all sprayer parts, including in-line filters, to ensure removal of all visible herbicide residues.
3. Prepare a sprayer cleaning solution by adding 3 (three) litres of ammonia per 100 litres of clean water. Prepare sufficient cleaning solution to allow the spray system to operate for a minimum of 15 minutes.

Household ammonia (containing at least 3% active), agricultural ammonia such as Finish or Flush are recommended. When tank-mixing a Group 2 herbicide with a petroleum based formulation or adjuvant, add a detergent at 0.25 L/100 L to the ammonia rinse. The detergent breaks down the petroleum coating to allow the ammonia access to the Group 2 product.

4. Flush the cleaning solution through the entire sprayer system and then add more water to completely fill the tank. The use of top-mounted tank rinse nozzles allow for a reduction in use of rinse volume by utilizing 3 rinses totaling 10% of the tank volume. Sit with agitation for at least 15 minutes or allow to sit overnight.
5. Drain the tank.
6. Remove nozzles, screens and filters and clean separately in a bucket of water and cleaning agent.
7. Thoroughly rinse the tank with clean water for 5 minutes minimum, flushing water throughout the entire sprayer system.

Frequent sprayer cleaning throughout the spraying season with ALL pesticides make any single cleaning operation more efficient and effective.

Sulfonylureas and pH Adjusters

Acidifying additives such as LI 700® or Surfactant NI are not recommended for use with FMC PrecisionPac® blends and packaged sulfonylurea products. The specific concern is the potential for reducing the solubility of the herbicides in the spray tank, and for more rapid product degradation if the spray solution needs to sit for an extended period of time. Appropriate surfactants for use with PrecisionPac® or FMC packaged products are non-ionic surfactant brands such as Agral® 90, Ag-Surf®, Ag-Surf® II, HiActivate™ Non-ionic Liquid Spreader/Activator, Liberate® Adjuvant, Super Spreader Adjuvant, Enhance®, Pro-Surf® II or Sentry®.

Water conditioners such as Disclose® pH – Water Conditioner (NutriAg), pHix® (Omex Agriculture Inc.), N-Force (ATP Nutrition) or other brands that lower the pH of the water should not to be used with FMC PrecisionPac® blends and packaged sulfonylurea products.

FMC Tank-Mix Policy

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 this 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 this label.

NOTES

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Certified PrecisionPac® Herbicide Retailers

Alberta

Agro Plus Holdings

Foremost (403) 647-6213

Agro Plus Inc.

Dunmore (403) 487-2906

Lethbridge (403) 327-7070

CashChem Ltd.

Ponoka (403) 704-3957

Central Alberta Coop Ltd.

Innisfail (403) 227-3466

Consort Agro Services

Consort (403) 577-3020

Kneehill Soil Services Ltd.

Linden (403) 546-4050

McEwen's Fuels & Fertilizers Inc.

Sturgeon (780) 998-2058

Neerlandia Coop Association Ltd.

Barrhead (780) 674-3020

Nutrien Ag Solutions

Coronation (403) 578-3302

Edgerton (780) 755-3734

Enchant (403) 739-2012

Fort Macleod (403) 553-3774

Hairy Hill (780) 768-3825

Medicine Hat (403) 526-9499

Rycroft (780) 765-2865

Strathmore (403) 934-2204

St Paul (780) 645-5915

Vermilion (780) 853-4711

Warner (403) 642-3951

Westlock (780) 349-4525

Parrish & Heimbecker Limited

Sedgewick (780) 384-2265

Richardson Pioneer

Dunmore (403) 527-6600

Hussar (403) 787-3931

Lamont (780) 895-2353

Magrath (403) 758-3162

Nampa (780) 322-3737

Oyen (403) 664-2620

Provost (780) 753-8415

Stirling (403) 756-3452

Three Hills (403) 443-2548

Vermilion (780) 853-6565

Veteran (403) 575-4600

Vulcan (403) 485-6696

Waskatenau (780) 358-2720

Schoorlemmer Seeds Ltd.

Rycroft (780) 864-5949

Smoky Seed Company

Guy (780) 837-1334

South Country Coop Limited

Medicine Hat (403) 528-6609

St. Isidore Coop Ltd.

Falher (780) 837-2205

United Farmers of Alberta

Airdrie (403) 948-5913

Grande Prairie (780) 532-1281

British Columbia

Agro Source Ltd.

Dawson Creek (250) 782-4449

Nutrien Ag Solutions

Fort St. John (250) 785-3445

Manitoba

Ag Advantage

Meadows (204) 322-5351

GJ Chemical Co. Ltd.

Arnaud (204) 427-2337

Nutrien Ag Solutions

Ninga (204) 534-6806

Pembina Coop

Swan Lake (204) 836-2109

Richardson Pioneer

Landmark (204) 355-4061

Sierens Seed Service

Somerset (204) 744-2883

Saskatchewan

Blair's Fertilizer Limited

Lanigan	(306) 365-3150
Liberty	(306) 847-4444
Nokomis	(306) 528-3150
Rosthern	(306) 232-4223
Watrous	(306) 946-3150

Cargill Limited

Clavet	(306) 242-5400
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Clearview Agro

Invermay	(306) 593-2234
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Emerge Ag Solutions Inc.

Eston	(306) 962-4132
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Hawk's Agro

Central Butte	(306) 796-4787
Gravelbourg	(306) 648-3110
Neville	(306) 773-0700
Moose Jaw	(306) 624-2399

Innova Ag Solutions Inc.

Central Butte	(306) 796-2102
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Kenzie Seeds Inc.

Wadena	(306) 338-3505
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Lake Country Coop

Shellbrook	(306) 747-2122
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Meadow Lake Cooperative Association

Meadow Lake	(306) 236-3644
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Nutrien Ag Solutions

Balcarres	(306) 334-2440
Balgonie	(306) 771-2032
Humboldt	(306) 682-2509
Kerrobert	(306) 834-5007
Kincaid	(306) 264-1000
Landis	(306) 658-2002
Lucky Lake	(306) 858-2188
Moose Jaw	(306) 692-3644
Paradise Hill	(306) 344-2229
Perdue	(306) 237-4304
Swift Current	(306) 773-3181
Weyburn	(306) 842-5471
Wilkie	(306) 843-2122

Parrish & Heimbecker Limited

Yorkton	(306) 782-2814
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Pasquia Agro Services

Carrot River	(306) 768-3888
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Paterson Grain Crop Inputs

Assiniboia	(306) 642-4295
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Pioneer Coop

Frontier	(306) 296-2233
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Pioneer Coop Agronomy Centre

Swift Current	(306) 778-8705
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Precision Ag Services Inc.

Carlyle	(306) 453-2255
Griffin	(306) 457-2220

Rack Petroleum

Broderick	(306) 867-8371
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Richardson Pioneer

Delisle	(306) 717-6197
Estevan	(306) 634-2342
Langenburg	(306) 743-2252
Maple Creek	(306) 662-2420
Pasqua Lake	(306) 691-0256
Saskatoon	(306) 249-2200
Southey	(306) 726-2110

River Valley Ag

Saskatoon	(306) 978-9094
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Saskatoon Cooperative Association Ltd.

Saskatoon	(306) 933-3835
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Sharpe's Crop Services

Langenburg	(306) 743-2677
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Simplot Grower Solutions

Eatonia	(306) 967-2211
Medstead	(306) 342-2476
Plenty	(306) 932-4622
Rosetown	(306) 882-2600

Super Seed Inc.

Yellow Grass	(306) 465-2727
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SWT

Cabri	(306) 587-2408
Gull Lake	(306) 672-4112
Hazenmore	(306) 264-3250
Shaunavon	(306) 297-4045
Wymark	(306) 778-0555

SynergyAG Services Corp.

Balcarres	(306) 331-8411
Govan	(306) 484-1000
Lajord	(306) 789-2245

Veikle Agro Inc.

Denzil	(306) 358-4918
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