

2024-03-05  
2023-1420  
**(Container)**



# Starane™ Herbicide

GROUP	4	HERBICIDE
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**FOR SALE FOR USE ONLY IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA  
(INCLUDING THE PEACE RIVER REGION)**

Starane™ Herbicide is a selective herbicide for postemergent control of annual broadleaved weeds including cleavers and certain ALS-resistant broadleaved weeds such as kochia in spring wheat, durum wheat, and spring barley. Starane Herbicide will also suppress hemp-nettle, common chickweed and wild buckwheat.

COMMERCIAL (AGRICULTURAL)

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING  
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: fluroxypyr 180 g/L  
(present as 1-methylheptyl ester)  
Emulsifiable Concentrate

REGISTRATION NO. 24815 PEST CONTROL PRODUCTS ACT

**DANGER**  **POISON**

**EYE AND SKIN IRRITANT**

NET CONTENTS: 4.8 L - bulk

**Corteva Agriscience Canada Company**  
Suite 240, 115 Quarry Park Rd. SE  
Calgary, AB  
T2C 5G9  
1-800-667-3852

™ Trademark of Corteva Agriscience and its affiliated companies.

## **PRECAUTIONS**

**KEEP OUT OF REACH OF CHILDREN**

**WARNING - EYE IRRITANT**

**CAUTION - SKIN IRRITANT**

**DANGER - CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY**

**HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN**

**MAY CAUSE SKIN IRRITATION**

**DO NOT APPLY BY AIR.**

DO NOT get in eyes. Avoid contact with skin and clothing. Avoid breathing spray mist.

**Do not** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12-hours.

DO not use in residential areas. Residential areas are defined as any use site where bystanders, including children, could be exposed during or after application. This includes homes, schools, parks, playgrounds, playing fields, public buildings, or any other area where the general public, including children, could be exposed.

Apply only to agricultural crops when the potential for drift to areas of human habitation and areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

## **PROTECTIVE CLOTHING AND EQUIPMENT**

**At all times:** Wear clean, body-covering coveralls.

**During mixing and loading, and clean-up and repair:** Wear goggles or face shield and chemical-resistant gloves. Rinse gloves before removal.

## **OPERATOR USE PRECAUTIONS**

Wear freshly laundered clothing and clean protective equipment daily. At completion of spraying or end of the day take a shower immediately. Wash thoroughly with soap and water before eating, drinking, smoking or using the toilet. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse. If herbicide penetrates clothing, remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Avoid contact with eyes, skin and clothing. Avoid breathing spray mist.

## **PHYSICAL OR CHEMICAL HAZARDS**

**COMBUSTIBLE.** Do not use or store near heat or open flame.

## **FIRST AID**

**Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.**

**If swallowed:** Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

**If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

## **TOXICOLOGICAL INFORMATION**

This product contains petroleum distillates. Treatment should be based on judgment of the physician in response to reactions of the patient. Vomiting may cause aspiration pneumonia.

## **AGRICULTURAL CHEMICAL**

Do not ship or store with food, feeds, drugs or clothing.

## **ENVIRONMENTAL PRECAUTIONS**

TOXIC to non-target terrestrial plants and aquatic organisms. Observe spray buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff 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.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.

This product contains an active ingredient and aromatic petroleum distillate which are toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

## **STORAGE**

Store in original containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. To prevent contamination, store this product away from food or feed. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

## **DISPOSAL**

### **Recyclable Containers**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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### **Returnable Containers**

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### **Refillable Containers**

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial/territorial regulatory agency. Contact the manufacturer and the provincial/territorial regulatory agency in case of a spill, and for clean-up of spills.

**NOTICE TO USER:** This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

(Booklet)



# Starane™

## Herbicide

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COMMERCIAL (AGRICULTURAL)

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**MAY CAUSE SKIN IRRITATION**

**DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT**

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DO not use in residential areas. Residential areas are defined as any use site where bystanders, including children, could be exposed during or after application. This includes homes, schools, parks, playgrounds, playing fields, public buildings, or any other area where the general public, including children, could be exposed.

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**At all times:** Wear clean, body-covering coveralls.

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## **OPERATOR USE PRECAUTIONS**

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For information on disposal of unused, unwanted product, contact the manufacturer or the provincial/territorial regulatory agency. Contact the manufacturer and the provincial/territorial regulatory agency in case of a spill, and for clean-up of spills.

## **GENERAL INFORMATION**

Starane Herbicide is a selective postemergent herbicide for the control of annual broadleaved weeds in spring wheat, durum wheat and spring barley, not underseeded with legumes. Starane Herbicide offers a novel mode of action for controlling hard-to-kill annual broadleaved weeds such as kochia (including ALS resistant biotypes) and cleavers. Starane Herbicide will also provide suppression of hempnettle, wild buckwheat and chickweed.

## **MODE OF ACTION**

Starane Herbicide is a systemic auxin-type herbicide and moves within the plant for control of exposed and underground plant tissues. The product controls weeds by disrupting normal plant growth patterns. Symptoms of weeds include epinasty (twisting of the stems) and swollen nodes.

## **GENERAL USE PRECAUTIONS**

### **Sensitive Plants**

Do not apply Starane Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

### **Non-Target Sites**

Do not apply where proximity of susceptible crops or other desirable plants is likely to result in exposure to spray or spray drift. See Environmental Precautions section of the label.

### **Crop Rotation**

Fields previously treated with Starane Herbicide can be seeded the following year to barley, canola, flax, forage grasses, lentils, mustard, oats, peas, rye or wheat or fields can be summerfallowed.

### **Tank Mixtures**

This product may be tank mixed with a fertilizer, a supplement, or 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 Corteva Agriscience Canada Company at 1-800-667-3852 or [www.corteva.ca](http://www.corteva.ca) for information before applying any tank mix that is not specifically recommended on this label.

### **Spray Equipment Precaution**

Do not apply through any type of irrigation system.

**DO NOT APPLY BY AIR.**

### **To Reduce Spray Drift:**

- Use nozzles delivering higher volumes and coarser droplets.
- Use low pressures (200 to 275 kPa).
- Use 100 L/ha of spray solution.
- Spray when the wind velocity is 15 km/hr or less.
- Spot treatments should only be applied with a calibrated boom to prevent over-application.

### **Equipment Clean-Up**

Equipment used to apply Starane Herbicide should not be used to apply other pesticides to sensitive crops without thorough cleaning. Contact your Starane Herbicide dealer for detailed equipment cleaning procedures.

## DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDING WITH LEGUMES.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

**DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

### Field sprayer application

**DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

### Crops Registered

spring wheat  
durum wheat  
spring barley

### STARANE HERBICIDE ALONE

Apply Starane Herbicide for postemergent control of cleavers and kochia, including ALS resistant kochia and other broadleaved weeds infesting spring wheat, durum wheat and spring barley. See following table for weeds controlled/suppressed and applications rates.

#### Weeds Controlled Or Suppressed By Starane Herbicide Alone

Weeds Controlled	Starane Herbicide Rate (L/ha)
cleavers (1-4 whorls)	0.4
kochia♦ (2-8 leaf)	0.6
round-leaved mallow (1-6 leaf)	0.8
volunteer flax (1-12 cm)	0.6
Weeds Suppressed	Starane Herbicide Rate (L/ha)
chickweed♦ (up to 8 cm)	0.8
hempnettle (2-6 leaf)	0.8
stork's-bill (1-8 leaf)	0.6
wild buckwheat (1-4 leaf)	0.8

♦Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

**NOTE:** Starane Herbicide activity is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

## APPLICATION DIRECTIONS

### Application Timing

Apply to actively growing wheat and barley from the 2-leaf crop growth stage up to and including initiation of stem elongation. Apply when weeds are actively growing. Best results are obtained from applications made to seedling weeds. Only weeds emerged at the time of treatment will be controlled. Extreme growing conditions such as drought or near freezing temperature prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. Foliage that is wet at the time of application may decrease control. Starane Herbicide applications are rainfast within 1 hour after application. Under conditions of low crop and high weed density, control may be reduced.

### Preharvest/Grazing Intervals (Starane Herbicide applied alone)

- Livestock may be grazed on treated crops 3 days following application.
- Do not harvest the treated crop within 60 days after application.

### TANK-MIX COMBINATIONS - STARANE HERBICIDE + LIQUID ACHIEVE SC HERBICIDE

For control of wild oats and green foxtail in spring wheat and spring barley apply 0.5 L/ha of Liquid Achieve SC with Starane Herbicide. Refer to the above table for rates and broadleaved weeds controlled or suppressed with Starane Herbicide. To control additional broadleaved weeds tank-mix with either 2,4-D Ester or MCPA Ester up to a maximum of 560 g a.e./ha (equivalent to 1.0 L/ha of 2,4-D LV600 or 1.12 L/ha of MCPA LV500 or 0.93 L/ha of MCPA Ester 600) or 1.5 to 2.0 L/ha Curtail M Herbicide. Refer to the 2,4-D Ester or MCPA Ester tank-mix partner label for rates less than 560 g a.e./ha and weeds controlled.

### Mixing Instructions

1. Begin to fill sprayer tank with clean water, and engage agitator. **Agitation must be continued throughout the entire mixing and spraying procedure.**
2. When the sprayer is three quarters full of water, add Liquid Achieve SC. If more than one container of Liquid Achieve SC is to be used, add all Liquid Achieve SC containers prior to adding Starane Herbicide.
3. Add Starane Herbicide next. If more than one container of Starane Herbicide is to be used, add all Starane Herbicide containers prior to adding any other tank-mix partners.
4. If 2,4-D Ester, MCPA Ester or Curtail M are also being added, add these next. If more than one container of 2,4-D Ester, MCPA Ester or Curtail M is to be used, add all 2,4-D Ester, MCPA Ester or Curtail M containers prior to adding Turbocharge.
5. Lastly, add the required amount of Turbocharge and then continue to fill tank to desired level with water.

### TANK-MIX COMBINATIONS - STARANE HERBICIDE + CURTAIL™ M HERBICIDE

For control of a wide spectrum of broadleaved weeds (see following table) in spring wheat, durum wheat and spring barley, apply Starane Herbicide at 0.8 L/ha tank mixed with Curtail M Herbicide at 2.0 L/ha.

### Mixing Instructions

Add the correct amount of Starane Herbicide to spray tank 1/2 filled with water and agitate. Add the correct amount of Curtail M Herbicide and continue to agitate.

### Timing of Application

Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat and spring barley are in the 3-leaf to just before the flag leaf emergence stage. Do not apply later than the flag-leaf stage.

## Weeds Controlled or Suppressed by Starane Herbicide + Curtail M Herbicide Tank-Mix

### Weeds Controlled:

Canada thistle*	lamb's-quarters	sow-thistle (annual)
canola (volunteer)	redroot pigweed	sow-thistle (perennial) *
cleavers (1-4 whorls)	round-leaved mallow (1-6 leaf)	stinkweed
common groundsel	Russian pigweed	stork's-bill (1-8 leaf)
dandelion**	scentless chamomile	sunflower (volunteer)
flixweed**	shepherd's-purse	tartary buckwheat
hemp-nettle (2-6 leaf stage) ****	smartweed	volunteer flax (1-12 cm)
kochia***		wild buckwheat (1-4 leaf)
		wild mustard

### Weeds Suppressed:

common chickweed\*

- \* Season long control, with some regrowth in the fall (top growth control).
- \*\* Spring rosettes only.
- \*\*\* Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.
- \*\*\*\* Suppression

The active ingredients in this tank mixture will only control chickweed that is emerged at TIME OF application. Chickweed plants which emerge after application will not be controlled. To improve the reduction in chickweed population at the end of season, delay the timing of application as late as possible to when the majority of chickweed plants have emerged. The reduction in chickweed population will also be improved in crops which are more competitive and which allow limited light penetration.

### Pre-Harvest/Grazing Intervals (Starane Herbicide + Curtail M Herbicide)

- Do not cut or graze treated fields within 7 days after application.
- Do not harvest the treated mature crop within 60 days after application.

When tank mixing with Curtail M Herbicide, wear goggles or face shield, coveralls and chemically resistant gloves, apron and boots when mixing, loading and during clean-up and repair.

Curtail M Herbicide contains an ingredient that is rapidly absorbed through the skin and respiratory tract.

### TANK MIXES WITH STARANE HERBICIDE + CURTAIL M HERBICIDE FOR ANNUAL GRASS CONTROL

Tank mixtures of Starane Herbicide + Curtail M Herbicide with other herbicides will provide control of additional weeds. See following table for tank mixes with Starane Herbicide + Curtail M Herbicide.

#### Tank-Mix Combinations with Starane Herbicide (0.8 L/ha) + Curtail M Herbicide (2.0 L/ha)

Herbicide Tank-Mix Partner	Crops Registered	Rate of Tank-Mix Partner	Adjuvant Rate	Additional Weeds
Liquid Achieve SC *	spring wheat, durum wheat, spring barley	0.5 L/ha	Turbocharge 0.5 L/100 L of spray volume (0.5% v/v)	green foxtail wild oats

\*Curtail M Herbicide can be used at a rate of 1.5 to 2.0 L/ha with this tank-mix combination.

## TANK-MIX COMBINATION - STARANE HERBICIDE + 2,4-D ESTER HERBICIDE

For control of a wide spectrum of broadleaved weeds (see following tables) apply Starane Herbicide tank mixed with 2,4-D Ester Herbicide. Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat and spring barley are in the 4-leaf to flag-leaf stage. Application before the 4-leaf stage of wheat and barley may cause severe twisting of leaves and stem, and head deformities which may reduce yield up to 10%. Do not apply later than the flag-leaf stage.

### Rates of Application

**I. Low Rate:** To control the following weeds apply a uniform spray containing 0.45 L/ha Starane Herbicide and 420 g a.e./ha 2,4-D Ester Herbicide in a minimum of 100 L of water per hectare to thoroughly cover the weeds.

#### Weeds Controlled:

bluebur	hoary cress*	stinkweed
burdock	kochia†	sunflower (annual)
canola (volunteer)	lamb's-quarters	vetch
cleavers (1-4 whorls)	mustards (except green, dog & tansy)	wild radish
clovers (sweet)	plantain	wild buckwheat (1-4 leaf)
cocklebur	prickly lettuce	wild mustard
flixweed	ragweed	
field horsetail*	shepherd's-purse	
goat's-beard		

**II. High Rate:** To control the above weeds plus the additional weeds listed below, apply a uniform spray containing 0.6 L/ha of Starane Herbicide and 560 g a.e./ha of 2,4-D Ester Herbicide in a minimum of 100 L of water per hectare to thoroughly cover the weeds.

#### Additional Weeds Controlled:

blue lettuce*	hairy galinsoga	Russian thistle
dandelion <sup>~</sup>	hedge bindweed	smartweed
docks	lady's-thumb	stork's-bill (1-8 leaf)
dog mustard	leafy spurge*	tansy
field bindweed*	oak-leaved goosefoot	tartary buckwheat
field peppergrass	redroot pigweed	volunteer flax (1-12 cm)
gumweed	round-leaved mallow (1-6 Leaf)	wild buckwheat (1-4 leaf)

#### Weeds Suppressed:

common chickweed† (up to 8 cm)	hemp-nettle (2-6 leaf stage)	sow-thistle (perennial) *
Canada thistle*	sow-thistle (annual)	

\* Top growth control only.

<sup>~</sup> Spring rosettes.

† Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

**NOTE:** The activity of Starane Herbicide combined with 2,4-D Ester Herbicide is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

### Mixing Instructions

Add the correct amount of Starane Herbicide to spray tank 1/2 filled with water and agitate. Add the correct amount of 2,4-D Ester Herbicide and continue to agitate.

### Pre-Harvest/Grazing Intervals (Starane Herbicide + 2,4-D Ester Herbicide)

- Do not permit lactating dairy animals to graze fields within 7 days after 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.
- Do not harvest the treated mature crop within 60 days after application.

### TANK-MIX COMBINATIONS - STARANE HERBICIDE + 2,4-D ESTER HERBICIDE + OTHER HERBICIDES

Tank mixtures of Starane Herbicide + 2,4-D Ester Herbicide with other herbicides will provide control of additional weeds. For products which may be tank mixed with Starane Herbicide + 2,4-D Ester Herbicide and the additional weeds controlled see following table.

#### Tank-Mix Combinations with Starane Herbicide (0.6 L/ha) + 2,4-D Ester Herbicide (560 g a.e./ha) or Starane Herbicide (0.45 L/ha + 2,4-D Ester Herbicide (420 g a.e./ha)

Herbicide Tank-Mix Partner	Crops Registered	Rate of Tank-Mix Partner	Adjuvant Rate	Additional Weeds
Liquid Achieve SC Herbicide†, †††	spring wheat, durum wheat, spring barley	0.5 L/ha	Turbocharge 0.5 L/100 L of spray volume (0.5% v/v)	green foxtail, wild oats

†Do not apply this tank-mix prior to the 4 leaf stage of the cereal crop as temporary crop injury could occur. This tank-mix may cause temporary crop injury. However, yield will not normally be affected. This tank-mix may reduce control of wild oats compared to Liquid Achieve SC Herbicide alone.

††† 2,4-D Ester can be tank mixed at rates up to a maximum of 560 g a.e./ha with this tank-mix combination.

### TANK-MIX COMBINATIONS – STARANE HERBICIDE + 2,4-D ESTER HERBICIDE + REFINE SG HERBICIDE OR REFINE SG TOSS-N-GO HERBICIDE

#### Spring Wheat (excluding durum) and spring barley In The Prairie Provinces and Peace River Region of British Columbia Only.

For control of a wide spectrum of broadleaf weeds, including cleavers, Starane Herbicide may be tank mixed with 2,4-D Ester Herbicide and Refine SG Herbicide or Refine SG Toss-N-Go Herbicide. Apply Starane Herbicide at 0.3 L/ha tank mixed with Refine SG Herbicide or Refine SG Toss-N-Go Herbicide at 30 g/ha, 2,4-D Ester Herbicide at 280 g a.e./ha (equal to 0.5 L/ha of 2,4-D Ester LV 600 or 0.42 L/ha of 2,4-D Ester LV 700) and a non-ionic surfactant (Agral 90, Ag-Surf or Citowett Plus) at 2 L per 1000 L of spray solution. A spray volume of 100 L/ha should be utilized. Apply postemergence when weeds are in the seedling up to 4-leaf/whorls stage, and when spring wheat (excluding durum) and spring barley are in the 4-leaf to flag-leaf stage. **Do not apply to crops underseeded to legumes.**

#### Weeds Controlled or Suppressed

##### Weeds Controlled:

annual smartweed (green smartweed, lady's thumb)	groundsel (common)	shepherd's purse
ball mustard	hemp-nettle	stinkweed
chickweed (1-6 leaf) <sup>1</sup>	kochia <sup>3</sup>	tartary buckwheat
cleavers <sup>2</sup>	lamb <sup>1</sup> -quarters	volunteer rapeseed <sup>4</sup>
corn spurry	narrow-leaved hawk's beard	volunteer sunflower
cow Cockle	redroot pigweed	wild buckwheat <sup>5</sup>
flixweed	Russian thistle	wild mustard

<sup>1</sup> Spray before crop canopy prevents thorough coverage of weeds. Chickweed emerging after application will not be controlled.

<sup>2</sup> Excluding Group 2 resistant cleavers

<sup>3</sup> Excluding Group 2 resistant kochia

<sup>4</sup> The tank-mix will not control imazethapyr tolerant canola varieties (e.g. Clearfield varieties or other varieties with the Pursuit Smart trait)

<sup>5</sup> Apply to actively growing wild buckwheat from the cotyledon to 3-leaf stage. Control may be reduced under environmental stress. Large plants may regrow after treatment

#### **Weeds Suppressed:**

Canada thistle <sup>6</sup>	sow thistle <sup>6</sup>
round leaved mallow (2-6 leaf) <sup>7</sup>	stork's Bill (2-6 leaf)
scentless chamomile	toadflax (to 15 cm) <sup>8</sup>

<sup>6</sup> Apply when most of the thistles have emerged and are actively growing. Apply before bud stage, and before crop canopy prevents thorough coverage of thistles, when thistles are no larger than 15 cm in height for best top growth control. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled.

<sup>7</sup> Apply to actively growing round leaved mallow. Will keep mallow stunted, but may not be able to reduce overall populations.

<sup>8</sup> A control program for this weed includes chemical application and frequent tillage.

#### **Mixing Instructions**

Fill the tank to 1/3 full of clean water. With agitator running, add required amount of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide and continue to agitate for a minimum of 5 minutes to ensure the Refine SG Herbicide or Refine SG Toss-N-Go Herbicide is completely dissolved. After it is fully dissolved add the Starane Herbicide with continuous agitation. Add the 2,4-D Ester herbicide and the rest of the water. Then add adjuvant. Use a spray volume of 100 L/ha. Consult the 2,4-D label for additional application instructions and use precautions.

#### **Preharvest/Grazing Intervals**

- Allow 7 days between application and grazing of lactating dairy animals.
- Do not harvest forage or cut hay within 30 days after application.
- Remove meat animals from treated fields at least 3 days prior to slaughter.
- Do not harvest the treated mature crop within 60 days after application.

#### **TANK-MIX COMBINATION – STARANE HERBICIDE + MCPA LV500 HERBICIDE OR MCPA ESTER 600 HERBICIDE**

For control of a wide spectrum of broadleaved weeds (see following table) apply Starane Herbicide at 0.6 L/ha tank mixed with MCPA LV500 Herbicide at 1.12 L/ha or MCPA Ester 600 Herbicide at 0.93 L/ha. Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat and spring barley are in the 3-leaf to flag-leaf stage. Application before the 3-leaf stage of wheat and barley may cause severe twisting of leaves and stem, and head deformities which may reduce yield up to 10%. Do not apply later than the flag-leaf stage. Do not apply to cereals underseeded with a legume.

#### **Mixing Instructions**

Add the correct amount of Starane Herbicide to spray tank ½ filled with water and agitate. Add the correct amount of MCPA LV500 Herbicide or MCPA Ester 600 Herbicide and continue to agitate.

## Weeds Controlled or Suppressed by Starane Herbicide + MCPA LV500 Herbicide or MCPA Ester 600 Herbicide Tank-Mix

Weeds Controlled:

burdock, common	hempnettle (2-6 leaf)	ragweed, common
canola, volunteer	kochia <sup>†</sup>	shepherd's-purse
cleavers (1-4 whorls)	lamb's-quarters	stinkweed
cocklebur	mustard (except dog & green tansy)	sunflower, annual
flax, volunteer (1-12 cm)	pigweed, redroot (1-4 leaf)	vetch
flixweed	prickly lettuce	wild radish

Weeds Suppressed:

green smartweed	wild buckwheat (1-4 leaf)
stork's-bill (1-8 leaf)	

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

## Pre-Harvest/Grazing Intervals (Starane Herbicide + MCPA LV500 Herbicide or MCPA Ester 600 Herbicide)

- Allow 7 days between application and grazing/cutting for hay.
- Do not harvest the treated mature crop within 60 days after application.

## TANK-MIX COMBINATIONS – STARANE HERBICIDE + MCPA LV500 HERBICIDE or MCPA ESTER 600 HERBICIDE + OTHER HERBICIDES

Tank mixtures of Starane Herbicide + MCPA LV500 Herbicide or MCPA Ester 600 Herbicide with other herbicides will provide control of additional weeds. For products which may be tank mixed with Starane Herbicide + MCPA LV500 Herbicide or MCPA Ester 600 Herbicide and the additional weeds controlled see following table.

### Tank-Mix Combinations with Starane Herbicide (0.6 L/ha) + MCPA LV500 Herbicide (1.12 L/ha) or MCPA Ester 600 Herbicide (0.93 L/ha)

Herbicide Tank-Mix Partner	Crops Registered	Rate/ha	Adjuvant Rate	Additional Weeds
Liquid Achieve SC <sup>†</sup>	spring wheat, durum wheat, spring barley	0.5 L/ha	Turbocharge 0.5 L/ha (0.5% v/v)	green foxtail wild oats

<sup>†</sup>MCPA Ester can be tank mixed at rates up to a maximum of 560 g ae/ha with this tank-mix combination.

## TANK-MIX COMBINATIONS – STARANE HERBICIDE + REFINE SG HERBICIDE OR REFINE SG TOSS-N-GO HERBICIDE

For control of a wide spectrum of broadleaved weeds (see following table) Starane Herbicide can be tank mixed with Refine SG Herbicide or Refine SG Toss-N-Go Herbicide. Apply post-emergence when weeds are actively growing, with best results on seedling weeds that are less than 10 cm in height. Only weeds emerged at the time of treatment will be controlled. Thorough covering of the target weeds is essential. The tank-mix can be applied to actively growing spring wheat, including durum, and spring barley from the 2-leaf crop growth stage up to and including initiation of stem elongation. The tank-mix of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide with Starane Herbicide allows for the control of Group 2 resistant cleavers at 0.4 L/ha and kochia 0.6 L/ha. **Do not apply to crops underseeded to legumes or grasses.**

## Rates of Application

To control the following weeds apply a uniform spray containing 0.4 to 0.8 litres of Starane Herbicide with 30 g/ha of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide and 2 litres per 1000 L spray solution of non-ionic surfactant (Agral 90, Ag-surf or Citowett Plus) with a spray volume of 100 L/ha.

## Weeds Controlled or Suppressed

### Weeds Controlled at 0.4 L/ha of Starane Herbicide and 30 g/ha of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide:

annual smartweed (green smartweed, lady's thumb)	groundsel (common)	shepherd's purse
ball mustard	hemp-nettle	stinkweed
chickweed (1-6 leaf) <sup>1</sup>	kochia <sup>2</sup>	tartary buckwheat
cleavers (1-4 whorls)	lamb's-quarters	volunteer rapeseed <sup>3</sup>
corn spurry	narrow-leaved hawk's beard	volunteer sunflower
cow cockle	redroot pigweed	wild buckwheat <sup>4</sup>
flixweed	Russian thistle	wild mustard

<sup>1</sup> Spray before canopy prevents thorough coverage of weeds. Chickweed emerging after application will not be controlled.

<sup>2</sup> Excluding Group 2 resistant kochia

<sup>3</sup> The tank-mix will not control imazethapyr tolerant canola varieties (e.g. Clearfield varieties or other varieties with the Pursuit Smart trait)

<sup>4</sup> Apply to actively growing wild buckwheat at the cotyledon to 3-leaf stage. Control may be reduced under environmental stress. Large plants may regrow after treatment.

### Weeds suppressed at 0.4 L/ha Starane Herbicide and 30 g/ha of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide:

Canada thistle <sup>5</sup>	sow thistle <sup>5</sup>
round leaved mallow (2-6 leaf) <sup>6</sup>	stork's bill (2-6 leaf stage)
scentless chamomile	toadflax (up to 15 cm) <sup>7</sup>

<sup>5</sup> Apply when most of the thistles have emerged and are actively growing. Apply before bud stage and before crop canopy prevents thorough coverage of thistles, when thistles are no larger than 15 cm in height for best top growth control. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled.

<sup>6</sup> Apply to actively growing round leaved mallow. Will keep mallow stunted, but may not be able to reduce overall populations

<sup>7</sup> A control program for this weed includes chemical application and frequent tillage.

### Additional Weeds Controlled at 0.6 L/ha of Starane Herbicide and 30 g/ha of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide:

kochia (2-8 leaf; including group 2 resistant biotypes)  
volunteer flax (1-12 cm)

### Additional Weeds Controlled and Suppressed at 0.8 L/ha Starane Herbicide and 30 g/ha of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide:

Weeds Controlled	Weeds Suppressed
round leaved mallow (1-6 leaf)	chickweed (up to 8 cm; including group 2 resistant biotypes)

## Mixing Instructions

Fill the tank to 1/3 full of clean water, and with the agitator running, add the required amount of Refine SG Herbicide or Refine SG Toss-N-Go Herbicide and continue to agitate for a minimum of 5 minutes to ensure that Refine SG Herbicide or Refine SG Toss-N-Go Herbicide is completely dissolved. Add the required amount of Starane Herbicide at a reduced agitation. Add the rest of the water and then add adjuvant. Use a spray volume of 100 L/ha.

## Pre-Harvest/Grazing Intervals

- Livestock may not be grazed or fed crops within 7 days of application
- Do not harvest the treated crop within 60 days of application

**NOTE TO USER:** READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Corteva Agriscience Canada Company under the User Requested Minor Use Label Expansion program. For these uses, Corteva Agriscience Canada Company has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

#### **DIRECTIONS FOR USE**

**SEEDLING AND ESTABLISHED TALL FESCUE GROWN FOR SEED:** Make one application per year, as a ground application only, for control of labelled weeds. Apply from the 4 leaf stage to flag leaf stage in a minimum of 100 L water/ha. Do not harvest for forage or do not cut hay for forage.

**Application rates (Apply as a tank-mix only):** Starane Herbicide: 0.6 L/ha; 2,4-D Ester Herbicide: 560 g a.e./ha

#### **CONTROL OF LABELLED WEEDS IN SEEDLING AND ESTABLISHED FORAGE GRASSES GROWN FOR SEED IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY:**

Creeping Red Fescue  
Intermediate Wheat Grass  
Crested Wheat Grass  
Meadow Brome Grass  
Smooth Brome Grass  
Timothy

Apply one application per year in a spray volume of 100-200 L/ha to control labelled weeds in seedling (4 leaf to flag leaf) or established forage grasses. Application should be made postemergence when weeds are in the 2-4 leaf stage. Apply in a broadcast spray using a hydraulic boom ground sprayer.

**Application rates (Apply as a tank-mix only):** Starane Herbicide: 0.6 L/ha; 2,4-D Ester Herbicide: 560 g a.e./ha

- Do not harvest for forage or do not cut hay for forage.
- Do not harvest treated crop within 60 days after application.

Refer to the main Starane Herbicide label for additional details and instructions, including preharvest intervals, before using.

**READ THE ROTATIONAL CROPPING RESTRICTIONS ON THE FULL LABELS BEFORE USING THIS PRODUCT.**

## SPRAY BUFFER ZONES

A spray buffer zone is NOT required for:

- uses with hand-held application equipment permitted on this label,

The spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Spray Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley, oats, seedling and established forage grasses for seed	1	0	1	1	1

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

The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

## RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Starane Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Starane Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Starane Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Corteva Agriscience Canada Company at 1-800-667-3852 or at [www.corteva.ca](http://www.corteva.ca).

**NOTICE TO USER:** This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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