



Steadfast™ IS Herbicide

GROUP	2	HERBICIDE
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WETTABLE GRANULES

REGISTRATION NUMBER 33369 PEST CONTROL PRODUCTS ACT

FOR SALE FOR USE ON FIELD CORN

AGRICULTURAL

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

ACTIVE INGREDIENT: Rimsulfuron 12.5%
Nicosulfuron 25.2%

Warning, contains the allergens milk and sulfites

NET CONTENTS: 40 grams – 1000 kg

Corteva Agriscience Canada Company

2450, 215 – 2nd Street S.W.

Calgary, Alberta

T2P 1M4

1-800-667-3852

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PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

- Do not contaminate any body of water.
- **DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT.**
- Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed-cab. Wash the outside of the gloves before removing. Wash splashes from skin and eyes **IMMEDIATELY** with plenty of water. Avoid working in spray mist. Avoid all drift or contact with other vegetation. After spraying, wash hands and shower thoroughly with soap and water.
- While using product, do not eat, drink or smoke. Wash hands and exposed skin with soap and water thoroughly before eating, drinking, smoking, applying cosmetics or using the toilet.
- Keep product away from food, drink and animal feed. Store product in original container, tightly closed and in a safe place.
- **DO NOT** use or store product near heat or open flame. **DO NOT** apply beyond the field boundary.
- Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours after application.

IMPORTANT

Injury to or loss of desirable trees or vegetation may result from failure to observe the following: Do not apply or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to desirable plants. Do not contaminate any body of water, including irrigation water. Keep from contact with fertilizers, insecticides, fungicides and seeds.

DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT.

Do not handle pesticides with bare hands. Chemical-resistant gloves significantly reduce hand exposure. If ventilation is not adequate, it is recommended to wear a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides.

Carefully observe sprayer clean-up instructions, as spray tank residue may damage crops other than corn.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. 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 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.

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

ENVIRONMENTAL PRECAUTIONS

- Toxic to aquatic organisms and to non-target terrestrial plants. Observe 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 strip between the treated area and the edge of the water body.
- This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of Steadfast™ IS Herbicide in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

GENERAL INFORMATION

Steadfast IS Herbicide is a wettable granule formulation to be mixed in water and applied post emergence in field corn for control of broadleaf and grass weeds. Steadfast IS Herbicide has knockdown and soil residual activity and provides selective control of volunteer canola (including glyphosate tolerant varieties), lamb's-quarters, green foxtail, volunteer wheat and wild oats. Steadfast IS Herbicide should be applied at a rate of 40-66.5 g/ha. When applied postemergence, Steadfast IS Herbicide is absorbed through the leaves and is rapidly translocated to the plant's growing points.

Steadfast IS Herbicide is non-corrosive, non-flammable, non-volatile, and does not freeze. Steadfast IS Herbicide rapidly stops growth of susceptible species; typical symptoms usually appear within 5-7 days, but may not be noticeable for 2-3 weeks after application, depending on growing conditions and weed susceptibility. Warm, moist conditions following application promote the activity of Steadfast IS Herbicide, while cool and/or dry conditions may reduce or delay activity. Weeds hardened off by cold weather or drought stress may not be controlled. Weed control may be reduced if the corn canopy has closed in over the weeds, intercepting the spray.

DIRECTIONS FOR USE

- Make only one application per year to a maximum rate of 66.5 g/ha per season
- Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours after application.
- Apply only when the potential for drift to areas of human habitation or areas of human activity (houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- 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.
- When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

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) medium classification. Boom height must be 60 cm or less above the crop or ground.
- **DO NOT** apply using aerial application equipment.

BUFFER ZONES

The 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, rangelands, 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	Buffer Zones (metres) Required for the Protection of:		
	Terrestrial Habitat	Aquatic habitats of water depths:	
		< 1 m	> 1 m
Field sprayer	5	1	1

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) 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 buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY

- A rapid fluctuation in temperature (greater than 20°C difference within 24-36 hours) will stress the corn crop. For maximum crop safety, allow 24 hours for the corn to acclimatize before spraying. Steadfast IS Herbicide as a postemergence application on emerged corn.
- For Steadfast IS Herbicide applied postemergence used alone or in a tank mix, apply ONLY when the temperature in the 24 hours before AND after application ranges between 5°C and 30°C. Temperatures beyond this range increase the potential for crop injury.
- **WARNING:** Crop injury including bleaching may result if application is made to corn that has been stressed by abnormally hot, humid or cold weather conditions, frost, low fertility, drought, water saturated soil, compacted soil, previous pesticide applications, disease or insect damage. If corn has been injured by frost, wait 48-72 hours before applying Steadfast IS Herbicide.
- When tank mixing Steadfast IS Herbicide with another herbicide, always read the other herbicide label before using and follow all precautions.
- Steadfast IS Herbicide rapidly stops growth of susceptible species; typical symptoms usually appear within 5-7 days, but may not be noticeable for 2-3 weeks after application, depending on growing conditions and weed susceptibility.
- Warm, moist conditions following application promote the activity of Steadfast IS Herbicide, while cool and/or dry conditions may reduce or delay activity. Weeds hardened off by cold weather or drought stress may not be controlled.
- Soil residual activity requires rainfall for activation of the herbicide in the top 5-10 cm of the soil profile. Rainfall must occur before weed germination. Weeds which germinate and emerge before activation by rainfall will not be controlled.

SPRAY ADJUVANTS

For postemergence applications, Steadfast IS Herbicide must be tank-mixed with a recommended non-ionic surfactant, either Citowett Plus, Agral 90 or Ag-Surf at 2 L per 1000 L spray solution (0.2% v/v). When Steadfast IS Herbicide is tank-mixed with a glyphosate herbicide, a non-ionic surfactant is not required.

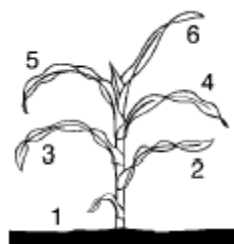
POST-EMERGENT APPLICATION – WESTERN CANADA

Apply Steadfast IS at 40 – 66.5 grams/ha as a broadcast spray, with a recommended surfactant to corn and weeds according to the following chart. Use higher rates for dense weed populations or late weed growth stages for more consistent control.

POST-EMERGENT TIMING

CROP OR WEED	LEAF STAGING AT APPLICATION
Field Corn	Spike-6 leaves (4 visible collars) See diagram below.
Green Foxtail	1-4 leaves (up to early tillering)
Volunteer Canola	Cotyledon – 5 leaves
Wild oats	1-4 leaves (up to early tillering)
Volunteer Wheat	1-3 leaves (up to early tillering)

CORN LEAF STAGING



POST-EMERGENT APPLICATION – EASTERN CANADA

Apply Steadfast IS at 40 – 66.5 grams/ha as a broadcast spray, with a recommended surfactant to corn and weeds according to the following chart. Use higher rates for dense weed populations or late weed growth stages for more consistent control.

POST-EMERGENT TIMING

CROP OR WEED	LEAF STAGING AT APPLICATION
Corn	Spike-8 leaves (6 visible collars) See diagram below.
Green Foxtail	1-4 leaves (up to early tillering)
Volunteer Canola	Cotyledon – 5 leaves
Wild oats	1-4 leaves (up to early tillering)
Volunteer Wheat	1-3 leaves (up to early tillering)

CORN LEAF STAGING



GLYPHOSATE TOLERANT CORN

Steadfast IS Herbicide can be tank-mixed with glyphosate at 900 g ai/ha. When tank-mixed with glyphosate, the addition of a non-ionic surfactant is not required.

CONVENTIONAL CORN

Steadfast IS Herbicide must be tank-mixed with a non-ionic surfactant at 2L/1000L (0.2% v/v).

MIXING INSTRUCTIONS

1. Fill clean tank about 1/3 full with fresh water.
2. Turn on full agitation.
3. With the agitator running, add the required amount of Steadfast IS Herbicide. Continue to agitate for a minimum of 5 minutes to ensure that Steadfast IS Herbicide is **completely** dispersed.
4. Once granules are dispersed continue to fill the tank to 2/3 to 3/4 full, then add the required amount of the tank mix partner.
5. After Steadfast IS Herbicide has been well mixed and is in suspension, add a recommended non-ionic surfactant such as Citowett Plus, Agral 90, or Ag-Surf at 2 L per 1000 L spray solution (0.2 % v/v), unless tank-mixing with glyphosate, then no adjuvant is required.
6. Fill the remainder of the spray tank.
7. For repeat tank loads, reduce the material remaining in the tank to 10% of the original volume **or less** before proceeding with step 1, because remaining chemicals may prevent Steadfast IS Herbicide granules from completely dissolving. If this is not possible, pre-slurry Steadfast IS Herbicide in a small amount (5-10 L) of water before adding to the tank.

Agitation is required for uniform mixing and application. The optimum water volume for Steadfast IS Herbicide application is 140 - 200 litres of water per hectare (minimum of 100 litres of water per hectare). Use a spray pressure of 175 - 275 kPa. Flat fan nozzles are recommended. Use 50 mesh filter screens or larger. Use spray preparation of Steadfast IS Herbicide within 24 hours or product degradation may occur resulting in a loss of weed control. Use vigorous agitation to thoroughly disperse spray mixtures that have been allowed to stand in the tank.

NOTE: Steadfast IS Herbicide will degrade in acidic or highly alkaline water. Mix no more than can be used in one day. If spraying is interrupted, thoroughly re-agitate the spray mixture before resuming spraying.

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Corteva Agriscience Canada Company at 1-800-667-3852 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Corteva Agriscience Canada Company.

SPRAYER CLEANUP

To avoid subsequent injury to desirable crops, thoroughly clean all mixing and spray equipment immediately following applications of Steadfast IS Herbicide as follows:

1. Drain tank and flush tank, boom and hoses with clean water. If boom is equipped with multiple nozzle bodies, be sure to rotate through all nozzles to ensure clean water reaches all parts of these assemblies.
2. Visually inspect tank to ensure removal of all visible herbicide residues. If necessary, repeat Step 1.
3. Fill the tank with clean water, and then add 1 litre household AMMONIA (containing minimum of 3% ammonia) or equivalent amount of a sprayer tank cleaner containing ammonia, per 100 litres of water. Ammonia will not neutralize the herbicide, but helps dissolve dried – on herbicide deposits. If an emulsifiable concentrate has been tank mixed with Steadfast IS Herbicide, use of a wetting agent in the cleaning process will assist in removing oily residue that may trap Steadfast IS Herbicide on the tank and hoses.
4. Flush solution through boom and hoses, and then add more water to completely fill tank. Allow to sit for 15 minutes with agitation.

5. Drain the tank.
6. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
7. Thoroughly rinse the tank with clean water for a minimum of 5 minutes, flushing water through the hoses and boom.
8. Prior to using the sprayer for the next application, flush the tank, boom, and hoses for 5 minutes with fresh water.

CAUTION: DO NOT mix ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty chlorine odour which may cause eye, nose, throat and lung irritation. DO NOT clean equipment in an enclosed area. DO NOT clean the sprayer near desirable vegetation, wells or other water sources.

USE OF INSECTICIDES

For maximum crop safety, Steadfast IS Herbicide should be applied only to corn which has NOT been treated with a highly systemic organophosphorus soil insecticide, such as Lorsban.

DO NOT tank mix Steadfast IS Herbicide with any organophosphorus insecticide. DO NOT apply a foliar organophosphorus insecticide within 7 days before or after applying Steadfast IS Herbicide.

REPLANTING TO OTHER CROPS

Steadfast IS Herbicide is degraded by natural soil processes however, certain crops have been shown to be sensitive to low residues of Steadfast IS Herbicide. Field tests have shown that the following crops may safely be planted at the prescribed interval following corn that has been treated with Steadfast IS Herbicide.

CROP	REPLANTING INTERVAL
Winter Wheat	4 months
Spring wheat (including durum), Oats, Barley, Canola, Soybeans, Dry Beans†, white beans, Chickpeas, Potatoes, Sunflowers, Corn (sweet or seed), Field Peas, Lentils, Flax,	10 months
Field Corn	Anytime

† Dry bean varieties may vary in their tolerance to herbicides, including to Steadfast IS Herbicide. Since not all dry bean varieties as rotational crops have been tested for tolerance to Steadfast IS Herbicide, first planting of each variety to field previously treated with Steadfast IS Herbicide should be limited to a small area to confirm the tolerance prior to adoption as a general field practice. Additionally, consult your seed supplier for information on the tolerance of specific varieties of dry common beans to Steadfast IS Herbicide.

For other crops, a field bioassay is recommended before planting. A successful field bioassay means growing to maturity a test strip of the crop(s) intended for production the following year.

FIELD BIOASSAY

Select a representative area or areas of the field previously treated with Steadfast IS Herbicide to plant your bioassay crop(s). Be sure to consider factors such as size of field, soil texture, drainage and turn-around areas when selecting the site(s) that are most representative of the soil conditions in the field. On large fields, more than one site may be needed in order to obtain reliable results.

Plant the test strips perpendicular to the direction in which the field was sprayed. The strips should be long enough to cross the width of several spray swaths. Large test strip areas are more reliable than small ones.

Use standard tillage and seeding equipment to plant the bioassay. Prepare a seed bed and plant the crops and varieties you want the option of growing the following year. It is important to use the same planting time, conditions, techniques and cultural practices you normally use to plant and grow the bioassay crop(s). Also plant into an adjacent area not treated with Steadfast IS Herbicide to use as a comparison.

As the crop(s) emerges and grows, examine these key points in Steadfast IS Herbicide treated and non-treated areas:

crop stand	root development	rate of growth
plant colour and vigour	Yield	

Allow the bioassay crop(s) to grow to maturity while making your observations. Do not overspray the test strips with herbicides that may damage the bioassay crop(s). If the bioassay indicates that Steadfast IS Herbicide residues are still present, continue cropping only to those crops listed on the label and do not rotate to other crops until bioassay results indicate that susceptible crops are growing normally.

USE PRECAUTIONS

Do not apply Steadfast IS Herbicide during periods of intense rainfall or to soils saturated with water. Do not apply directly to standing or running water. Do not apply in areas where surface water from the treatment site can run off to adjacent cropland, either planted or to be planted, or into streams, irrigation water or wells. Applications should only be made when there is no hazard of spray drift contaminating non-target land areas since very small quantities of the Steadfast IS Herbicide spray solution may severely injure susceptible crops during both growing and dormant periods.

As with any herbicide, overlaps or starting, stopping, slowing and turning while spraying may result in crop injury.

Crop injury may result if application is made to corn that has been stressed by abnormally hot, humid or cold weather conditions, frost, low fertility, drought, water saturated soil, compacted soil, previous pesticide applications, disease or insect damage. Temporary crop injury may occur. The symptoms are most visible where excessive rates have been applied, such as sprayer overlaps. Corn quickly outgrows these effects and continues to grow normally.

Do not apply to soils that contain less than 1% or more than 10% organic matter.

Under extreme weather conditions, such as hot, dry weather, excessive moisture, or frost, weed control may be reduced. Optimum control of emerged weeds will be obtained when weeds are actively growing.

Dry conditions following application may reduce the soil residual activity of Steadfast IS Herbicide. If an activating rainfall is not received before germination of susceptible weeds, weed control will be reduced.

Severe injury and crop yield loss may occur if Steadfast IS Herbicide is applied to crops that are treated with Lorsban.

Do not cultivate corn within 7 days before or after a postemergence application of Steadfast IS Herbicide.

Rainfall within 2 to 4 hours after postemergence applications of Steadfast IS Herbicide may reduce postemergence weed control activity.

Steadfast IS Herbicide must not be applied within 30 days of harvest.

Make only one application of Steadfast IS Herbicide per year.

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.

Do not apply Steadfast IS Herbicide within 30 days of corn harvest (silage, fodder or grain).

Do not graze or feed treated corn forage, silage, fodder or grain for at least 30 days after an application of Steadfast IS Herbicide.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Steadfast IS Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to Steadfast IS Herbicide and other Group 2. 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 Steadfast IS Herbicide or other Group 2 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 treated 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 your local Corteva Agriscience Canada Company representative or Corteva Agriscience at 1-800-667-3852.

STORAGE

To prevent contamination store this product away from food or feed. Not for use or storage in or around the home. Keep container closed. Keep product container away from moisture.

DISPOSAL

Disposal of Container

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.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For returnable containers: DO NOT reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For 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 reused this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial 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. The user assumes the risk to persons or property that arises from any such use of this product.

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Label Code: CN-33369-002-E

Replaces: CN-33369-001-E

Specimen Label Notes

Update LE from Production Agriscience Canada Company to Corteva