



## Diligent™ Herbicide

GROUP	2, 14	HERBICIDE
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**FOR SALE FOR USE ON SOYBEANS IN EASTERN CANADA ONLY**

COMMERCIAL

READ THE LABEL AND THIS BOOKLET BEFORE USING

**ACTIVE INGREDIENTS:** Chlorimuron-ethyl 5.14%  
Flumioxazin 40.59%

Wettable granules

Warning, contains the allergen sulfites.



**CAUTION**

**POISON**

REGISTRATION NO. 31494 PEST CONTROL PRODUCTS ACT

**NET CONTENTS:** 176 g - bulk

**Corteva Agriscience Canada Company**

Suite 240, 115 Quarry Park Rd. SE

Calgary, AB

T2C 5G9

1-800-667-3852

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## **PRECAUTIONS**

### **KEEP OUT OF REACH OF CHILDREN**

Avoid breathing spray mist.

Avoid contact with skin, eyes and clothing.

Keep the container or bag away from water.

Do not contaminate any body of water.

Harmful if inhaled.

## **FIRST AID**

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

**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.

**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 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 INHALED:** Move the person to fresh air. If the 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.

## **IMPORTANT**

Injury to or loss of desirable trees or vegetation may result from failure to observe the following:

Do not apply, 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 that may be used on other crops. Carefully observe sprayer clean-up instructions, as spray tank residue may damage crops other than soybeans.

DO NOT apply by air.

Do not eat, drink, or smoke during work. Wash hands and face thoroughly before eating, drinking, smoking, chewing gum, or using the toilet.

Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes. Remove clothing immediately if pesticide gets inside. Wash thoroughly and put on clean clothing. After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse.

Follow mixer/loader and applicator scenario, as appropriate in the chart below. In addition, wear coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks and shoes, goggles or faceshield, during clean-up and repair activities. Gloves are not required during application within a closed cab.

Equipment	Personal Protective Equipment		Maximum amount of product handled per day (kg)
	Mixer/Loader	Applicator	
Groundboom	Chemical-resistant coveralls and chemical-resistant gloves, socks and shoes, and goggles or faceshield	Open cab, coveralls over long-sleeved shirt, long pants, socks and shoes, and chemical-resistant gloves, and respirator with a NIOSH/MSHA/BHSE approved organic vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH/MSHA/BHSE approved canister approved for pesticides	55 kg
		Closed cab, long-sleeved shirt, long pants, socks, and shoes. (No gloves are required, but must be present in the cab for maintenance)	

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

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

Do not apply to fine-textured soils.

Do not graze treated fields or feed treated forage or hay to livestock.

Do not apply within 100 metres of non-dormant pears.

Do not apply to powdery soils or soils that are susceptible to wind displacement unless irrigation can be applied immediately after application.

**TOXICOLOGICAL INFORMATION:** Treat symptomatically

#### ENVIRONMENTAL PRECAUTIONS

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

**TOXIC** to freshwater plants and algae. Observe spray buffer zones specified under DIRECTIONS FOR USE.

**TOXIC** to small wild mammals.

**TOXIC to certain beneficial arthropods (which may include predatory and parasitic insects, spiders, and mites).** Minimize spray drift to reduce harmful effects on beneficial arthropods in habitats next to the application site such as hedgerows and woodland.

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.

#### GENERAL INFORMATION

Diligent Herbicide is a pre-plant or post-plant pre-emergence soybean herbicide that will control or suppress select grassy and broadleaf weeds. Diligent Herbicide must be applied pre-emergent to the main flush of actively growing weeds. When tank-mixed with a glyphosate herbicide as part of a pre-plant or post-plant burndown, emerged weeds will also be controlled. Diligent Herbicide may only be applied

using ground equipment. For best results, ensure thorough spray coverage of target weeds if present at the time of application.

Degree of control and duration of effect depend on weed sensitivity, weed size, growing conditions and spray coverage.

### **DIRECTIONS FOR USE**

Diligent Herbicide offers residual control of susceptible broadleaf and grass weeds listed on this label and assists in the control of acetolactate synthase (ALS) resistant weeds. The length of residual control is dependent on rainfall and temperature conditions. Length of residual control will decrease as temperature and precipitation increase and on soils of high organic matter and/or high clay content.

Crop injury may occur from applications made to poorly drained soil and/or applications made under cool, wet conditions. Severe crop injury will result when soils are flooded following applications of Diligent Herbicide. Risk of crop injury can be minimized by using on well drained soils, planting at least 4 cm deep, using high quality seed, and completely covering seeds with soil prior to pre-emergence applications. Treated soil that is splashed onto newly emerged crops may result in temporary crop injury.

Moisture is necessary to activate Diligent Herbicide in soil for residual weed control. Dry weather following applications of Diligent Herbicide may reduce effectiveness. However, when adequate moisture is received after dry conditions, Diligent Herbicide will control susceptible germinating weeds. Diligent Herbicide may not control weeds that germinate after application but before an activating rainfall/irrigation or weeds that germinate through cracks resulting from dry soil.

No-till planters that incorporate the soil during planting may result in decreased weed control in the row. When these types of planters are used, apply Diligent Herbicide within 3 days after planting and before soybeans emerge.

Do not perform any tillage operations after application or weed control will be reduced. Apply only once during a single growing season.

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.

### **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.

### **RATES AND TIMING**

Diligent Herbicide may be applied to soybeans prior to planting or within 3 days after planting and prior to soybean emergence. Application after the soybeans have begun to crack, or are emerged, will result in severe crop injury.

Diligent Herbicide provides pre-emergence control of susceptible weeds in soybeans. Apply Diligent Herbicide with ground equipment before planting, during planting, or after planting, but before the crop emerges. Do not apply by air. Apply using ground application equipment only.

#### **DILIGENT HERBICIDE APPLIED ALONE**

Diligent Herbicide can be applied pre-plant or post-plant pre-emergence to soybeans. Diligent Herbicide must be applied pre-emergent to the main flush of actively growing weeds.

Apply 176 g/ha of Diligent Herbicide prior to the emergence of weeds. Do not apply to fine-textured soils.

#### **WEEDS CONTROLLED BY DILIGENT HERBICIDE ALONE**

<b>WEEDS</b>
Canada fleabane
Common chickweed
Common ragweed
Dandelion *
Eastern black nightshade
Fall panicum **
Green foxtail **
Green pigweed
Hairy nightshade
Lamb's-quarters
Redroot pigweed
Palmer amaranth
Waterhemp including biotypes resistant to herbicide group 2, 5 and 9

\* Early-season control only on medium-textured soils.

\*\*Suppression only. Weed suppression is a visual reduction in weed competition (reduced population or vigour) as compared to an untreated area. Degree of suppression will vary with environmental conditions prior to and following treatment.

#### **DILIGENT HERBICIDE PLUS GLYPHOSATE**

If weeds are present at the time of application, tank mix Diligent Herbicide with a glyphosate herbicide for the burndown of emerged weeds. Apply the tank mix pre-plant or post-plant pre-emergence to soybeans, in conventional or glyphosate tolerant varieties.

Apply 176 g/ha of Diligent Herbicide, plus a glyphosate herbicide (present as the potassium, isopropylamine, or di-ammonium salt) at 900 g ae/ha, (e.g., 2.5 L/ha for herbicides containing 360 g ae/L glyphosate or 1.67 L/ha for herbicides containing 540 g ae/L glyphosate).

#### **WEEDS CONTROLLED BY DILIGENT HERBICIDE PLUS GLYPHOSATE**

Diligent Herbicide plus a glyphosate herbicide will control emerged weeds, including annual sowthistle, velvetleaf, and yellow nutsedge, as well as provide residual control or suppression of all weeds listed for Diligent Herbicide applied alone.

#### **MIXING INSTRUCTIONS**

1. Fill clean tank about 1/4 full with fresh water.
2. Turn on full agitation.
3. Add the proper amount of Diligent Herbicide to the water in the spray tank with the agitator running. Continuous agitation is required to keep the product in suspension.
4. After Diligent Herbicide has been well mixed and is in suspension, add the glyphosate tank mix partner.
5. Fill the remainder of the spray tank with clean water.

On repeat tank loads, ensure that the amount of spray solution left in the tank from the previous load is less than 10% of the volume about to be mixed.

Agitation is required for uniform mixing and application. The optimum water volume for Diligent Herbicide application is 140-190 litres of water per hectare (minimum of 100 litres of water per hectare). For the tank-mix of Diligent Herbicide with glyphosate, the recommended water volume is 100-120 litres per hectare. Flat fan nozzles are recommended. Use 50 mesh filter screens or larger. Use spray preparation of Diligent 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: Diligent 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.

Do not mix or load where there is potential to contaminate wells or aquatic systems.

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) medium classification. Boom height must be 60 cm or less above the crop or ground.

### 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) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop	Spray Buffer Zones (metres) Required for the Protection of:		
		Freshwater Habitat of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	
Field Sprayer	Soybean	1	1	20

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.

### SPRAYER CLEANUP

To avoid subsequent injury to crops other than soybeans immediately after spraying and prior to spraying other crops, thoroughly remove all traces of Diligent Herbicide from mixing and spray equipment as follows:

1. Drain tank; then flush tank, boom, and hoses with clean water for a minimum of ten minutes. Visually inspect tank to assure removal of all visible residues of Diligent Herbicide. If necessary, repeat step 1. **DO NOT CLEAN SPRAY EQUIPMENT NEAR WELLS, AQUATIC SYSTEMS, OR OTHER WATER SOURCES, OR NEAR DESIRABLE VEGETATION.**

2. Fill tank with clean water while adding 1 litre household ammonia (containing a minimum 3% ammonia) per 100 litres of water. Flush solution through boom and hoses, and then add more water to completely fill tank. Allow to sit for 15 minutes with agitation. Again, flush the hoses, boom and nozzles with the cleaning solution and drain tank.
3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
4. Repeat Step 2.
5. Thoroughly rinse the tank with clean water for a minimum of 5 minutes, flushing water through the hoses and boom.

### REPLANTING TO OTHER CROPS

Diligent Herbicide is degraded by natural soil processes, and field tests have shown that the following crops may safely be planted at the prescribed interval following soybeans that have been treated with Diligent Herbicide. The recropping intervals are dependent on the pH of the soil, as well as the sensitivity of the specific rotational crop.

#### Replanting Interval (Months)

Soil pH	Winter Wheat	Field Corn, Soybeans	Alfalfa
≤7.0	4	10	11
>7.0≤7.4	4	10	11
>7.4≤7.8	4	10	Do Not Plant
>7.8≤8.0	4	Do Not Plant	

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 Diligent 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 Diligent Herbicide to use as a comparison.

As the crop(s) emerges and grows, examine these key points in Diligent 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 Diligent 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 Diligent 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 bodies of water (such as streams, ponds, rivers, lakes, and irrigation water), wetlands, 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 Diligent Herbicide spray solution may severely injure susceptible crops and other sensitive terrestrial habitats during both growing and dormant periods.

Under extreme weather conditions, such as hot, dry weather, excessive moisture, or frost, weed control may be reduced.

Rainfall within 4 hours after application of Diligent Herbicide may reduce weed control.

Diligent Herbicide must not be applied within 60 days of harvest.

Make only one application of Diligent Herbicide per season.

Do not graze the treated crop or cut for hay; sufficient data is not available to support such use.

Do not apply Diligent Herbicide to soybean grown on soil of pH  $\geq$  8.0 due to risk of rotational crop injury.

## **RESISTANCE-MANAGEMENT RECOMMENDATIONS**

For resistance management, please note that Diligent Herbicide is both a Group 2 and Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to Group 2 and/ or Group 14 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 Diligent Herbicide or other Group 2 and/or Group 14 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 your local Corteva Agriscience Canada Company representative or the Corteva Agriscience Canada Company hotline at 1-800-667-3852.



## **STORAGE AND DISPOSAL**

### **STORAGE**

Store this product away from food or feed. Store product in original container in a secure, dry area away from food or feed. Not for use or storage in or around the home. Keep container tightly closed.

### **DISPOSAL**

#### **For 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.

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 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 this 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-31494-005-E

Replaces: CN-31494-004-E

Specimen Label Notes:

Updated tank mix general statement and address