

GROUPS	27	9	HERBICIDES
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CALLISTO® GT Herbicide

COMMERCIAL (AGRICULTURAL)

SUSPENSION

A herbicide for post emergent weed control in glyphosate tolerant corn.

FOR SALE AND USE IN EASTERN CANADA ONLY

ACTIVE INGREDIENTS:

Mesotrione 45.5 g/L
Glyphosate (present as potassium salt) 455 g/L

Contains 1,2-benzisothiazolin-3-one at 0.01% OR 5-chloro-2-methyl-4-isothiazolin-3-one at 0.0004%, 2-methyl-4-isothiazolin-3-one at 0.0001% and 2-bromo-2-nitropropane-1,3-diol at 0.008% as preservatives.

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

REGISTRATION NO.: **31711**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to bulk**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

label

1.0 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.

2.0 FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. 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. 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 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.

3.0 TOXICOLOGICAL INFORMATION

Treat symptomatically if ingested or in contact with eyes or skin.

4.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN AND ANIMALS. Keep unused product in original container tightly closed, locked up and away from food.

When applied as a tank-mix combination, read and observe all label directions, including rates, and restrictions for each product used in the tank-mix. Follow the most stringent label precautionary measures for mixing, loading, applying, and post-application re-entry stated on tank-mix product labels.

DO NOT use or store product near heat or open flame. **DO NOT** apply beyond the field boundary.

RESTRICTED ENTRY INTERVAL (REI): DO NOT enter or allow worker entry 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 such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

5.0 PERSONAL PROTECTIVE EQUIPMENT

When handling the concentrate, wear a long sleeve shirt and long pants, chemical-resistant gloves and eye protection. Wash the outside of the gloves before removing. Wash splashes from skin and eyes IMMEDIATELY with plenty of water.

While spraying, wear a long sleeve shirt and long pants. Wear chemical-resistant gloves if contact with spray nozzles is necessary.

Avoid working in spray mist. Avoid all drift or contact with other vegetation. After spraying, wash hands and shower thoroughly with soap and water.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY.

Launder contaminated clothing prior to reuse and separate from household laundry. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Store and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

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.

6.0 ENVIRONMENTAL PRECAUTIONS

TOXIC to small wild mammals, 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.

7.0 STORAGE

Keep product away from food, drink and animal feed. Store product in original container, tightly closed and in a safe place.

Always store product in original container with top closed in a cool, dry place. Avoid contamination of seed, feed and foodstuffs. CALLISTO® GT Herbicide can be stored in freezing conditions. If frozen, allow to thaw and agitate thoroughly prior to use.

8.0 DISPOSAL

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.

Recyclable 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.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

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PAMPHLET

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9.0 PRODUCT INFORMATION

CALLISTO GT Herbicide is a suspension concentrate containing the soil residual activity of mesotrione and the contact activity of glyphosate for use in glyphosate tolerant corn. Following a post-emergent application of CALLISTO GT Herbicide, emerged weeds take up the herbicide through treated foliage and cease growth soon after application. CALLISTO GT Herbicide is also absorbed through the soil and/or by the foliage of emerging weeds. Complete death of the weeds may take up to 2 weeks. CALLISTO GT Herbicide has a high level of crop safety in glyphosate tolerant corn.

9.1. Use Precautions

CALLISTO GT Herbicide can only be used postemergent on Glyphosate Tolerant corn.

Although CALLISTO GT Herbicide has a flexible recropping profile, certain crops may be sensitive to low concentrations in the soil. Therefore, careful consideration should be given to crop rotation plans prior to using CALLISTO GT Herbicide (refer to "RECROPPING GUIDELINES").

Do not apply when weather conditions may cause drift to non-target areas. Severe damage or destruction may be caused by contact of CALLISTO GT Herbicide to any vegetation (including leaves, green stems, exposed non-woody roots, or fruit) or crops, trees, and other desirable plants to which treatment is not intended. To avoid spray drift, do not apply when wind speed is greater than 16 kph or during periods of temperature inversions. Use of larger droplet sizes will also reduce spray drift.

When weeds are stressed due to drought, heat, lack of fertility, flooding or prolonged cool temperatures, control can be reduced or delayed since the weeds are not actively growing. Weed escapes or re-growth may occur when application is made under prolonged stress conditions. Optimum weed control will be obtained if an application of CALLISTO GT Herbicide is made following label directions when weeds are actively growing. If an activating rain (12 mm) is not received within 7-10 days after a postemergent application, residual weed control will be reduced.

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

Thorough coverage of emerged weeds is essential for effective control with CALLISTO GT Herbicide. Although weed competition is quickly halted, visual symptoms of dying weeds (discolouration) may take up to 2 weeks to appear depending on the weed species and growing conditions.

Temporary crop injury (bleaching) may occur under extreme weather conditions or when the crop is under stress due to inadequate or abnormally high moisture levels or extreme temperatures. 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 make a foliar postemergent application of any organophosphate or carbamate insecticide within 7 days before or 7 days after a CALLISTO GT Herbicide application or severe injury may occur to corn. Syngenta Canada Inc. will not be held responsible for losses or damage resulting from such use.

Severe corn injury and crop yield loss may occur if CALLISTO GT Herbicide is applied to corn crops that are treated with Lorsban™.

CALLISTO GT Herbicide may be applied prior to or following a pyrethroid-type insecticide such as FORCE® Insecticide or MATADOR® 120EC Insecticide.

Do not cultivate corn within 7 days before or after a CALLISTO GT Herbicide application.

Make only one application of CALLISTO GT Herbicide per year.

10.0 DIRECTIONS FOR USE

10.1. General Information

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.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

The use of urea ammonium nitrate (UAN) will result in crop injury and reduced grass weed control and is not recommended with CALLISTO GT Herbicide.

DO NOT apply using aerial application equipment.

10.2. Ground Application

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 and Biological Engineers (ASABE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

It is important to check the physical compatibility of tank mixed pesticide products in a small volume prior to filling the sprayer. Check the compatibility of tank mixes containing CALLISTO GT Herbicide using a jar test with proportionate amounts of mix partners, and water, before mixing in the spray tank.

10.2.1. Mixing Instructions

1. Ensure that the sprayer interior is clean, then fill the spray tank with $\frac{1}{2}$ the required amount of water and engage agitation. Good agitation is indicated by a rippling or rolling action on the surface of the water.
2. Add any WG or DF formulation mix partners and agitate to ensure complete mixing.
3. Add CALLISTO GT Herbicide and agitate to ensure complete mixing.
4. Add any SE or SC formulation mix partners and agitate to ensure complete mixing.
5. Add any EC formulation mix partners and agitate to ensure complete mixing.
6. Fill the tank to $\frac{3}{4}$ the required amount of water.
7. Add any solution (SN or SL) formulation mix partners and agitate to ensure complete mixing.
8. Add non-ionic surfactant (NIS). For example, AGRAL[®] 90 at 0.2% v/v.
9. Finish filling the sprayer with water, maintaining good agitation.
10. After any break in spraying operations, agitate thoroughly before spraying again.
11. Spray the pesticide suspension the same day as mixing.
12. Do not mix, load or clean spray equipment where there is a potential to contaminate wells or aquatic systems.

When using chemical handling equipment to fill the sprayer, the following additional recommendations apply:

- WG and DF formulations are preferentially batch mixed.
- SC, SN, and SL formulations may be inducted or batch mixed.
- EC formulations are preferentially batch mixed.

10.2.2. Spraying Instructions

1. Water Volume: Apply in a minimum spray volume of 100 L/ha OR the volume given in the crop and pest specific instructions tabulated below, whichever is LARGER.
2. Sprayer Agitation: Use a jet agitator or liquid sparge tube which recirculates 10% or more of the tank per minute. **DO NOT** use an air sparger.
3. Pump: Screens should be used to protect the pump and prevent clogging. Use 16 mesh or *coarser* screens on the suction side of the pump. **DO NOT** place a screen in the recirculation line. Use 50 mesh or *coarser* screens between the pump and boom.
4. Spray Nozzles: 80° or 110° drift reducing flat fan (e.g. those with a pre-orifice or turbulence chamber) or air induction nozzles are recommended. Use 50 mesh nozzle screens. **DO NOT** use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
5. Pressure: As recommended by the nozzle manufacturer to achieve ASABE coarse sized droplets.
6. Apply at uniform speed and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to avoid potential crop injury from over application.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). **DO NOT** apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. **DO NOT** spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

10.2.3. Equipment Clean-Up

Before Spraying:

- Prior to using CALLISTO GT Herbicide, ensure that the spray tank, lines and filter are thoroughly clean.

After Spraying:

- Thoroughly clean application equipment immediately after spraying. **DO NOT** allow CALLISTO GT Herbicide residue to dry within the spray tank
- When using tank mixes, consult the tank-mix partner label for additional clean-up instructions.
- The following recommendations are provided:
 1. Drain and flush tank walls, boom and all hoses for ten minutes with a clean water/detergent mixture. Rinse with clean water. **DO NOT** clean the sprayer near desirable vegetation, wells or other water sources.
 2. Remove all nozzles and screens and wash separately.
 3. Dispose of all rinsate in accordance with provincial regulations.

10.3. Buffer Zones

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

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, riparian areas and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies).

Method of application	Crop	Buffer zone (metres) required for the protection of:	
		Aquatic habitat	Terrestrial habitat
Field sprayer	Glyphosate tolerant corn	1	4

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.

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 (ASABE) category indicated on the labels for those tank mix partners.

10.4. Pre-Harvest Intervals

Crops	PHI (days)
Field corn grain/stover	100
Field corn forage	90

11.0 CROP USE DIRECTIONS

11.1. Glyphosate-Tolerant Corn

WARNING: APPLY CALLISTO GT HERBICIDE ON GLYPHOSATE TOLERANT CORN VARIETIES ONLY

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) GLYPHOSATE TOLERANT CORN SEED. CORN WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

GLYPHOSATE TOLERANT FIELD CORN	
APPLICATION TIMING	3- to 8-leaf stage of glyphosate tolerant corn
PRODUCT RATE	2.25 L/ha
APPLICATION METHOD	Ground application only
RESTRICTED ENTRY INTERVAL (REI)	12 hours
NOTES	Add a non-ionic spray surfactant, such as AGRAL 90, at a rate of 0.2% v/v. Apply in a spray volume of 100-200 L. One application per year.

For best results, apply CALLISTO GT Herbicide to actively growing weeds. Weeds that emerge after an application of CALLISTO GT Herbicide will be controlled after they absorb the herbicide from the soil provided there is sufficient moisture for uptake.

CALLISTO GT Herbicide will provide burndown control of:

Broadleaf Weeds		Grasses
Emerged¹ Weed Control of:		
	Mustard (wild)	Barley (volunteer)
Buckwheat (wild)	Pigweed (redroot, smooth)	Barnyard Grass
Canola (non-glyphosate tolerant)	Ragweed (common)	Crabgrass (smooth, hairy)
Chickweed	Shepherd's purse	
Cleavers	Smartweed (green, Pennsylvania)	Fall Panicum
Cocklebur	Sowthistle (perennial) ³	Foxtail (green, yellow, giant)
Corn Spurry	Stinkweed	Quackgrass
Cow cockle	Stork's bill	Proso Millet (wild)
Eastern black nightshade	Tomato (wild)	Wheat (volunteer)
Flixweed	Thistle (Russian)	Wild Oats
Hawk's beard (narrow-leaved)	Thistle (Canada) ³	
Hempnettle	Velvetleaf	Yellow nutsedge ^{2, 4}
Lamb's-quarters	Wirestem muhly ⁴	
Night Flowering Catchfly		
Kochia		
Lady's thumb		
Milkweed (common) ^{2, 4}		

Additional Residual Weed Suppression of:		
Eastern black nightshade	Pigweed (redroot)	Velvetleaf
Ragweed (common) (suppression only)		

¹Plants not fully emerged at time of application will not be controlled. Weeds will be more easily controlled, and early competition avoided, with applications made when weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

²Suppression Only

³Perennial sowthistle and Canada thistle should be from the rosette stage to 20 cm in height and actively growing.

⁴Wirestem muhly should be 10-20 cm in height and actively growing. Common milkweed should be 15 – 60 cm in height and actively growing. Yellow nutsedge should be 5 – 15 cm in height and actively growing.

12.0 RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, CALLISTO GT Herbicide is a Group 27 and Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to CALLISTO GT Herbicide and other Group 27 and/or Group 9 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 CALLISTO GT Herbicide or other Group 27 and/or Group 9 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 IPM 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 chemical control practices.

Monitor treated weed populations for 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 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 and to report suspected resistance, contact company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

13.0 RECROPPING GUIDELINES

Certain crops have been shown to be sensitive to low residues of CALLISTO GT Herbicide in the soil. The minimum recropping interval is the time between the last application of CALLISTO GT Herbicide and the anticipated date of planting of the next crop.

To avoid injury to subsequent crops after an application at the recommended rate of CALLISTO GT Herbicide, the following recropping intervals should be observed.

CROP	MINIMAL RECROPPING INTERVAL
Winter Wheat	3 months
Spring Wheat, Field Corn (grain or silage), Seed Corn, Sweet Corn	10 months
Alfalfa, Potato, Soybeans, Transplanted Tomato, White Beans	11 months
All Other Crops	Bioassay

Observe the recropping guidelines of any product(s) to be tank mixed with CALLISTO GT Herbicide.

In the event of crop failure, only field corn (grain or silage), seed corn, or sweet corn can be planted as a salvage crop in the same fields in which the failed crop was treated with CALLISTO GT Herbicide. An application of CALLISTO GT Herbicide must NOT be made to the salvage crop.

Land treated with CALLISTO GT Herbicide CAN ONLY BE PLANTED TO A CROP NOT LISTED IN THE PREVIOUS TABLE if a field bioassay can be successfully performed. The bioassay must indicate normal growth with no yield reductions.

A bioassay may be conducted in any year following the year of application to assess the tolerance of the tested crop intended for planting in the year following the bioassay. Do not conduct a bioassay in the year of application. When conducting a field bioassay, it is very important to select a representative area(s) of the field previously treated with CALLISTO GT Herbicide to plant the test crop(s).

14.0 FIELD BIOASSAY

1. Representative Sample:

Ensure that soil parameters such as soil texture, depth of topsoil layer, soil pH and drainage of the test area selected are representative of the remainder of the field.

2. Sample Size:

The seeded area of each selected bioassay crop must be large enough to ensure that reliable results are obtained. The seedbed preparations and seeding of the bioassay crop(s) should be conducted the same way as when the entire field would be planted.

3. Other Residual Herbicides:

It is important that other herbicide products which are known to have residual activity were not applied to the field between the last application of CALLISTO GT Herbicide and the bioassay testing period. Avoid the use of other pesticides during the duration of the bioassay as they may damage the indicator crop(s).

4. Comparisons:

Ideally, an untreated check strip in a neighbouring field should be established and monitored for comparison since growing conditions can vary greatly from year to year and may result in erroneous results.

5. Assessment:

The site should be monitored regularly throughout the growing season. Watch for any damage to the crop such as thinning, yellowing or stunting. A yield sample should be

taken and compared to an adjacent untreated field.

DO NOT ROTATE TO OTHER CROPS UNTIL THE BIOASSAY INDICATES NORMAL GROWTH WITH NO YIELD REDUCTIONS.

Failure to follow these recropping guidelines could result in injury to seeded crop(s).

ADHERE TO THESE PRODUCT LABELS FOR BROADLEAF WEEDS CONTROLLED, PRECAUTIONS, WARNINGS, RESTRICTIONS, TANK MIXING AND SPRAYING INSTRUCTIONS, ROTATIONAL CROPS AND DETAILED DIRECTIONS FOR USE REGARDING DOSAGE VARIATIONS ACCORDING TO SOIL TYPE.

SPRAYER CLEANUP:

To avoid subsequent injury to other crops, thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. The following procedures are recommended:

1. Drain and flush tank, boom and all hoses for several minutes with clean water containing a household detergent. **Do not** clean the sprayer near desirable vegetation, wells or other water sources.
2. Fill the sprayer tank with clean water and add one litre of household ammonia (containing 3% ammonia) per 100 litres of water. Allow the solution to agitate for 15 minutes prior to flushing the solution through the boom and nozzles. Drain the system.
3. Remove the nozzles and screens and wash separately in a bucket containing the ammonia solution.
4. Thoroughly rinse the tank, hoses, booms, nozzles and screens with clean water for a minimum of 5 minutes to remove all traces of ammonia.
5. Dispose of all rinsings in accordance with provincial regulations.

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