

2018-1736
2018-06-07

(Sleeve)

GROUP	9	HERBICIDE
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Nufarm

Crucial™

Herbicide

SOLUTION

AGRICULTURAL and INDUSTRIAL

CAUTION - EYE IRRITANT

WATER SOLUBLE HERBICIDE FOR NON-SELECTIVE WEED CONTROL

REGISTRATION NO. 32532 PEST CONTROL PRODUCTS ACT.

ACTIVE INGREDIENT: Glyphosate, present as isopropylamine and potassium salt ... 540 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.

(1 Litre to (bulk) Litres)

Nufarm Agriculture Inc.
5101, 333 - 96th Ave NE
Calgary, AB T3K 0S3
1-800-868-5444
24 Hour Emergency Response Number 1-800-424-9300

Distribué par:
La Coop Fédérée
9001 boul. de l'Acadie, bureau 200
Montréal, QC H4N 3H7
(514)-384-6450

Crucial™ is a trademark of Nufarm Agriculture Inc.

PRECAUTIONS

2018-1736
2018-06-07

KEEP OUT OF REACH OF CHILDREN. May irritate eyes. Avoid contact with eyes or prolonged contact with skin. For good hygiene practice, wear a long-sleeved shirt, long pants, goggles or a face shield and chemical resistant gloves during mixing, loading, cleanup or repair activities.

For agricultural uses: DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

For non-crop uses: DO NOT enter or allow entry into treated areas during the restricted-entry interval (REI) of 12 hours or until sprays have dried.

Workers who must enter fields within this time period should wear a long-sleeved shirt, long pants and chemical-resistant gloves.

ENVIRONMENTAL PRECAUTIONS

- **TOXIC** to aquatic organisms and 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.

Avoid direct applications to any body of water. DO NOT use in areas where adverse impact on domestic water or aquatic species is likely. DO NOT contaminate water by disposal of waste or cleaning of equipment. Avoid all drift to or contact with other vegetation for which treatment is not intended as damage or destruction may occur.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fibreglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

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 a poison control centre or doctor for treatment advice.

2018-1736
2018-06-07

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 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.

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

TOXICOLOGICAL INFORMATION

Treat symptomatically.

EMERGENCY NUMBERS

For spills or transportation accidents, Chemtrec, 1-800-424-9300.

For health or environmental emergencies, ProPharma Group, 1-877-325-1840. For product and use information, Nufarm Agriculture Inc., 1-800-868-5444.

STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

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.

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

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).

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 the 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.

2018-1736
2018-06-07

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.

2018-1736
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(Booklet)

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CONTENTS

Part 1: Precautions & Handling Information

2018-1736
2018-06-07

Part 2: General Directions for Use

Part 3: Weeds Controlled

Part 4: In-Crop Treatments

Part 5: Non-Cropland Treatments

CRUCIAL™ HERBICIDE

Part 1: Precautions and Handling Information

PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS and in NONCROPLAND AREAS. For optimum weed control apply Crucial Herbicide to actively growing weeds, thorough coverage of the weeds is important.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in glyphosate tolerant canola, soybean, and corn i.e., varieties with the Roundup Ready® gene; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans, chickpeas, dried lupins, dried fava beans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut, Japanese heartnut; in grapes, cranberries, blueberries and strawberry; in sugar beets; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial; recreational, rights-of-way, and public areas; turf grass renovation.

PRECAUTIONS

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For agricultural uses: DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

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Workers who must enter fields within this time period should wear a long-sleeved shirt, long pants and chemical-resistant gloves.

ENVIRONMENTAL PRECAUTIONS

- **TOXIC** to aquatic organisms and 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.

2018-1736
2018-06-07

- 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.

Avoid direct applications to any body of water. DO NOT use in areas where adverse impact on domestic water or aquatic species is likely. DO NOT contaminate water by disposal of waste or cleaning of equipment. Avoid all drift to or contact with other vegetation for which treatment is not intended as damage or destruction may occur.

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2018-1736
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NOTICE TO USER

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Part 2: General Directions for Use

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Crucial Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to Crucial Herbicide and other 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 Crucial Herbicide or other 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 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 Nufarm Agriculture Inc. at 1800-868-5444 or at www.nufarm.ca.

GENERAL INFORMATION

DO NOT apply this product using aerial spray equipment, except under conditions as specified within this label.

- Glyphosate is not to be applied using hand-wicking or hand-daubing methods.
- Crucial Herbicide, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.
- This product is highly toxic to aquatic and terrestrial plants. Overspray or drift to sensitive habitats should be avoided. DO NOT contaminate these habitats when cleaning and rinsing spray equipment or containers.
- When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixtures.
- This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days.
- Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant that advances to complete browning of above ground growth and deterioration of underground plant parts.

- Delay application until vegetation has emerged to the stages described for control of such vegetation under the annual and perennial weed control sections of this booklet to provide adequate leaf surface to receive the spray. Un-emerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.
- Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (non-cultivated) area.
- DO NOT treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.
- This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.
- Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. DO NOT apply if rainfall is forecast for the time of application.
- Tank mixes with chemical additives, pesticides or fertilizers not listed on this label may be physically incompatible, may cause unacceptable crop effects or may result in unacceptable weed or pest control. Contact Nufarm Agriculture Inc. at 1-800-868-5444 for more information.
- For best results, spray coverage should be uniform and complete. DO NOT spray weed foliage to the point of runoff.

Restricted Entry Intervals

The restricted entry interval is 12 hours after application for all agricultural uses.

MIXING AND APPLICATION

PRECAUTIONS

- **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.**
- **ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.**
- **APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.**
- DO NOT use in greenhouses. Reduced results may occur if water containing soil is used, such as water from ponds and unlined ditches.
- **AVOID DRIFT - EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.** 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. **DO NOT** allow spray mist to drift since even minute quantities of spray can cause severe damage or destruction to nearby crops, plants or other areas on which treatment is not intended or may cause other unintended consequences.

- **DO NOT** apply when winds are gusty or in excess of 8 kilometres per hour or when other conditions, including lesser wind velocities, will allow drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in fine particles (mist) that are more likely to drift.
- Clean sprayer and parts immediately after using this product by thoroughly flushing with water.
DO NOT contaminate water sources by disposal of wastes or cleaning of equipment.
- **NOTE:** Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

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.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

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).

Agricultural and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Rye, cranberry, pasture, summer fallow, all other crops for pre-seeding treatments only, filberts or hazelnut pre-seeding only, ginseng new garden, asparagus	1	1	1
Ginseng - existing established garden, Canola – Roundup Ready hybrid for seed production	2	1	1
Filberts or hazelnut	4	1	1
Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), sugar beet (glyphosate non-tolerant varieties), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, turfgrass (prior to establishment or renovation)	2	1	2
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, chickpea, lupin (dried), fava bean (dried), , corn (glyphosate tolerant varieties), forage grasses and legume including seed production	3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)	4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes	3	1	3
Agricultural crop system and airblast application method (including mist blower)			
Pasture	1	20	30
Turfgrass (Prior to establishment or renovation)	2	25	35
Non-cropland system and ground boom application method			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	3
Non-cropland system and airblast application method (including mist blower)			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas			
Agricultural crop system and aerial application method			

Rye, corn (glyphosate non-tolerant varieties), chickpea, lupin (dried), fava bean (dried), sugar beet (glyphosate non-tolerant varieties), all other crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Corn (glyphosate tolerant varieties)	Fixed wing	2	20	50
	Rotary wing	2	20	45
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads. NR = Not Required.

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.

MIXING AND APPLICATION EQUIPMENT INFORMATION

MIXING

2018-1736
2018-06-07

For ground or industrial type sprayers:

- Fill the spray tank with one-half the required amount of water.
- Add the proper amount of herbicide see "**Weeds Controlled**", "**In-Crop Treatments**" and "**NonCropland Treatments**" sections of this booklet
- Mix well before adding the remaining portion of water.

Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

TANK MIXING PROCEDURE

The following steps should be followed when adding tank mix partners, using a herbicide loading system or adding product directly into the tank:

1. Fill spray tank 3/4 full of water.
2. Start agitation and run for entire mixing and spraying operation.
3. Add required amount of the tank mix partner.
4. Flush herbicide loading tank and herbicide containers with water.
5. If using a herbicide loading system - ensure that the loading tank and lines to the pump are empty and flushed out with water before adding tank mix partner.
6. Add required amount of Crucial Herbicide.
7. Flush herbicide loading tank and herbicide containers with water.
8. If using a herbicide loading system - ensure that the loading tank and lines to the pump are flushed with water and empty before starting spray operation. Always start and end the mixing and spraying operation with a clean system.

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 Nufarm Agriculture Inc. at 1-800-868-5444 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 Nufarm Agriculture Inc.

APPLICATION INFORMATION FOR NON-CROPLAND USES

Foliar Applications

- Spray coverage should be uniform and complete. DO NOT spray to the point of runoff.
- DO NOT spray drift to contact desirable vegetation as severe injury or destruction may occur.
- For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Ground Applications:

- For woody brush and trees, apply 2 to 4 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.67-1.34% solution using hand-held high volume equipment.
- Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation.
- Use the 4 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. (*suppression only).
- Spray coverage should be uniform and complete. DO NOT spray to the point of runoff.
- DO NOT allow spray drift to contact desirable vegetation as severe injury or destruction may occur.
- If weeds have been mowed or tilled, DO NOT treat until re-growth has reached the recommended stages.

Aerial Applications: (For industrial rights-of-way only)

Apply only by fixed-wing or rotary aircraft equipment that has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Apply only at the rate recommended for aerial application on this label.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of a spotter plane is recommended.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even target crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

DO NOT apply to any body of water. Avoid drifting of spray onto any body of water or other nontarget areas. Specified buffer zones should be observed.

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.

Operator Precautions

DO NOT allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the Nufarm Agriculture Inc. Product Info Line at 1-800-868-5444 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate, in a minimum spray volume 30-100 litres per hectare.

DO NOT angle nozzles forward into the airstream and DO NOT increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) that meets aerospace specification MIL-C-38412 may prevent corrosion.

Injection Applications: For All Non-Cropland Uses

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.33 mL (either undiluted or 1:1 with water) per 5cm tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 cm may not be acceptable at this rate.

Total control may not be evident for 1-2 years following treatment. A partial list of species controlled includes:

**ALDER
BIRCH
CEDAR
CHERRY
FIR**

**HEMLOCK
MAPLE*
PINE
POPLAR DOUGLAS
WILLOW**

2018-1736
2018-06-07

* This treatment may only provide suppression of Big-Leaf Maple. Late fall applications will provide optimum suppression of Big-Leaf Maple

Cut Stump Application

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment (e.g. squirt bottle or similar device). This product must be applied immediately to the surface of the freshly cut stump (i.e. within 5 minutes) for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.33 mL product for every 5cm diameter at breast height (DBH). DO NOT cover the remaining area or any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1-2 years after treatment.

See the "**Injection Applications**" of this label for a partial list of species controlled.

APPLICATION EQUIPMENT

Boom Equipment

For control of annual weeds listed on this booklet using conventional boom equipment:

- Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See "**Weeds Controlled**" sections of this booklet for rates to control specific weeds.

For control of perennial weeds and woody brush and trees listed on this booklet using conventional boom equipment:

- Apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See "**Weeds Controlled**" sections of this booklet for rates to control specific weeds.

Hand Held and High Volume Equipment (use coarse sprays only)

For control of weeds and woody brush and trees listed in the "Weeds Controlled" section of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements:

- Unless otherwise specified, make a 0.67% solution of this product in water (0.67 litre of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.34% solution (1.34 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dog-bane, milkweed and Canada thistle.
- Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. DO NOT spray to point of runoff. Hand gun applications should be properly directed to avoid spraying desirable plants.

Selective Equipment

2018-1736
2018-06-07

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas.

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries and strawberry. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label.)

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices that physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 cm above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 cm above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the "**Weeds Controlled**" tables in this label for recommended stage of growth for specific weeds.

NOTES

- Keep wiping surfaces clean.
- Maintain recommended roller RPM on roller applicators while in use.
- Keep wiper material at proper degree of saturation with herbicide solution.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds below 4 and greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.
- Care must be taken with all types of wipers to insure that the absorbent material **does not** become over-saturated, causing the herbicide to drip onto desirable vegetation.
- With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.

For Roller Applicators: Mix 0.33 to 0.67 litres of this product in 10 litres water to prepare a 3 to 7 % solution. Roller speed should be maintained at 50 to 150 rpm.

For Wick or other Wiper Applicators: Mix 0.57 litre of this product in 2 litres of water to prepare a 22 % solution.

Part 3: Weeds Controlled

ANNUAL WEED CONTROL WITH CRUCIAL HERBICIDE

- Crucial Herbicide, applied alone, will not control volunteers from crops containing genetic resistance to glyphosate.
- Allow at least 1 day after treatment before tillage
- Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

Surfactant Information

Crucial Herbicide applied alone or in tank mixture for annual and perennial weed control may require the addition of a surfactant registered for use such as Agral 90, Ag-Surf or Companion. Surfactant should be added at a rate of 350 mL/Ha, in 50 - 100 litres of clean water. Always refer to the surfactant label for specific instructions regarding use of that product.

Product Rate (L/ha)	Weeds Controlled	Growth Stage	Comments (water volume of 50-100 L/ha)
0.5	Wild oats Green foxtail Volunteer Wheat Volunteer Barley Lady's-thumb Stinkweed Volunteer canola*	Up to 8 cm in height (wild oats 1-3 leaf)	Add 350 mL/ha of a surfactant registered for use such as Agral 90, AgSurf, or Companion *non glyphosate tolerant only
	Wild mustard		
0.67	Weeds listed above, plus: Kochia* Flixweed* Wild oats**	8-15 cm in height	Add 350 mL/ha of surfactant as listed above *suppression only **heavy infestations

0.83-1.27	Weeds listed above, plus: Downy brome Giant foxtail Persian darnel Cleavers Lamb's quarters Redroot Pigweed Hempnettle Russian thistle Volunteer flax Common ragweed* Flixweed Canada fleabane* Wild buckwheat** Narrowleaf hawksbeard***	Up to 15 cm in height	No surfactant required *higher rate needed for plants above 8cm **1.27L/ha rate for 3-4 leaf stage ***1.27L/ha rate for 8-15 cm in height
1.5	Weeds listed above, plus: Crabgrass Annual bluegrass Kochia Prickly lettuce Shepherd's purse Annual sowthistle Narrow leaved vetch	Up to 15 cm in height	
2.33	All weeds listed above	Over 15 cm high	

NOTE: For spot treatment, 0.5 - 2.33 L/ha is approximately equivalent to 5 - 23 mL/100 m², respectively.

Annual Weed Control With Crucial Herbicide Tank Mixtures For Summerfallow & Minimum Tillage Systems

Crucial Herbicide + Pardner / Koril

Rates: Crucial Herbicide 0.5 – 0.67 L/ha + Pardner 1.0 (280 g a.i./ha) L/ha (Koril 1.2 L/ha)

Water Volume: 50-100 L/ha

Weeds Controlled: All annual weeds listed in the annual weeds controlled table above, plus: wild buckwheat*, redroot pigweed *

Weed Stage: less than 15 cm tall and actively growing (use higher rate if weeds are beyond 8cm)

Crop stage: Only for use prior to seeding wheat, oats and barley in minimum tillage situations. Add 350 mL/ha of surfactant, as listed in the annual weeds controlled table above.

*use the 0.67 L/ha rate of Crucial Herbicide for control of wild buckwheat and suppression of redroot pigweed.

Crucial Herbicide + 2.4-D*

Rates: Crucial Herbicide 0.83 – 1.27 L/ha + 2.4-D 0.6-0.9** L/ha or 1.2-1.5*** L/ha

Water Volume: 50-100 L/ha; No surfactant required.

Weeds controlled: All annual weeds listed in the annual weeds controlled table above, plus:

2018-1736
2018-06-07

0.6-0.9 L/ha of 2,4-D: volunteer glyphosate tolerant canola (1-4 leaf), bluebur, burdock, cocklebur, common plantain, daisy fleabane, false flax, false ragweed, goat's beard, mustards (except dog and tansy), prickly lettuce, ragweeds, Russian pigweed, shepherd's purse, stinging nettle, sweet clover, thyme-leaved spurge, wild radish, wild sunflower.

1.2-1.5 L/ha of 2,4-D: all weeds listed above plus: volunteer glyphosate tolerant canola (4-6 leaf), annual sowthistle, common chickweed, common purslane, dog and tansy mustard, oak-leaved goosefoot, groundsel, hairy galinsoga, hawkweed, heal-all, knotweed, peppergrass, pineappleweed, prostrate pigweed, purslane, sheep sorel, smartweed, tumble pigweed, velvetleaf.

Weed Stage: less than 15 cm tall and actively growing (use higher rate if weeds are beyond 8cm)

Crop stage: Only for use prior to seeding or after seeding but before crop emergence of wheat, winter wheat, barley and rye.

*Based on a 500 g/L formulation, adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

**2,4-D at 0.6-0.9 L/ha (280-420 g ai/ha).

***2,4-D at 1.2-1.5 L/ha (560-700 g ai/ha).

Crucial Herbicide + MCPA*

Rates: Crucial Herbicide 0.83 – 1.27 L/ha + MCPA 0.5-0.7** L/ha or 0.5-1.0*** L/ha

Water Volume: 50-100 L/ha; No surfactant required

Weeds Controlled: All annual weeds listed in the annual weeds controlled table above, plus:

0.5-0.7 L/ha of MCPA: volunteer glyphosate tolerant canola (1-4 leaf)

0.7-1.0 L/ha of MCPA: All weeds listed above, plus: bluebur, burdock (before 4 leaf stage), false flax, mustards (except dog and tansy), prickly lettuce, ragweeds, Russian pigweed, shepherd's purse, vetch, wild radish, wild sunflower

Weed Stage: less than 15 cm tall and actively growing (use higher rate if weeds are beyond 8cm)

Crop Stage: Only for use prior to seeding or after seeding but before crop emergence of wheat, barley, rye, oats, corn (field and sweet) (MCPA Amine formulation only), flax, field peas (MCPA Amine formulation only).

* Based on a 500 g/L formulation, adjust rates accordingly for other MCPA formulations.

** Use 0.5-0.7 L/ha of MCPA (250-350 g ai/ha) prior to seeding field peas ***

MCPA at 0.5-1.0 L/ha (250-500 g ai/ha)

Crucial Herbicide + Buctril M / Mextrol 450

Rates: Crucial Herbicide 0.83 – 1.27 L/ha + Buctril M 0.5-1.0 (280-560 g a.i./ha) L/ha (Mextrol 450 0.625/1.25 L/ha)

Water Volume: 50-100 L/ha; No surfactant required

Weeds Controlled: All annual weeds listed in the annual weeds controlled table above, plus:

0.5 L/ha of Buctril M (0.625 L/ha Mextrol 450): volunteer glyphosate tolerant canola (1-4 leaf)

1.0 L/ha of Buctril M (1.25 L/ha Mextrol 450): All weeds listed above, plus: Green smartweed, Pale smartweed, Cow cockle, bluebur, redroot pigweed, shepherd's purse, Russian thistle (before 5cm), Scentless Chamomile (annuals only), Volunteer sunflower, Night flowering catchfly, cocklebur, Velvetleaf (before 8cm), ball mustard, American nightshade, wild buckwheat, tartary buckwheat, wild tomato, Canada thistle (top growth), Perennial sowthistle (top growth)

Weed Stage: less than 15 cm tall and actively growing (use higher rate if weeds are beyond 8cm)

Crop stage: Only for use prior to seeding or after seeding but before crop emergence of wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, Intermediate wheatgrass, slender wheatgrass, tall wheatgrass, Russian wild rye,

2018-1736
2018-06-07

Timothy, Orchard grass, Creeping red fescue, Meadow fescue, Meadow foxtail, Seedling tall fescue, Seedling meadow bromegrass, Seedling streambank wheatgrass and Reed canary grass).

Crucial Herbicide + Aim EC

Rates: Crucial Herbicide 0.83-1.67 L/ha + Aim EC 36.5-73 mL/ha Water Volume: 100 L/ha (minimum)
Thorough coverage is required. Weeds Controlled: All annual weeds listed in the annual weeds controlled table above, plus: volunteer glyphosate tolerant canola, volunteer canola, dandelion, kochia, horsetail, field pennycress, Pennsylvania smartweed, Russian thistle, chickweed, lamb's-quarters, morning glory, shepherd's-purse, tansy mustard. Weed stage: All annual weeds as listed in the annual weeds controlled table above - less than 15 cm tall and actively growing. Volunteer glyphosate tolerant canola – 1 to 4 leaves, dandelion – spring germinating. Refer to the Aim EC label for additional information. Crop Stage: Only for use prior to seeding or after seeding but before crop emergence of all crops.

Crucial Herbicide + GoldWing Herbicide

Rates: Crucial Herbicide (0.83-1.67 L/ha) + GoldWing Herbicide* (143-286 g a.i./ha)
Water Volume: 50-100 L/ha

Registered Crops**: Can be applied pre-seeding or post-seeding prior to crop emergence in the crops from the crop groups listed below as well as canary seed (*Phalaris canariensis*). Crops not listed can be planted one month after GoldWing Herbicide application.

- Crop Group 6: Legume Vegetable
Field pea
- Crop Group 15: Cereal Grains
Barley, buckwheat, corn (sweet and field), pearl millet, proso millet, oats, popcorn, rye (spring and winter), triticale and wheat (spring, durum, winter).

Weeds Controlled: All weeds controlled by Crucial Herbicide and Goldwing Herbicide alone (see the tank mix partner label).

*Equal to 330 -660mL/ha of GoldWing Herbicide (143-286 g a.i./ha)

**Refer to the GoldWing Herbicide Label for more information on registered crops

Crucial Herbicide + BlackHawk Herbicide

Rates: Crucial Herbicide (0.83-1.67 L/ha) + BlackHawk Herbicide* (354.5 -527.0 g a.i./ha)
Water Volume: 50-100L/ha

Registered Crops: Can be applied pre-seeding or post-seeding prior to crop emergence in the crops from the crop groups listed below as well as canary seed and summerfallow. Crops not listed can be planted one month after BlackHawk Herbicide application.

- Crop Group 6: Legume Vegetable
Soybean (applied a minimum of 3 days before crop emergence)
- Crop Group 15: Cereal Grains
Barley, corn (field), oats (applied a minimum of 7 days before planting), rye (spring and fall), triticale and wheat (spring, durum, winter).

Weeds Controlled: All weeds controlled by Crucial Herbicide and BlackHawk Herbicide alone (see the tank mix partner label).

*Equal to 740mL -1.1L/ha of BlackHawk Herbicide (354.5 – 527.0 g a.i./ha) **Refer to the BlackHawk Herbicide Label for more information on registered crops.

PERENNIAL WEED CONTROL

2018-1736
2018-06-07

When applied as recommended under the conditions described, this product will control the perennial weeds listed below:

Quackgrass Control:

Light – Moderate Infestations:

Rate: Crucial Herbicide 1.67 L/ha

Water Volume: 50-300 L/ha

Quackgrass Growth Stage: at least 3-4 green leaves

Notes: Allow 3 or more days after treatment before tillage. When using water volumes of 150-300 L/ha an approved surfactant must be used at a rate of 0.5% v/v. Quackgrass can be treated after a mild frost provided it is actively growing at the time of application with 3-4 green leaves. DO NOT apply after the first damaging frost in the fall.

Heavy Infestations / Long term control:

Rate: Crucial Herbicide 1.67 – 4.67 L/ha

Water Volume: 50-300 L/ha

Quackgrass Growth Stage: at least 3-4 green leaves

Notes: Use rates higher than 2.0 L/ha for consistent, longer term control. When using water volumes of 150-300 L/ha an approved surfactant must be used at a rate of 0.5% v/v. Quackgrass can be treated after a mild frost provided it is actively growing at the time of application with 3-4 green leaves. DO NOT apply after the first damaging frost in the fall.

Season-long control on fall tilled ground:

Rate: Crucial Herbicide 1.67 L/ha

Water Volume: 50-100 L/ha

Quackgrass Growth Stage: 4-5 green leaves

Notes: This treatment will provide season-long control of quackgrass on fall tilled ground. Apply product in spring prior to seeding. Delay application until majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered.

Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. DO NOT apply after the first damaging frost in the fall.

List of approved surfactants for use with Crucial Herbicide for control Quackgrass: Agral 90, AgSurf or Companion.

Canada Thistle Control:

Seasonal Control

Rate: Crucial Herbicide 1.67 L/ha

Water Volume: 50-100 L/ha

Canada Thistle Growth Stage: rosette (summerfallow)

2018-1736
2018-06-07

Notes: Allow 10 or more days after treatment before tillage. Canada Thistle can be treated after a mild frost provided it is actively growing and the leaves are still green. DO NOT apply after the first damaging frost in the fall.

To ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

Long Term Control

Rate: Crucial Herbicide 3.17 – 4.67 L/ha

Water Volume: 100-300 L/ha

Canada Thistle Growth Stage: bud stage or beyond

Notes: Allow 5 or more days after treatment before tillage.

Post Harvest and Summerfallow Treatment

Rate: Crucial Herbicide 1.13 L/ha + 1.25 L/ha of Banvel + 0.35 L/ha approved non-ionic surfactant

Water Volume: 100-200 L/ha

Application Stage: post harvest stubble; Canada Thistle actively growing

Notes: Grow only cereals, canola, soybeans, field corn, sweet corn or white beans after this application. If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following the application.

Field Bindweed Control:

Rate: Crucial Herbicide 4.67 – 8 L/ha

Water Volume: 100-300 L/ha

Field Bindweed Growth Stage: at least full bloom

Notes: Allow 7 or more days after treatment before tillage.

Common Milkweed Control:

Pre Harvest Treatment

Rate: Crucial Herbicide 1.67 L/ha

Water Volume: 50-100 L/ha

Common Milkweed Growth Stage: bud to full bloom (preharvest)

Notes: Allow 7 or more days after treatment before tillage. Reduced control may occur after full bloom.

Long Term Control

Rate: Crucial Herbicide 8 L/ha

Water Volume: 100-300 L/ha

Common Milkweed Growth Stage: bud to full bloom

Notes: Allow 7 or more days after treatment before tillage. Reduced control may occur after full bloom. Subsequent applications may be required, as not all plants may be in the correct stage.

Toadflax Control:

In-season / Pre Harvest Control

2018-1736
2018-06-07

Rate: Crucial Herbicide 1.67 L/ha

Water Volume: 50-100 L/ha

Toadflax Growth Stage: bud to full bloom (preharvest); vegetative state

Notes: Toadflax can be treated after a mild frost provided it is actively growing and still green at the time of application. DO NOT apply after the first damaging frost. Allow 7 or more days after treatment before tillage.

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10th to July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are minimum of 15 centimetres tall and at a lush green vegetative stage.

Alfalfa Control:

Fall Treatment

Rate: Crucial Herbicide 2.5 - 3.33 L/ha

Water Volume: 50-300 L/ha

Alfalfa Growth Stage: early bud to full bloom (fall applications only)

Notes: Allow at least 5 days after treatment before tillage. Use higher rates with high alfalfa populations or heavy grass infestations.

Difficult control situations: Minimum tillage systems with high alfalfa populations or spring applications.

Rate: Crucial Herbicide 1.67 - 3.33 L/ha + 1.2-2.4 L/ha of 2,4-D (500 g/L formulation of either amine or ester)

Water Volume: 100-200 L/ha

Application Stage: established alfalfa stands (fall control)

Notes: Adjust 2,4-D product rates for other formulations. Use the higher Crucial Herbicide rates when perennial grasses are prevalent.

Spring Treatment

Rate: Crucial Herbicide 1.67 – 3.33 L/ha + 1.2 L/ha of 2,4-D (500 g/L formulation of either amine or ester)

Water Volume: 100-200 L/ha

Application Stage: established alfalfa stands (spring control)

Notes: Adjust 2,4-D product rates for other formulations. Only cereal crop, not under-seeded to legumes, may be planted following spring applications of this tankmix and a 14-day interval between application and seeding is required. Use the higher Crucial Herbicide rates when perennial grasses are present.

Dandelion Control:

Early Spring Treatment; In-season Control

Rate: Crucial Herbicide 1.67 L/ha

Water Volume: 50-100 L/ha

Dandelion Growth Stage: less than 15cm rosette

Notes: Allow at least 3 days after treatment before tillage.

Spring Treatment; Long Term Control

2018-1736
2018-06-07

Rate: Crucial Herbicide 2.5 – 3.33 L/ha

Water Volume: 50-300 L/ha

Dandelion Growth Stage: greater than 15cm rosette

Notes: Allow at least 3 days after treatment before tillage. Use the higher rate when infestations are heavy.

Late summer/fall Treatment; Pre Harvest Treatment

Rate: Crucial Herbicide 1.67 L/ha

Water Volume: 50-100 L/ha

Dandelion Growth Stage: rosette to full bloom (preharvest) Notes:

Allow at least 7 days after treatment before tillage.

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

Foxtail Barley Control:

Rate: Crucial Herbicide 1.67 – 3.33 L/ha

Water Volume: 50-100 L/ha

Foxtail Barley Growth Stage: seedling - heading

Notes: Allow a minimum of 1 day after treatment before tillage. Use higher rate for heavy infestations or if plants are more established or stressed.

Other Perennials Control:

Grass Species Include: Bluegrass (Canada, Kentucky), Smooth Bromegrass, Cattail, Wirestemmed Muhly, Yellow nutsedge

Broadleaf Species Include: Cottontop, Curled Dock, Hemp Dogbane, Hoary Cress, Japanese Knotweed, Poison Ivy, Purple Loosestrife, Perennial Sowthistle, Absinth Wormwood

Rate: Crucial Herbicide 4.67 – 8 L/ha

Water Volume: 100-300 L/ha

Growth Stage: early heading or early bud stage

Notes: Allow a minimum of 7 days after treatment before tillage.

Perennial Weed Control General Notes:

- For spot treatment, mix 80 mL of product in 5L clean water per 100 m². (1.67 – 8 L/ha is approximately equivalent to 17 - 80 mL/100 m², respectively).
- **Rhizome Dormancy:** Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.
- **Mowing Effects:** Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.
- **Regrowth from Germinating Seeds:** This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.
- **Nozzle Type:** For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

2018-1736
2018-06-07

- **Rainfall Effects:** Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. DO NOT apply if rainfall is forecast for the time of application.
- **Frost Effects:** Heavy frosts prior to application may reduce control. DO NOT apply after the first damaging frost in the fall.

Part 4: In-Crop Treatments

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION SECTIONS PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, post harvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages. It may also be applied as a broadcast spray in glyphosate tolerant corn or soybean. It may also be applied as a directed spray in orchards, vineyards, blueberries and strawberry, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberry (refer to specific sections below for more information).

For specific instructions on weed control in the following cropping situations, always refer to the Annual and Perennial Weed Control sections for more information.

PRIOR TO PLANTING AND EMERGENCE OF ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide pre-emergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (i.e. varieties with genetic resistance to glyphosate)

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

DO NOT APPLY BY AIR

Some short term visual yellowing may occur when Crucial Herbicide is applied at the late application (4 to 6 leaf) stage of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

2018-1736
2018-06-07

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Product Rate (L/ha)	Weeds Controlled	Crop Growth Stage	Comments (water volume of 50-100 L/ha)
0.55-1.27 (DO NOT use more than 1.67 L/ha per season for	wild oats green foxtail volunteer wheat volunteer barley barnyard grass stinkweed redroot pigweed	Up to and including the 6 leaf stage	*a single application rate of 0.83 L/ha is required ** Sequential applications of 0.83 L/ha are required.
post-emergent use)	wild mustard Russian thistle common lamb's quarters hempnettle volunteer canola (nonglyphosate tolerant) lady's-thumb kochia chickweed corn spurry wild tomato cleavers* wild buckwheat* shepherd's-purse* cow cockle* night flowering catchfly* smartweed* stork's bill* flixweed* narrowleaf hawksbeard* round leaved mallow** Suppression: Perennial sowthistle* Canada Thistle* Dandelion* Season long control: Quackgrass* Foxtail barley** Perennial sowthistle*** Canada Thistle***		***Sequential applications of 0.83 L/ha or a single application of 1.25 L/ha is required. The second application must be made no later than 6 th leaf stage of the canola.

2018-1736
2018-06-07

Tank Mixtures

Crucial Herbicide + Lontrel 360 Herbicide

Rates: Crucial Herbicide 0.83 L/ha + Lontrel 360 Herbicide 0.28 L/ha

Water Volume: 100 L/ha

Crop Stage: 2-6 leaf stage

Weeds Controlled: All weeds indicated in the weeds controlled table above, plus:

Season long top growth control of Canada thistle and control of wild buckwheat

Refer to the Lontrel **360 Herbicide** label for further safety precautions and handling instructions.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e. varieties with genetic resistance to glyphosate)

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Product Rate (L/ha)	Weeds Controlled	Crop Growth Stage	Comments (water volume of 100200 L/ha)
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<p>1.67</p>	<p>Velvetleaf common ragweed common lamb's quarters redroot pigweed smooth pigweed cocklebur green smartweed lady's- thumb Pennsylvania smartweed Eastern black nightshade wild mustard wild buckwheat foxtail (green, yellow, giant) barnyard grass crabgrass (smooth, large) quackgrass milkweed* yellow nutsedge* fall panicum wild proso millet Perennial sowthistle* Canada Thistle* Wire-stemmed muhly*</p>	<p>First trifoliolate leaf stage through flowering</p>	<p>*suppression only with one application. Will be controlled with a sequential application.</p> <p>A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. For best results on perennial weeds the second application should be at least 2 weeks after the first.</p> <p>This second application must be made no later than the flowering stage of the soybean.</p> <p>Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing.</p> <p>Milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p>

3.33	All weeds listed above plus: field bindweed	First trifoliolate leaf stage through flowering	<p>Only one application per season at 3.33 L/ha.</p> <p>Will also be controlled by sequential applications of 1.65 L/ha. Applications should be at least 2 weeks apart for optimum control.</p> <p>This 2nd application must be made no later than the flowering stage of the soybean.</p>
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Tank Mixtures

Crucial Herbicide + Pursuit Herbicide and Pursuit 240

Rates: Crucial Herbicide 1.67 L/ha + Pursuit Herbicide and Pursuit 240 0.16–0.21 L/ha (use the higher rate for heavier infestations)

Water Volume: 100-200 L/ha

Crop Stage: up to and including the 3rd trifoliolate leaf stage

Weeds Controlled: All weeds listed in the weeds controlled table above, plus:

Added residual control of Eastern black nightshade, lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet

Mixing: Add and mix the Pursuit and then add Crucial Herbicide

Note: Recommended for soybean systems with row spacing of 50 centimetres (20 inches) or more, where a single application timing is desired. DO NOT harvest soybeans for 100 days after applying this tank mixture. DO NOT apply more than one application of this tank mixture per growing season.

Refer to the Pursuit Herbicide and Pursuit 240 label for further safety precautions and handling instructions.

Crucial Herbicide + Assure II Herbicide

Rates: Crucial Herbicide 1.67 - 3.33 L/ha + Assure II 0.25-0.38 L/ha

Water Volume: 100-300 L/ha

Crop Stage: 1st trifoliolate leaf stage to flowering

Weeds Controlled: All weeds listed in the weeds controlled table above, plus:

Volunteer glyphosate tolerant corn

Weed Stage: 2-6 leaf stage of corn

Mixing: Add and mix the Assure II and then add Crucial Herbicide

Note: DO NOT harvest soybeans for 80 days after applying this tankmixture.

Refer to the Assure II herbicide label for further safety precautions and handling instructions.

WEED CONTROL IN GLYPHOSATE TOLERANT CORN (i.e., varieties with genetic resistance to glyphosate)

2018-1736
2018-06-07

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

DO NOT APPLY BY AIR

Product Rate (L/ha)	Weeds Controlled	Crop Growth Stage	Comments (water volume of 100200 L/ha)
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1.67	<p>Velvetleaf common ragweed common lamb's quarters redroot pigweed smooth pigweed cocklebur green smartweed lady's-thumb Pennsylvania smartweed Eastern black nightshade wild mustard wild buckwheat foxtail (green, yellow, giant) barnyard grass crabgrass (smooth, large) quackgrass fall panicum wild proso millet wild oats volunteer cereals (wheat, barley) stinkweed Russian thistle Hempnettle Kochia Chickweed Corn spurry Wild tomato Cleavers Shepherd's-purse Cow cockle Night-flowering catchfly Stork's-bill Flixweed Narrowleaf hawksbeard Perennial sowthistle* Canada Thistle* Wire-stemmed muhly* milkweed* yellow nutsedge*</p>	Up to and including 8 leaf stage	<p>*Suppression only with one application. Will be controlled with a sequential application.</p> <p>A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. For best results on perennial weeds the second application should be at least 2 weeks after the first.</p> <p>This second application must be made no later than the 8 leaf stage of the corn.</p> <p>Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing.</p> <p>Milkweed should be 1560 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p>
	<p>round-leaved mallow* field bindweed*</p>		

Tank Mixtures

Crucial Herbicide + atrazine

Rates: Crucial Herbicide 1.67 L/ha + atrazine 0.75-1.0 kg ai/ha*

Crop Stage: up to and including the 5th leaf stage

2018-1736
2018-06-07

Weeds Controlled: All weeds listed in the weeds controlled table above, plus:
Residual control of lamb's quarters, redroot pigweed, common ragweed

Note: Only use when a single application timing is desired. Use the higher atrazine rate for heavier weed infestations.

*0.75-1.0 kg ai atrazine/ha is equivalent to 1.56-2.08 L/ha Aatrex Liquid 480 Herbicide

Crucial Herbicide + Marksman Herbicide

Rates: Crucial Herbicide 1.67 L/ha + Marksman 2.5-3.7 L/ha

Crop Stage: up to and including the 5th leaf stage

Weeds Controlled: All weeds listed in the weeds controlled table above, plus:

Residual control of lamb's quarters, redroot pigweed, common ragweed, velvetleaf

Note: Only use when a single application timing is desired. Use the higher Marksman rate for heavier weed infestations.

PRE-HARVEST APPLICATION

Rate: Crucial Herbicide 1.67 L/ha (1.67 - 3.33 L/ha for forages)

Water Volume: 50-100 L/ha

Weeds controlled: quackgrass, Canada thistle, common milkweed, toadflax, dandelion and perennial sowthistle.

Weed Staging: quackgrass (4-5 green leaves and actively growing); Canada thistle and perennial sow thistle (at or beyond the bud stage and actively growing); Common milkweed (bud-bloom stage and actively growing)

Crops and Staging (DO NOT apply to crops grown for seed production):

Crop(s)	Percent Grain Moisture	Visual Symptoms
Wheat/Barley/Oats	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
Canola	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
Flax (Including Low Linolenic Acid Varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
Peas	Less than 30	Majority (75%-80%) of pods are brown.
Lentils	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
Dry Beans	Less than 30	Stems are green to brown in
Crop(s)	Percent Grain Moisture	Visual Symptoms
		colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).

Soybeans	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%90% leaf drop.
Forages	Not applicable (3-7 days prior to last cut before renovation)	Normal stage for forage harvesting.

Harvest Management Benefits: This treatment may also dry down crop and weed vegetative growth. Extremely cool, wet and/or cloudy weather conditions between the time of application and the anticipated harvest date may slow down activity of this product, thereby delaying crop drydown and harvest date.

Note: DO NOT APPLY BY AIRCRAFT; Earlier application may reduce crop yield and/or quality and may lead to excess glyphosate residues in the crop.

POST HARVEST APPLICATION

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20-25 cm tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green coloration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

IN CROP SPOT TREATMENT

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the weed control tables above or use a 0.67 % solution for annual weeds and quackgrass and a 1.34 % solution for other perennial weeds (a 0.67 % solution equals 0.67 litre Crucial Herbicide in 100 litres of spray solution). A 0.67 or 1.34 % solution should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in the "Application Equipment" section.

Spot treatments can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR CRUCIAL HERBICIDE TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS**

PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 cm in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

This product may be used to control listed annual or perennial weeds, prior to planting or as a post directed spray in established nurseries or shelterbelts of the following species:

Deciduous

**Ash
Caragana.
Cherry
Elm
Lilac
Maple
Mountain Ash
Poplar
Russian Olive
Willow**

Coniferous

**Fir
Juniper
Pine
Spruce
Yew**

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in various crops listed below, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand-held and high volume orchards guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or pre-emergent weed control. For subsequent weed control follow a program using residual herbicides or use repeated applications of this product. DO NOT apply more than 23 litres of this product per hectare per year.

Extreme care must be exercised to avoid contact of herbicide solution, spray, drift, or mist with foliage or green bark of trunk, branches, suckers, fruit, canes of blueberry bushes, or other parts of trees or vines. Contact of this product with other than matured brown bark can result in serious crop damage.

Specific Crop Information: (Weeds controlled can be found in the annual and perennial weed sections, unless otherwise stated)

Crop: Apples, Apricot, Cherry (sweet/sour), Peaches, Pears, Plums Rate:
1.5-8 L/ha
Pre-Harvest interval: 30 days
Maximum Applications/Year: 3

Crop: Grapes

2018-1736
2018-06-07

Rate: 1.5 - 8 L/ha

Pre-Harvest interval: 14 days

Maximum Applications/Year: 3

Note: Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. DO NOT apply to vines which have been established less than 3 years.

Crop: Apples, Grapes

Rate: 1.5 - 8 L/ha + 2.0-4.5 kg ai/ha Simazine*

Maximum Applications/Year: 1

Note: Will provide season-long pre-emergent weed control. DO NOT apply to coarse, sandy or gravelly soil. DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively.

* Simazine rate is equivalent to 2.25-5.0 kg/ha Princep or Nine-T, or 4.0-9.0 kg/ha Simadex.

Crop: Cultivated Highbush Blueberry

Rate: 1.87 - 3.75 L/ha

Pre-Harvest interval: 30 days

Maximum Applications/Year: 1

Note: Use as a directed spray with no more than 275 kPa pressure.

Crop: Lowbush Blueberry

Rate: 0.67 – 1.34% solution (see spot application section)

Pre-Harvest interval: apply in non-bearing year only

Maximum Applications/Year: 1

Note: Use as a directed spray in mid-summer of the non-bearing year.

Crop: Cranberry

Rate: 13.4% solution (0.62 L of Crucial Herbicide + 4 L water)

Pre-Harvest interval: 30 days

Maximum Applications/Year: 1

Note: Apply using wick or wiper applicators

Crop: Strawberry

Rate: 0.67-1.34% solution (spot application); 22% solution (wiper application)

Pre-Harvest interval: 30 days

Maximum Applications/Year: 1

Note: Apply when weeds are at a susceptible growth stage. See Spot Treatment and Selective Equipment section for application instructions.

Crop: Sugarbeets

Rate: 0.67 - 1.34% solution (spot application)

Pre-Harvest interval: Treated crop MUST NOT be harvested

Maximum Applications/Year: 1

Weeds controlled: Dodder species

Note: Apply when dodder is vigorously growing but before flowering

2018-1736
2018-06-07

Crop: Asparagus

Rate: 0.83 - 1.67 L/ha

Pre-Harvest interval: 7 days

Maximum Applications/Year: 1

Weeds controlled: Fall seeded ryegrass

Note: Apply in spring before emergence of crop shoots.

Crop: Established plantations of Filberts, Hazelnuts

Rate: 1.5 - 2.33 L/ha

Pre-Harvest interval: 14 days

Note: Use as a directed spray with no more than 275 kPa pressure.

Crop: Walnut, Chestnut, Japanese heartnut

Rate: 1.5 - 8 L/ha

Maximum Applications/Year: 2

Note: Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 1.34% wiper solution (see "Selective Equipment" section).

Crop: North American Ginseng

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG)

The DIRECTIONS FOR USE for this product described on the Label were developed by persons other than Nufarm Agriculture Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Nufarm Agriculture Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed on this label.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Nufarm Agriculture Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described on this label.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 1.67 L/ha in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged above the soil. Apply when weeds are at the growth stages described in the product label. A maximum of

2018-1736
2018-06-07

two 1.67 L/ha applications in 50 to 100 L water/ha may be made in a season. DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.

Part 5: Non-Cropland Treatments

INDUSTRIAL, RIGHT-OF-WAY, RECREATIONAL, AND PUBLIC AREAS

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone right-of-way; petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, right-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in noncropland areas as listed. For more information on rates, water volumes and application, refer to the "Annual and Perennial Weed Control" sections of this booklet. Aerial application may be used for brush and tree control in Industrial rights-of-way only. See aerial application.

Annual grasses and broadleaves

Rate: 1.5 – 2.33 L/ha (0.67% solution for hand held application)

Water Volume: 50 – 100 L/ha

Note: Actively growing weeds

Perennial Weeds

Purple Loosestrife Control

Rate: 4 L/ha (0.67-1.34% solution for hand held application or 22% solution for wiper application)

Water Volume: 300-600 L/ha; add 0.5% v/v of a recommended surfactant.

Weed Stage: at or beyond the bloom stage and actively growing

Note: DO NOT TREAT PLANTS OVER OPEN WATER. Where feasible, remove the flower heads before treatment to ensure prevention of seed set. For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area. A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent reinfestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Brush and Tree Control

Birch, Poplar, Cherry, Western Snowberry and Willow Control

Rate: 2 – 4 L/ha (0.67-1.34% solution for hand held application)

Water Volume: 100-300 L/ha

Note: Summer through early fall

Maple, Raspberry/Salmonberry, Alder Control

Rate: 4 L/ha (1.34% solution for hand held application)

2018-1736
2018-06-07

Water Volume: 100-300 L/ha

Note: Late summer through fall. Fall is optimum.

Turf Renovation

Rate: 1.67 – 8 L/ha (0.67-1.34% solution for hand held application)

Water Volume: 100-300 L/ha

Note: Use higher end of the rate range for perennials. DO NOT disturb soil or underground plant parts before treatment. Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts. For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrasses may be established following the above procedures.

Roadside Vegetation Control (1-2 meters wide along shoulders)

Rate: 0.5 – 0.67 L/ha + 1.25-2.5 L/ha DyClear 480

0.5 – 0.67 L/ha + 0.30 L/ha DyClear 480 + 1.2 L/ha 2,4-D Amine 500

Water Volume: 25-150 L/ha

Weeds Controlled: Annual Weeds (refer to Annual weed Control table on this label and other labels for specific weeds)

Note: For other 2,4-D Amine formulations with a different guarantee, adjust the rate accordingly. DO NOT APPLY TO STANDING WATER.

Residual Annual and Perennial Weed Control

Rate: 1.67 – 8.0 L/ha + 4.0-9.0 L/ha Simadex Simazine Flowable

Water Volume: 200-400 L/ha

Note: DO NOT apply to coarse, sandy or gravelly soil. One application per year. The simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide post-emergent activity on certain annual weeds.