

**(Container)**

# Warlock™

GROUP	4	HERBICIDE
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**For control of broadleaf weeds, invasive plants and woody plants in rangeland, permanent pasture, industrial and other non-crop areas of Canada.**

COMMERCIAL

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

ACTIVE INGREDIENT: Aminopyralid, present as triisopropanolamine salt 240 g/L  
Solution

REGISTRATION NO. 34903 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 0.1 L - bulk

Albaugh, LLC.  
1525 NE 36th Street  
Ankeny, IA 50021, USA  
1-800-247-8013

For medical or treatment information from exposure to this product, call 1-888-347-6732  
(7 days/week, 24-hr).

For 24-hour chemical spill, leak, fire, exposure, or accident response information, call CHEMTREC toll  
free at 1-800-424-9300.

## **PRECAUTIONS**

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

### **PERSONAL PROTECTIVE EQUIPMENT**

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. In addition, wear protective eyewear (goggles or face shield) during mixing, loading, clean-up and repair.

**DO NOT** enter or allow worker entry into treated rangeland and pastureland areas during the restricted-entry interval (REI) of 12 hours. For all other non-crop areas, **DO NOT** enter or allow worker entry into treated areas until sprays have dried.

When tank-mixes are permitted, read and observe all label directions, including rates and restrictions for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

### **SPRAY DRIFT PRECAUTIONS**

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, application equipment and sprayer settings.

### **OPERATOR USE PRECAUTIONS**

- Wash hands before eating, drinking, using tobacco or using the washroom.
- If herbicide penetrates clothing, remove immediately; then wash thoroughly and put on clean clothing.
- Remove personal protective equipment immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Follow manufacturer's instructions for cleaning personal protective clothing and equipment. If no such instructions for washables are provided, use detergent and hot water. Keep and wash personal protective equipment separate from household laundry.

### **FIRST AID**

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

**If swallowed:** Call a poison control centre or doctor immediately for treatment advice. 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.

### **TOXICOLOGICAL INFORMATION**

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

## **ENVIRONMENTAL PRECAUTIONS**

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

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.

## **STORAGE**

Store this product away from food or feed.

## **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.

### **Disposal of unused, unwanted product**

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

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

(Booklet)

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**PRECAUTIONS**  
**KEEP OUT OF REACH OF CHILDREN**

**PERSONAL PROTECTIVE EQUIPMENT**

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**DO NOT** enter or allow worker entry into treated rangeland and pastureland areas during the restricted-entry interval (REI) of 12 hours. For all other non-crop areas, **DO NOT** enter or allow worker entry into treated areas until sprays have dried.

When tank-mixes are permitted, read and observe all label directions, including rates and restrictions for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

**SPRAY DRIFT PRECAUTIONS**

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, application equipment and sprayer settings.

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### **Disposal of unused, unwanted product**

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.

## **GENERAL INFORMATION**

Warlock, applied as a post emergent, controls broadleaf weeds, invasive plants and woody plants in rangeland, permanent pasture, industrial areas (including but not limited to rights-of-way and military bases) and other non-crop areas. Applications should be avoided under conditions of drought or other environmental stresses. **Read all precaution statements before using this product.** For more information, contact your local Rotam North America Inc. representative.

For best results, apply Warlock to young weeds that are actively growing at time of application.

## **GENERAL USE PRECAUTIONS**

Warlock is highly active against broadleaf plants. This product is recommended for use on areas where loss of broadleaf forage plants, including legumes, can be tolerated.

Do not apply more than 0.50 L (120 g ai) per hectare of Warlock per annual growing season in rangeland, permanent pasture, industrial, and other non-crop areas.

### **Sensitive Plants**

Warlock works primarily through uptake by plant foliage and translocation throughout the plant. However, secondary herbicide activity may occur through soil uptake of the aminopyralid component of Warlock. Very small amounts of aminopyralid can kill or damage sensitive broadleaf plants. Only spray pastures if injury to existing forage can be tolerated. Care should be taken to avoid spraying desirable broadleaved plants, during both growing and dormant periods.

Avoid application within the drip line (outermost edge of the tree canopy) of desirable coniferous and deciduous trees unless injury can be tolerated. Use special caution when using aminopyralid-based products around species with extensive lateral root systems, shallow rooting species and those that propagate vegetatively through layering.

Clippings or hay from vegetation which has been treated with aminopyralid should not be used for composting or mulching. Aminopyralid residues pass through animals unchanged and are still herbicidally active. The manure from animals grazing treated areas or fed treated hay should not be used around susceptible plants. Do not transfer livestock from treated grazing areas onto broadleaf crop areas without first allowing 3 days of grazing on untreated grass pasture.

Only one application per growing season is permitted.

Warlock cannot be applied on domestic or commercial turf grass.

### **Tank Mixtures**

This product may be tank mixed with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions for Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact Albaugh LLC. at 1-800-247-8013 for information before applying any tank mix that is not specifically recommended on this label.

### **DIRECTIONS FOR USE**

READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL.

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.

### **RANGELAND, PERMANENT PASTURE, INDUSTRIAL AND OTHER NON-CROP AREAS OF CANADA**

#### **WARLOCK ALONE**

Apply Warlock at a rate of 0.25 – 0.50 L/ha. Apply when weeds are small and actively growing. Apply using aerial equipment (minimum of 19 L spray volume/ha) or ground equipment (minimum of 100 L spray volume/ha) that will assure uniform coverage.

### Weeds Controlled or Suppressed by Warlock Alone

Rate of Warlock	Weeds controlled	Weeds suppressed
<b>0.25 L/ha</b> 60 g a.i./ha		Canada thistle spotted knapweed
<b>0.29 L/ha</b> 70 g a.i./ha	common ragweed yellow star thistle <sup>1</sup> plumeless thistle musk or nodding thistle Canada fleabane horsenettle perennial sowthistle oxeye daisy <sup>2</sup> tall buttercup Canada thistle spotted knapweed common broomweed bull thistle tropical soda apple <sup>3</sup> hairy buttercup tropic croton	western ragweed curly dock Canada goldenrod scentless chamomile sulphur cinquefoil <sup>4</sup>
<b>0.38 L/ha</b> 90 g a.i./ha	Weeds listed above plus: cudweed curly dock western ragweed scentless chamomile bitter sneezeweed hairy fleabane tansy ragwort clover	absinth (wormwood) Canada goldenrod
<b>0.50 L/ha</b> 120 g a.i./ha	Weeds listed above plus: absinth (wormwood) prickly lettuce Fuller's teasel tall ironweed fireweed purple loosestrife orange hawkweed <sup>8</sup> mullein rush skeletonweed Scotch thistle	Canada goldenrod common yarrow common tansy diffuse knapweed <sup>5</sup> dandelion Russian knapweed <sup>6</sup> Japanese knotweed <sup>7</sup>

<sup>1</sup>Yellow star thistle: Apply to plants at the rosette through bolting growth stage

<sup>2</sup>Oxeye daisy: Apply to plants in the pre-bud stages of development

<sup>3</sup>Tropical soda apple: apply to any growth stage but application by flowering will reduce seed production

<sup>4</sup>Sulfur cinquefoil: apply to plants in the prebud stage of development.

<sup>5</sup>Diffuse knapweed: Apply to plants in the bolting stage of development

<sup>6</sup>Russian knapweed: apply to plants in the spring and summer that are in the bud to flowering

<sup>7</sup>Japanese knotweed: Apply to plants 0.9-1.2 m tall

<sup>8</sup>Orange hawkweed: For seasonal and 12 month control, apply to plants in the bolting stage of development.



## TANK-MIX COMBINATIONS WITH WARLOCK

Warlock can be tank mixed with 2,4-D Amine herbicide to broaden the spectrum of weeds controlled. When tank-mixes are permitted, read and observe all label directions, including rates and restrictions for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

Herbicide Component	Rate	Weeds Controlled
Warlock	0.29 L/ha (70 g ai/ha)	Control of annual sow thistle, bluebur, burdock (<4 leaf), cocklebur, common plantain, flixweed, goat's beard, prickly lettuce, ragweeds, stinging nettle, sweet clover, curled dock (<4 leaf), hawkweed, peppergrass, season long control of Canada thistle, spotted knapweed, scentless chamomile, Canada goldenrod, and top growth control of blue lettuce, bull thistle, buttercup, gumweed, hoary cress, perennial sow thistle  Plus, all the weeds controlled by 0.29 L/ha (70 g ai/ha) of Warlock alone and all the weeds listed on the 2,4-D Amine label at 840 g ae/ha (equivalent to 1.5 L/ha of 2,4-D Amine 600 Herbicide)
2,4-D Amine	840 g ae/ha	
Herbicide Component	Rate	Weeds Controlled
Warlock	0.38 L/ha (90 g ai/ha)	all weeds listed above plus season long control of absinth wormwood, dandelion  Plus, all the weeds controlled by 0.38 L/ha (90 g ai/ha) of Warlock alone and all the weeds listed on the 2,4-D Amine label at 1080 g ae/ha (equivalent to 1.9 L/ha of 2,4-D Amine 600 Herbicide)
2,4-D Amine	1080 g ae/ha	
Herbicide Component	Rate	Weeds Controlled
Warlock	0.50 L/ha (120 g ai/ha)	all weeds listed above plus season long control of western snowberry, common tansy  Plus, all the weeds controlled by 0.50 L/ha (120 g ai/ha) of Warlock alone and all the weeds listed on the 2,4-D Amine label at 1440 g ae/ha (equivalent to 2.6 L/ha of 2,4-D Amine 600 Herbicide)
2,4-D Amine	1440 g ae/ha	

### Tank-Mix Combinations – Warlock Plus Arsenal Herbicide or glyphosate herbicides (present as isopropylamine salt, diammonium salt, potassium salt or dimethylamine salt, registered for use on non-cropland areas)

Warlock can be tank mixed with either Arsenal Herbicide or glyphosate herbicides (present as isopropylamine salt, diammonium salt, potassium salt or dimethylamine salt, registered for use on non-cropland areas) to broaden the spectrum of broadleaf weeds and invasive plants controlled. These tank mixes will provide control of most grass and broadleaf species. Use these tank mixes on non-crop industrial sites such as railroad, electrical, highway, telephone and pipeline rights-of-way.

**Warlock plus Arsenal Herbicide:** Apply 3.0 L of Arsenal Herbicide per hectare tank mixed with 0.25 – 0.50 L of Warlock per hectare.

**Warlock plus glyphosate herbicides (present as isopropylamine salt, diammonium salt, potassium salt or dimethylamine salt, registered for use on noncropland areas):** Apply 810 – 4320 g a.e. per hectare of glyphosate herbicide (present as isopropylamine salt, diammonium salt, potassium salt or

dimethylamine salt, registered for use on non-cropland areas) tank mixed with 0.25 – 0.50 L of Warlock per hectare.

**Warlock plus Torpedo EZ Herbicide (For use in non-cropland areas of farms)**

Apply 0.25 – 0.50 L of Warlock per hectare tank mixed with 880-1215 mL per hectare of Torpedo EZ Herbicide plus an adjuvant (0.25% v/v non-ionic surfactant)

**Warlock plus Torpedo EZ Herbicide plus Glyphosate Herbicide (e.g. VP480 Herbicide) (For use in non-cropland areas of farms)**

Apply 0.25 – 0.50 L of Warlock per hectare tank mixed with 880-1215 mL per hectare of Torpedo EZ Herbicide, plus 0.8 – 4.3 kg ai/ha of glyphosate herbicide (Equivalent to 1.69 – 9.0 L/ha of VP480 Herbicide).

## **INVASIVE PLANT MANAGEMENT**

### **Invasive Plant Management Practices**

Warlock can be applied post-emergence as a broadcast spray or as a spot/strip application to control invasive plants. Post-emergence applications should be made before bud stage or early flowering, unless otherwise specified. Best results are obtained when the spray volume is sufficient to provide uniform coverage of treated plants. For optimum uptake and translocation of the herbicide, avoid mowing, haying, shredding or disturbing treated areas for at least 7 days following application.

Warlock can be an important component of integrated vegetation management programs designed to restore desired plant communities. To maximize and extend the benefits of weed control provided by Warlock, it is important that other vegetation management practices, including proper grazing management, fertilization, prescribed fire, mechanical mowing, hand-pulling, bio control and other methods, be used in appropriate sequences and combinations to further alleviate the adverse effects of invasive plants on desirable plant species and to promote development of desired plant communities.

Consult local agriculture and land management resource specialists and/or invasive plant councils. These organizations can provide guidance on best management practices and the development of integrated vegetation management programs. Rapid response to the early detection of new invasive plants is a key invasive plant management strategy. Containment, eradication and control are essential for the management of spreading and established invasive plants.

### **Rangeland and Pasture Areas**

Make only one application per year for control of invasive plants. For best results, invasive plants should be treated when they are actively growing and under conditions favourable for growth. Warlock also provides pre-emergence control of germinating seeds and control of emerged seedlings of susceptible plants following application.

To reduce the spread of invasive plants, it is important to treat identified invasive plants in the target area while observing required spray buffer zones for broadcast applications. Return when the wind is blowing from the opposite direction to complete spraying the targeted plant population.

### **Individual Plant or Spot/Strip Applications**

An important component of Invasive Plant Management programs is early detection and eradication. The instructions for individual plant or spot or strip applications can be used to stop the spread of invasive plants. This is particularly important in riparian areas, where spot application is preferable to broadcast treatment. Use the mixing charts and directions listed under the **APPLICATION METHODS** section below to mix Warlock with enough water to make the correct amount of spray solution. Use equipment designed for individual plant or spot/strip applications, such as a backpack sprayer or hose and handgun, to spray susceptible invasive plants. Thoroughly and uniformly wet the foliage of all target plants but not

to the point of runoff. Direct spray away from aquatic habitats and non-target terrestrial plants. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), estuaries or marine habitats.

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

- There is no restriction on livestock or lactating dairy animals grazing in treated areas.
- Allow 3 days of grazing on an untreated pasture (or feed untreated hay) before transferring livestock to areas where sensitive broadleaf crops may be grown.

#### **MIXING METHODS**

##### **Mixing with Water**

To prepare the spray mix, add half the desired amount of water in the spray tank. Then with agitation, add the recommended amount of Warlock and then the tank-mix partner. Finally, with continued agitation, add the rest of the water.

#### **APPLICATION METHODS**

##### **Individual Plant or Spot/Strip Applications**

Use the following mixing chart to mix Warlock with enough water to make the correct amount of spray solution. Use equipment designed for individual plant or spot/strip application, such as a backpack sprayer or hose and handgun, to spray weeds. Thoroughly and uniformly wet the foliage of all target plants but not to the point of runoff. Direct spray away from aquatic habitats and non-target terrestrial plants. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), estuaries or marine habitats.

##### **Mixing Chart**

<b>Warlock</b>	<b>Spray Solution (water and herbicide)</b>
2.5 mL – 5 mL	10 litres
25 mL – 50 mL	100 litres
250 mL – 500 mL	1000 litres

Use the higher rate in the rate range when growing conditions are less than favourable or when the plant foliage is tall and dense.

##### **Broadcast Treatment (Ground and Aerial Applications)**

Applications of Warlock may be made once grasses are well-established (have developed a good secondary root system and show good vigor).

##### **(1) Ground Application**

Using ground equipment, apply Warlock as a broadcast treatment to control listed broadleaf weeds and woody plants. Apply Warlock at the recommended rates in a minimum spray volume of 100 L/ha.

**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.

##### **Ground Application – Spray Buffer Zones Requirements**

A spray buffer zone is NOT required for uses with hand-held application equipment permitted in this label.

For application to rights-of-way, spray 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 (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet

sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified spray buffer zones for protection of sensitive aquatic habitats.

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

Method of Application	Crop	Spray Buffer Zones (metres) Required for the Protection of Terrestrial and Aquatic Habitats
Field sprayer	Rangeland, permanent pasture, industrial and other non-crop areas	10

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

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

## (2) 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. Reduce drift caused by turbulent wingtip vortices. Nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Use Warlock or the Warlock+ 2,4-D tank-mix as a broadcast treatment by air to control listed broadleaf weeds and woody plants. Apply Warlock at the recommended rates in a minimum spray volume of 19 L/ha by air. Refer to the tank-mix partner label for additional instructions and precautions.

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

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

## Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even 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.

### 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, clean-up, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the 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 manufacturer at 1-800-247-8013 or obtain technical advice from the distributor or your provincial agricultural representative.

### Aerial Application – Spray Buffer Zones Requirements

For application to rights-of-way, spray 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 (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified spray buffer zones for protection of sensitive aquatic habitats.

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

Spray Quality	Spray Buffer Zones (metres) Required for the Protection of Terrestrial and Aquatic Habitats:	
	Aircraft Type	
	Fixed-Wing Aircraft	Rotary-Wing Aircraft
ASAE Coarse (VMD = 385.22 µm)	175	150
ASAE Coarse - Very Coarse (VMD = 439.39 µm)	125	100
ASAE Very Coarse (VMD = 477.94 µm)	100	90
ASAE Very Coarse- Extremely Coarse (VMD = 521.38 µm)	80	70

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

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

### **SPRAYER CLEAN-OUT INSTRUCTIONS**

**DO NOT** use spray equipment used to apply Warlock for other applications to land planted to, or to be planted to susceptible crops or desirable sensitive plants, unless it has been determined that all residue of this herbicide has been removed by thorough cleaning of equipment. Equipment used to apply Warlock should be thoroughly cleaned before reusing to apply any other chemicals.

1. Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.
2. Rinse a second time, adding 1 litre of household ammonia or tank cleaning agent for every 1000 L of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Nozzles and screens should be removed and cleaned separately.

### **RESISTANCE MANAGEMENT RECOMMENDATIONS**

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

To delay herbicide resistance:

- Where possible, rotate the use of Warlock or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible, by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

- For further information or to report suspected resistance, contact Albaugh LLC at 1-800-247-8013.

**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.