

(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.

AD040226

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. Additional guidance can be found on the Runoff Mitigation portion of the Canada.ca website.

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 or territorial 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 registrant or the provincial or territorial regulatory agency. Contact the registrant and the provincial or territorial 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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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
0.25 L/ha 60 g a.i./ha		Canada thistle spotted knapweed
0.29 L/ha 70 g a.i./ha	common ragweed yellow star thistle ¹ plumeless thistle musk or nodding thistle Canada fleabane horsenettle perennial sowthistle oxeye daisy ² tall buttercup Canada thistle spotted knapweed common broomweed bull thistle tropical soda apple ³ hairy buttercup tropic croton	western ragweed curly dock Canada goldenrod scentless chamomile sulphur cinquefoil ⁴
0.38 L/ha 90 g a.i./ha	Weeds listed above plus: cudweed curly dock western ragweed scentless chamomile bitter sneezeweed hairy fleabane tansy ragwort	absinth (wormwood) Canada goldenrod
0.50 L/ha 120 g a.i./ha	Weeds listed above plus: absinth (wormwood) prickly lettuce Fuller's teasel tall ironweed mullein rush skeletonweed Scotch thistle	Canada goldenrod common yarrow common tansy diffuse knapweed ⁵ dandelion Russian knapweed ⁶

¹Yellow star thistle: Apply to plants at the rosette through bolting growth stage

²Oxeye daisy: Apply to plants in the pre-bud stages of development

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

⁴Sulfur cinquefoil: apply to plants in the prebud stage of development.

⁵Diffuse knapweed: Apply to plants in the bolting stage of development

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

TANK-MIX COMBINATIONS WITH WARLOCK

Tank-Mix Combinations – Warlock Plus 2,4-D Amine

Warlock can be tank mixed with 2,4-D Amine herbicide to broaden the spectrum of weeds controlled.

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 Plotter

Apply when targeted undesirable vegetation is actively growing. Only weeds and brush present at the time of application will be controlled. Removal of competing vegetation may result in new Canada thistle shoots emerging. Apply using aerial equipment with a minimum of 30 litres spray volume/ha or ground equipment with a minimum of 110 L spray volume/ha, that will assure uniform coverage. For better coverage use 50 litres/ha for aerial application and 200 litres/ha for ground application.

IPCO Ag-Surf Original, Weedaway Ag-Surf Liquid Spray Adjuvant, Agral 90 Non-ionic Wetting & Spreading Agent Liquid, Agral 90 Non-ionic Liquid Wetting & Spreading Agent, Citowett Plus, and Super Spreader Adjuvant are registered for use with Plotter and Plotter + 2,4-D. Use the surfactant at the rate of 2 L per 1000 L spray solution (0.2% v/v). Follow all instructions under Mixing Methods for surfactant requirements and order of mixing.

SEASON LONG CONTROL AND SUPPRESION - WARLOCK PLUS PLOTTER

Rate	Control of:		
Warlock - 0.29 L/ha Plus Plotter - 21 g/ha Plus surfactant at 0.2%v/v	ball mustard bluebur bull thistle Canada fleabane Canada thistle chickweed clover common groundsel common ragweed common tansy corn spurry cow cockle dandelion field scabious	flixweed green smartweed hemp-nettle horse-nettle kochia♦ lady's-thumb musk or nodding thistle narrow-leaved hawk's beard oxeye daisy (pre-bud) perennial sow-thistle plumeless thistle prostrate pigweed Russian thistle	scentless chamomile shepherd's purse spotted knapweed stinkweed stork's bill sweet clover tall buttercup tartary buckwheat volunteer canola♦♦ western snowberry (buckbrush) wild mustard yellow star-thistle
	Canada goldenrod	Suppression of: lamb's quarters	wild buckwheat
Warlock - 0.38 L/ha Plus Plotter - 27 g/ha Plus surfactant at 0.2%v/v	cudweed curly dock fireweed hoary alyssum absinth wormwood	Plants Listed Above Plus Control of: perennial pepperweed Prairie wild rose pussy toes scotch thistle Suppression of:	volunteer alfalfa western ragweed wild carrot wild strawberry
Warlock - 0.44 L/ha Plus Plotter - 32 g/ha Plus surfactant at 0.2%v/v	baby's breath black henbane	Plants Listed Above Plus Control of: rush skeletonweed	wild caraway wild parsnip
Warlock - 0.50 L/ha Plus Plotter - 36 g/ha Plus surfactant at 0.2%v/v	absinth wormwood brown knapweed diffuse knapweed♦♦♦ hound's tongue	Plants Listed Above Plus Control of: Japanese knotweed mullein orange hawkweed♦♦♦♦ prickly lettuce Suppression of: yarrow	purple loosestrife whitetop (hoary cress) yellow hawkweed♦♦♦♦

♦Non ALS resistant biotypes

♦♦All varieties except ALS resistant canola

♦♦♦Apply high rate when plants are actively growing with the optimum time of application occurring from rosette to the bolting stages of development or in the fall. Plants will be controlled by mid-summer and fall application even though plants may not show any changes in form or stature the year of application.

♦♦♦♦Apply high rate to plants in the bolting stage of development.

12 MONTH CONTROL OR SUPPRESSION - WARLOCK PLUS PLOTTER

Rate	Controlled up to 12 Months	Suppression up to 12 Months
Warlock - 0.29 L/ha Plus Plotter - 21 g/ha Plus surfactant at 0.2%v/v	scentless chamomile	Canada thistle dandelion
Warlock - 0.38 L/ha Plus	Plants listed above plus: Canada thistle♦	pasture sage (fringed sage) prairie sage

Plotter - 27 g/ha Plus surfactant at 0.2%v/v	dandelion wild strawberry	prairie wild rose western snowberry (buckbrush)
Warlock - 0.44 L/ha Plus Plotter - 32 g/ha Plus surfactant at 0.2%v/v	Plants listed above plus: prairie wild rose	
Warlock - 0.50 L/ha Plus Plotter - 36 g/ha Plus surfactant at 0.2%v/v	Plants listed above plus: pasture sage (fringed sage)	silverberry

◆Removal of competing vegetation may result in new Canada thistle shoots emerging.

24 MONTH CONTROL OR SUPPRESSION – WARLOCK PLUS PLOTTER

Rate	Controlled up to 24 Months	Suppression up to 24 Months
Warlock - 0.38 L/ha Plus Plotter - 27 g/ha Plus surfactant at 0.2%v/v	wild strawberry	Canada thistle◆ dandelion pasture sage (fringed sage) prairie wild rose
Warlock - 0.44 L/ha Plus Plotter - 32 g/ha Plus surfactant at 0.2%v/v	Plants listed above:	western snowberry (buckbrush)
Warlock - 0.50 L/ha Plus Plotter - 36 g/ha Plus surfactant at 0.2%v/v	Plants listed above plus: Canada thistle dandelion pasture sage (fringed sage) prairie wild rose	

◆Removal of competing vegetation may result in new Canada thistle shoots emerging.

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.

Tank-Mix Combinations – Warlock Plus Plotter Plus 2,4-D Amine

Warlock plus Plotter can be tank mixed with 2,4-D Amine to broaden the spectrum of weeds controlled. Follow all instructions under Mixing Methods for surfactant requirements and mixing order.

SEASON LONG CONTROL – WARLOCK + PLOTTER + 2,4-D AMINE

Rate	Broadleaf Weeds Controlled	
Warlock - 0.29 L/ha Plus Plotter - 21 g/ha Plus 2,4-D Amine - 840-1440 g ae/ha Plus surfactant at 0.2% v/v	absinth wormwood annual sowthistle blue lettuce (top growth) burdock < 4 leaf Canada goldenrod cocklebur common plantain goat's beard	gumweed (top growth) hawkweed hoary cress (top growth) lamb's-quarters pasture sage (fringed sage) prickly lettuce stinging nettle wild buckwheat
	Shrubs	
	silverberry (wolf willow)	
	Plus all the weeds on the 2,4-D Amine label at 840-1440 g ae/ha (equivalent to 1.5 - 2.6 L/ha of 2,4-D Amine 600 Herbicide)	

Warlock - 0.38 L/ha Plus Plotter - 27 g/ha Plus 2,4-D Amine - 840-1440 g ae/ha Plus surfactant at 0.2%v/v	Broadleaf weeds controlled – Plants listed above plus:
	prairie sage
	Shrubs
	shrubby cinquefoil
	Plus all the weeds on the 2,4-D Amine label at 840-1440 g ae/ha (equivalent to 1.5 - 2.6 L/ha of 2,4-D Amine 600 Herbicide)

12 MONTH CONTROL – WARLOCK PLUS PLOTTER PLUS 2,4-D AMINE

Rate	Broadleaf Weeds Controlled:
Warlock - 0.29 L/ha Plus Plotter - 21 g/ha Plus 2,4-D Amine - 1100 g ae/ha Plus surfactant at 0.2%v/v	Canada thistle* dandelion wild strawberry
Warlock - 0.38 L/ha Plus Plotter - 27 g/ha Plus 2,4-D Amine - 1100 g ae/ha Plus surfactant at 0.2%v/v	Plants listed above plus: prairie wild rose shrubby cinquefoil western snowberry (buckbrush) pasture sage – suppression only
Warlock - 0.44 L/ha Plus Plotter – 32 g/ha Plus 2,4-D Amine - 1100 g ae/ha Plus surfactant at 0.2%v/v	Plants listed above plus: pasture sage (fringed sage) prairie sage silverberry (wolf willow)

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24 MONTH CONTROL – WARLOCK PLUS PLOTTER PLUS 2,4-D AMINE

Rate	Broadleaf Weeds Controlled:
Warlock - 0.29 L/ha Plus Plotter - 21 g/ha Plus 2,4-D Amine - 1100 g ae/ha Plus surfactant at 0.2%v/v	dandelion wild strawberry
Warlock - 0.38 L/ha Plus Plotter - 27 g/ha Plus 2,4-D Amine - 1100 g ae/ha Plus surfactant at 0.2%v/v	Plants listed above plus: pasture sage (fringed sage) Canada thistle – suppression only prairie wild rose – suppression only
Warlock - 0.44 L/ha Plus Plotter – 32 g/ha Plus 2,4-D Amine - 1100 g ae/ha Plus surfactant at 0.2%v/v	Plants listed above plus: Canada thistle* prairie wild rose silverberry (wolf willow) western snowberry (buckbrush)
Warlock - 0.50 L/ha Plus Plotter – 36 g/ha	Plants listed above plus: prairie sage shrubby cinquefoil

Plus 2,4-D Amine - 1100 g ae/ha Plus surfactant at 0.2%v/v	
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Preharvest/Grazing Intervals for Warlock plus Plotter tank mixed with 2,4-D Amine 600 Herbicide.

- There is no restriction on livestock (except lactating dairy animals) grazing in treated areas.
- Do not permit lactating dairy animals to graze fields within 7 days after application.
- Do not harvest forage or cut hay within 30 days after application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.
- 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.

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. If required, add the recommended amount of surfactant. 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

Warlock	Spray Solution (water and herbicide)
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.

Field sprayer application: DO NOT apply when wind speed is less than 1 km/h. Avoid application of this product when winds are gusty. DO NOT apply with sprays finer than the American Society of Agricultural and Biological Engineers (ASABE) S572 (572.1 to 572.3) Coarse classification. Boom height must be 60 cm or less above the crop or ground.

SPRAY BUFFER ZONES - Ground Application

A spray buffer zone is NOT required for:

- uses with hand-held application equipment permitted on this label,
- low-clearance hooded or shielded sprayers that prevent spray contact with crop, fruit or foliage

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., coarser 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.

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

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

(2) Aerial Application

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.

Conventionally piloted aircraft application: DO NOT apply when wind speed is less than 1 km/h. 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 sprays finer than the American Society of Agricultural and Biological Engineers (ASABE) S572 (572.1 to 572.3) 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.

Apply only by 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 specified 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 or a Global Positioning System (GPS).

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 registrant at 1-800-247-8013 or obtain technical advice from the distributor or your provincial or territorial agricultural representative.

SPRAY BUFFER ZONES - Aerial Application

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., coarser 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
ASABE Coarse (VMD = 385.22 µm)	175	150
ASABE Coarse - Very Coarse (VMD = 439.39 µm)	125	100
ASABE Very Coarse (VMD = 477.94 µm)	100	90
ASABE 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 (ASABE) category indicated on the labels for those tank mix partners.

The spray buffer zones for this product for conventional application equipment can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Drift Mitigation 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.