

GROUP	4	HERBICIDE
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VANQUISH® Herbicide

HERBICIDE

INDUSTRIAL

VANQUISH herbicide controls deciduous and coniferous brush species and broadleaf weeds in non-cropland areas such as roadsides, hydro, pipeline and railway rights-of-way, airports, military bases, wasteland and turf.

GUARANTEE:

Dicamba, present as the diglycolamine salt 480 g a.e./L

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

CAUTION



POISON

WARNING: EYE IRRITANT

REGISTRATION NO. **26980**
PEST CONTROL PRODUCTS ACT

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Pamphlet

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.

FIRST AID

IF POISONING IS SUSPECTED, IMMEDIATELY contact a physician or a poison control centre. 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 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

There is no specific antidote if this product is ingested. Dicamba may cause severe irritation to the eyes, and irritation to the skin and mucous membranes. Symptoms of exposure to dicamba may include dizziness, muscle weakness, loss of appetite, weight loss, vomiting, decreased heart rate, shortness of breath, excitement, tenseness, depression, incontinence, cyanosis, muscle spasms, exhaustion and loss of voice. Treat symptomatically.

PRECAUTIONS

1. KEEP OUT OF REACH OF CHILDREN.
2. Harmful if swallowed or absorbed through the skin.
3. Avoid contact with skin, eyes and clothing.
4. Applicators must wear coveralls over long pants, a long-sleeved shirt and chemical-resistant gloves.
5. Aerial applicators must wear long pants and a long-sleeved shirt. Aerial mixer/loaders must wear long pants and a long-sleeved shirt and chemical-resistant gloves.
6. Do not use in residential areas, which are defined as sites where bystanders may be present during or after spraying, including homes, schools, parks, playgrounds, playing fields and public buildings.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants.

Observe buffer zones specified under DIRECTIONS FOR USE.

Surface Runoff:

To reduce runoff from treated areas into aquatic habitats consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include but are not limited to heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay).

Potential for contamination of aquatic areas as a result of runoff may be reduced by including an untreated vegetation strip between the treated area and the edge of the water body.

Avoid applying this product when heavy rain is forecasted.

Leaching:

The use of this chemical may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sand, loamy sand and sandy loam soils) and/or depth to the water table is shallow.

FOR 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.

CONTAINER DISPOSAL:**For recyclable containers:**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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

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

GENERAL PRECAUTIONS

1. Do not apply on or near desirable trees or plants, or in locations where chemical may be washed into contact with their roots.
2. Apply in the morning or late in the evening when air temperature is between 10 and 25 °C for best results.
3. Do not contaminate domestic or irrigation waters. Thoroughly clean application equipment after use.
4. For information on feeding and grazing of beef and dairy cattle on treated vegetation refer to the appropriate grazing, haymaking and slaughter restrictions.
5. Read and follow the label instructions for the tank-mix products noting pertinent recommendations, directions for use, restrictions or additional weeds controlled.

SPRAY DRIFT PRECAUTIONS:

VANQUISH herbicide may cause injury to desirable trees and plants, particularly soybeans, flowers, fruit trees, grapes, ornamentals, peas, potatoes, tomatoes and tobacco. Follow these precautions when spraying VANQUISH herbicide in areas where sensitive crops are grown.

1. Do not treat areas where downward movement into the soil or surface washing may bring VANQUISH herbicide into contact with the roots of desirable plants.
2. Avoid making applications where spray particles may be carried by air currents onto nearby sensitive crops. Do not spray near sensitive crops when winds are gusty or in excess of 8 km/hour and moving towards sensitive crops. Leave an adequate buffer zone between areas to be treated and sensitive plants.
3. Do not apply VANQUISH herbicide in the vicinity of sensitive crops when the temperature on the day of application is expected to exceed 25 °C as drift is more likely to occur.
4. Ensure that spray equipment used to apply VANQUISH herbicide is properly cleaned before reusing to apply any other chemicals.
5. Avoid spraying under conditions of high humidity or fog to prevent drift to adjacent crops.

DIRECTIONS FOR USE

For high volume handwand applications to non-crop areas, applicators must limit volume of solution used per day to 400 L (broadleaf control spot treatment only).

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) medium/coarse classification (according to the appropriate buffer zone table). Boom height must be 60 cm or less above the crop or ground.

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams reservoirs and wetlands), estuarine or marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of

equipment or disposal of wastes.

BRUSH CONTROL:

VANQUISH herbicide tank-mixes are effective in controlling many coniferous and deciduous brush species found in areas where they may be undesirable.

1. Prepare a tank-mix consisting of VANQUISH herbicide plus 2,4-D amine, 2,4-D L.V. ester or 2,4-D/2,4-DP herbicide.
2. Apply VANQUISH herbicide tank-mixes in spring or early summer to coniferous and deciduous brush species (after the leaves have fully expanded). Stop applications at least 3 weeks prior to change of leaf colour in the fall.
3. For best results and ease of application, cut brush or trees over 2 M in height and treat re-growth when it develops.
4. VANQUISH herbicide will not mix with oils.

STEM FOLIAGE:

Ground Application Directions

1. Apply to foliage and stems to the point of runoff. Complete coverage is essential for effective control.
2. The volume of spray per hectare will vary according to the height and density of the wood species present.
3. Use of a tank-mix with 2,4-D L.V. ester herbicide may improve control of balsam poplar as well as other species when they are under drought stress, especially under periods of hot, dry weather.

SPECIES CONTROLLED	RATE PER 1000 LITRES OF WATER
Western snowberry Wolf willow Aspen poplar Wild rose Alder Cherry	2.1 L VANQUISH herbicide plus 4.0 L of 2,4-D amine (500 g/L formulation) herbicide or 3.3 L of 2,4-D L.V. ester (600 g/L formulation) herbicide
Balsam poplar Basswood Birch Elm Hickory Vine maple Black cottonwood Bur oak Red oak Tamarack Pine White cedar Spruce Balsam fir	4.0 L VANQUISH herbicide plus 8.0 L 2,4-D amine (500 g/L formulation) herbicide or 6.6 L of 2,4-D L.V. ester (600 g/L formulation) herbicide
Sugar maple White ash	5.2 L VANQUISH herbicide plus 7.1 L of 2,4-D/2,4-DP L.V. ester (350 g/L 2,4-D; 350 g/L 2,4-DP formulation) herbicide

BROADCAST GROUND TREATMENT:Application Directions:

1. Apply in sufficient diluent to wet all foliage.
2. A water volume of 220-330 litres of water per hectare is recommended for brush stands.

SPECIES CONTROLLED	RATE/HECTARE
White (paper) birch Willow Aspen poplar	4.2 L VANQUISH herbicide plus 8.0 L of 2,4-D amine (500 g/L formulation) herbicide or 6.6 L of 2,4-D L.V. ester (600 g/L formulation) herbicide or 5.2 L VANQUISH herbicide plus 7.2 L of 2,4-D/2,4-DP L.V. ester (350 g/L 2,4-D; 350 g/L 2,4-DP formulation) herbicide

BROADLEAF WEED CONTROL

VANQUISH herbicide can be used alone or in tank-mixes with 2,4-D amine or 2,4-D L.V. ester herbicide. VANQUISH herbicide tank-mixes offer additional broadleaf weed control.

APPLICATION DIRECTIONS:

Apply VANQUISH herbicide or VANQUISH herbicide tank-mixes in 110 to 220 litres of water per hectare when weeds are actively growing. For poison ivy control use 560 litres of water per hectare. Thorough coverage of foliage is necessary to control weeds. For control of a broader range of weeds, the recommended rate of VANQUISH herbicide may be tank-mixed with 2,4-D amine (500 g/L) or 2,4-D ester (600 g/L) herbicide. Consult 2,4-D herbicide label regarding rates of application and weed species controlled.

SPECIES CONTROLLED	RATE PER HECTARE
Poison ivy	1.7 L VANQUISH herbicide plus 2.2 L of 2,4-D amine (500 g/L) herbicide
Wild carrot	2.1 L VANQUISH herbicide plus 4.4 L of 2,4-D amine (500 g/L) herbicide
<i>VANQUISH herbicide alone controls the top growth of:</i>	
Absinthe Canada thistle Perennial sow-thistle Leafy spurge Povertyweed Scentless chamomile	1.25 L VANQUISH herbicide

SPECIES CONTROLLED	RATE PER HECTARE
<i>VANQUISH herbicide alone controls:</i>	
Perennial sow-thistle Common ragweed English daisy Goldenrod Tansy ragwort	2.3 L VANQUISH herbicide
Canada thistle Field bindweed Top growth of curled dock False ragweed Giant ragweed	2.3 L VANQUISH herbicide
Diffuse knapweed Goat's beard Ground cherry Pasture sage Povertyweed Sheep sorrel Thyme-leafed spurge	4.6 L VANQUISH herbicide
Baby's breath Fringed sagebrush Lambkill Velvet grass <i>and top growth control of:</i> bracken fern perennial cinquefoil Russian knapweed	9.2 L VANQUISH herbicide

ROADSIDE VEGETATION CONTROL

VANQUISH herbicide can be used in a tank-mix with Roundup' Herbicide for annual vegetation control on 1-2 meter wide roadside shoulders. VANQUISH herbicide tank-mixes with Roundup and 2,4-D amine herbicide offer a broader spectrum of total control of roadside vegetation.

APPLICATION DIRECTIONS :

1. Apply 1.25 - 2.5 L/ha of VANQUISH herbicide in tank-mix with 0.75 - 1.0 L/ha of Roundup herbicide*.
2. Apply 0.30 L/ha of VANQUISH herbicide in tank-mix with 1.2 L/ha of 2,4-D amine (500 g/L formulation) and 0.75 -1.0 L/ha of Roundup herbicide*.

*Refer to the Roundup herbicide label for the appropriate rate of Roundup herbicide for specific weed control and for additional precautions and application instructions.

ESTABLISHED TURF

DO NOT APPLY BY AIR.

This product does not prevent weeds. Apply only when weeds are present. This product works best when applied to the leaves of actively growing weeds.

DO NOT apply more than two broadcast applications per season. This does not include spot treatments.

If weed populations do not warrant a broadcast application (e.g. entire lawn), consider spot treatment that target only weedy areas.

Avoid application of this product when winds are gusty.

TOXIC to broadleaf terrestrial plants. This product may harm other broadleaf plants in the vicinity of the treatment area. If applying this product using a handheld sprayer, DO NOT directly spray or allow the spray to drift onto ornamentals or gardens.

DO NOT apply to the exposed roots of trees and ornamentals.

To prevent runoff, DO NOT apply to driveways, sidewalks or any other hard surface.

DO NOT irrigate within 24 hours of application.

VANQUISH herbicide can be used alone or in a tank-mix with 2,4-D amine or 2,4-D L.V. ester herbicide. VANQUISH herbicide tank-mixes offer additional broadleaf weed control and are particularly effective against dandelion and plantain.

APPLICATION DIRECTIONS :

Apply VANQUISH herbicide or VANQUISH herbicide tank-mixes in at least 110 litres of water per hectare as a foliar spray to actively growing weeds. Best results will be obtained if application is made in early spring or fall, 2 weeks prior to first frost. Apply with caution near trees or shrubs. Do not apply closer than the drip line of trees and shrubs. Do not apply to bent grass lawns. Do not rake, mow or water lawn within 24 hours after application. For control of a broader range of weeds, the recommended rate of VANQUISH herbicide may be tank-mixed with 2.2 litres of 2,4-D amine (500 g/L) or 2 litres of 2,4-D ester (600 g/L) herbicide.

SPECIES CONTROLLED	RATE PER HECTARE
<i>VANQUISH herbicide alone will control:</i>	
Clover Sheep sorrel Mouse-eared chickweed Erect knotweed	0.28 L VANQUISH herbicide

HAYMAKING & GRAZING RESTRICTIONS FOR DAIRY CATTLE

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.

AERIAL APPLICATION DIRECTIONS FOR USE

Aerial applicators must wear long pants and a long-sleeved shirt. Aerial mixers/loaders must wear long pants and a long-sleeved shirt and chemical-resistant gloves. Must use closed cab aircraft. Mixer/loader and applicator must be different individuals. No human flaggers are permitted.

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 a 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.

1. VANQUISH herbicide tank-mixes *may be* applied aerially in not less than 85 litres of water per hectare.
2. Do not spray when wind velocities are greater than 15 km/hour.
3. Do not use nozzle pressure above 300 kPa.
4. Do not spray when wind is blowing towards nearby desirable trees or plants.

AERIAL APPLICATION 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.

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 15 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) medium/coarse classification (according to the appropriate buffer zone table). 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.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target 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 a shelter-belt) or aquatic habitat.

AERIAL APPLICATION 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 the label recommendations on the ground application section. 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.

SPECIES CONTROLLED	RATE/HECTARE
Aspen poplar White (paper) birch	4.2 L VANQUISH herbicide plus 8.0 L of 2,4-D amine (500 g/L formulation) or 6.6 L of 2,4-D L.V. ester (600 g/L formulation) herbicide

Buffer zones:

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

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies to 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 buffer zones for protection of sensitive aquatic habitat.

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

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 mixture.

Buffer Zones for Uses in Non-Cropland and Turf using ASAE Coarse Applications

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of :					
		Freshwater Habitat of Depths:		Estuarine/Marine Habitat of Depths:		Terrestrial Habitat	
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m		
Field Sprayer*	Non-Cropland	1	1	1	0	20	
Aerial	Non-Cropland**	Fixed Wing	45	30	0	0	800
		Rotary Wing	30	20	0	0	525

* For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70 %. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30 %.

** Buffer zones for the protection of terrestrial habitats are not required for the use on rights-of-way, including railroad ballast, rail and hydro rights-of-way, utility easements, roads, and training grounds and firing ranges on military bases.

Buffer Zones for using Uses in Turf (for liquid commercial class products that may be applied by tractor-pulled field sprayers, e.g. to golf courses or sod farms)

Method of application	Crop	Buffer zones (metres) required for the protection of:		
		Aquatic habitat of depths: Eustuarine/marine habitats of depths:		Terrestrial habitats:
		Less than 1 m	Greater than 1 m	
Field sprayer*	Turf (up to 135 g a.i./ha)	0	0	3

*For field sprayer application, buffer zones can be reduced with the use of drift-reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70 %. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30 %.

Resistance Management Recommendations

For resistance management, VANQUISH Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to VANQUISH Herbicide 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 VANQUISH herbicide or other Group 4 herbicides 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.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development.

Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

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 company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.