

# VANGUARD GLYPHOSATE 540 Liquid Herbicide Solution

COMMERCIAL (AGRICULTURAL and INDUSTRIAL)

CAUTION



POISON

EYE AND SKIN IRRITANT

REGISTRATION NO. 35665 PEST CONTROL PRODUCTS ACT

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

Water Soluble Herbicide for non-selective weed control

**READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.**

**NET CONTENTS: 1-1,000 LITRES**

Distributed by:  
AGX PIONEER ENTERPRISE LIMITED  
4249 Hudson St.  
Vancouver BC V6H 3B3  
+1 7788791120

Canadian representative:  
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Add: 400 Sangeet Place, Richmond, Ontario  
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## PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

May irritate eyes and skin. Avoid contact with eyes and skin.

**DO NOT** get on clothing.

**DO NOT** apply using handheld mist blower/airblast or handheld fogging equipment.

Avoid inhaling spray mist.

For all application methods except airblast: Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and chemical-resistant footwear during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

For airblast: Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, goggles or a face shield, socks and chemical-resistant footwear during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear chemical-resistant headgear during open-cab airblast application. Chemical-resistant headgear includes Sou'Wester hat, chemical-resistant rain hat or large brimmed waterproof hat and hood with sufficient neck protection. Gloves and goggles are not required during application within a closed cab.

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

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

## FIRST AID

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

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

## **TOXICOLOGICAL INFORMATION**

Treat symptomatically.

## **ENVIRONMENTAL PRECAUTIONS**

- **Toxic** to aquatic organisms and non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.

## **PHYSICAL OR CHEMICAL HAZARDS**

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

**In case of an emergency involving this product, call:**

+1 778-879-1120

**Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.**

For additional information on this or other AGX Pioneer Enterprise Limited agricultural products, call  
+1 778-879-1120

## **STORAGE**

Store this product away from food or feed.  
Soak up small amounts of spill with absorbent clays.

## **DISPOSAL**

### **RECYCLABLE CONTAINERS:**

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

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

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

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 cleanup of spills.

### **RETURNABLE CONTAINERS:**

DO NOT reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

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 cleanup of spills.

### **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 cleanup 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.

GROUP

9

HERBICIDE

# VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION

**Solution**

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# VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION

## 1.0 PRODUCT DESCRIPTION

**Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.**

### **CROPLAND USES INCLUDE:**

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

### **NON-CROPLAND USES INCLUDE:**

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

Not for relabelling or repackaging.

## 2.0 EMERGENCY NUMBERS

**In case of an emergency involving this product, call:**

+1 778-879-1120

**Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.**

## 2.1 INFORMATION

For additional information on this or other products owned by AGX Pioneer Enterprise Limited call: +1 778-879-1120

## 3.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

May irritate eyes and skin. Avoid contact with eyes and skin.

**DO NOT** get on clothing.

**DO NOT** apply using handheld mist blower/airblast or handheld fogging equipment.

Avoid inhaling spray mist.

For all application methods except airblast: Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and chemical-resistant footwear during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

For airblast: Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, goggles or a face shield, socks and chemical-resistant footwear during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear chemical-resistant headgear during open-cab airblast application. Chemical-resistant headgear includes Sou'Wester hat, chemical-resistant rain hat or large brimmed waterproof hat and hood with sufficient neck protection. Gloves and goggles are not required during application within a closed cab.

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

### 3.1 FIRST AID

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

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

### 3.2 TOXICOLOGICAL INFORMATION

Treat symptomatically.

### 3.3 ENVIRONMENTAL PRECAUTIONS

- **Toxic** to aquatic organisms and non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.

### 3.4 PHYSICAL OR CHEMICAL HAZARDS

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

### 3.5 STORAGE

Store this product away from food or feed.  
Soak up small amounts of spill with absorbent clays.

### 3.6 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 rinsing 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.

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 cleanup of spills.

**RETURNABLE CONTAINERS:**

DO NOT reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

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 cleanup of spills.

**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 cleanup 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.

## DIRECTIONS FOR USE

### 4.0 GENERAL INFORMATION

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

**DO NOT** apply by air, unless otherwise specified in the crop-specific use directions.

Observe spray buffer zones specified in Section 5.3.

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION, a water-soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the “**Annual and Perennial Weed Control**” (section 7.0 and 8.0) to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Rainfall occurring within 60 minutes of treatment may result in reduced weed control. Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of run-off.

**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.**

## **RESISTANCE-MANAGEMENT RECOMMENDATIONS**

For resistance management, VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible, by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields and planting clean seed.

- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact AGX Pioneer Enterprise Limited at +1 778-879-1120.

## 5.0 MIXING AND APPLICATION

### 5.1 PRECAUTIONS

**ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.**

**APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.**

**DO NOT** apply in greenhouses.

**REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.**

Clean sprayers and parts immediately after using this product by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

**NOTE:** Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

### 5.2 MIXING AND APPLICATION EQUIPMENT

#### MIXING WITH WATER

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide, see “**Weed Control**” (sections 7.1 and 8.1) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of

mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

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

## TANK MIXING PROCEDURE

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

1. Fill spray tank 3/4 full of water.
2. Start agitation and run for entire mixing and spraying operation.
3. Add required amount of the tank mix partner.
4. Flush herbicide loading tank and herbicide containers with water.
5. If using a herbicide loading system - ensure that the loading tank and lines to the pump are empty and flushed out with water before adding tank mix partner.
6. Add required amount of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION.
7. Flush herbicide loading tank and herbicide containers with water.
8. If using a herbicide loading system - ensure that the loading tank and lines to the pump are flushed with water and empty before starting spray operation.

Always start and end the mixing and spraying operation with a clean system.

This product may be tank mixed with (a fertilizer, a supplement, or 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 *AGX Pioneer Enterprise Limited* at 1-519-702-2185 for information before applying any tank mix that is not specifically recommended on this label.

## APPLICATION EQUIPMENT

### GROUND EQUIPMENT

**For control of perennial weeds and woody brush and trees listed in this booklet using conventional boom equipment** – apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

**For control of annual weeds listed in this booklet using conventional boom equipment** – Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

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 spray droplets smaller than the American Society of Agricultural and Biological Engineers (ASABE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Airblast or mist blower application: **DO NOT** apply when wind speed is less than 1 km/h. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

### **HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)**

**For control of weeds and woody brush and trees listed in the “Weed Control” section 6.0 of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements** – Unless otherwise specified, make a 0.67 percent solution of this product in water (0.67 litres of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.34 percent solution (1.34 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of run-off. Handgun applications should be properly directed to avoid spraying desirable plants.

### **SELECTIVE EQUIPMENT**

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to “**Selective Equipment**” (section 9.12).

### **AERIAL EQUIPMENT**

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 spray droplets smaller than the American Society of Agricultural and Biological Engineers (ASABE S572.1) coarse classification. Reduce drift caused by

turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Aerial application can only be used for weed control in preharvest situations. Refer to sections 5.3, and 9.9.2 for more information.

### **Directions for use**

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. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 - 1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) 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, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

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

### **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 angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

### **Operator Precautions**

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

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

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more

stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking.

Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

### **Product Specific Precautions**

Read and understand the entire label before opening this product. If you have questions, call AGX Pioneer Enterprise Limited at +1 778-879-1120 or obtain technical advice from the distributor or your provincial/territorial agricultural representative.

Application of this specific product must meet and/or conform to the following:

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

### **5.3 SPRAY BUFFER ZONES**

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,
- Soil drench or soil incorporation.

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

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

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

| Agricultural and non-cropland systems   |                       | Maximum number of applications | Spray Buffer Zones (metres) Required for the Protection of: |                      |
|---|-----------------------|--------------------------------|---|----------------------|
|   |                       |                                | Aquatic Habitat:  | Terrestrial Habitat: |
| <b>Non-cropland system and airblast application method (including mist blower)</b>  |                       |                                |   |                      |
| Non-crop land and industrial uses:<br>Industrial and rights of way areas, Recreational and public areas   |                       | 3                              | 1   | 30*                  |
| <b>Agricultural crop system and aerial application method</b>   | <b>Wing type</b>      |                                |   |                      |
| Rye, corn (glyphosate non-tolerant varieties), chickpea, lupin (dried), fava bean (dried)<br>sugar beet<br>(glyphosate non-tolerant varieties), all other crops for pre-seeding treatments Only | Fixed and rotary wing | 1                              | 15  | 20                   |
| Canola (glyphosate tolerant varieties)  | Fixed and rotary wing | 3                              | 20  | 40                   |
| Sugar beets (glyphosate tolerant varieties)   | Fixed wing            | 2                              | 20  | 30                   |
|   | Rotary wing           | 2                              | 15  | 30                   |
| Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils            | Fixed wing            | 2                              | 20  | 35                   |
|   | Rotary wing           | 2                              | 20  | 30                   |
| Forage grasses and legume including seed production   | Fixed and rotary wing | 1                              | 20  | 40                   |
| Soybean (glyphosate tolerant varieties)   | Fixed wing            | 3                              | 20  | 45                   |
|   | Rotary wing           | 3                              | 20  | 40                   |
| Summer fallow   | Fixed wing            | 1                              | 20  | 45                   |

| Agricultural and non-cropland systems |             | Maximum number of applications | Spray Buffer Zones (metres) Required for the Protection of: |                      |
|---------------------------------------|-------------|--------------------------------|---|----------------------|
|                                       |             |                                | Aquatic Habitat:  | Terrestrial Habitat: |
| Corn (glyphosate tolerant varieties)  | Rotary wing | 1                              | 20  | 40                   |
|                                       | Fixed wing  | 2                              | 20  | 50                   |
|                                       | Rotary wing | 2                              | 20  | 45                   |
| Pasture                               | Fixed wing  | 1                              | 30  | 70                   |
|                                       | Rotary wing | 1                              | 30  | 55                   |

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

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.

## 6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate, refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (sections 7.1 and 8.1). The following is a partial list of weeds controlled:

## 6.1 ANNUAL WEEDS

### ANNUAL GRASSES

#### Barnyard Grass

*Echinochloa crusgalli*

#### Blue Grass (annual)

*Poa annua*

#### Crab Grass (large)

*Digitaria sanguinalis*

#### Crab Grass (smooth)

*Digitaria ischaemum*

#### Downy Brome-grass

*Bromus tectorum*

#### Fall Panicum

*Panicum dichotomiflorum*

#### Giant Foxtail

*Setaria faberii*

#### Green Foxtail

*Setaria viridis*

#### Persian Darnel

*Lolium persicum*

#### Volunteer Barley

*Hordeum spp.*

#### Volunteer Corn

*Zea mays*

#### Volunteer Wheat

*Triticum spp.*

#### Wild Oats

*Avena fatua*

#### Wild Proso Millet

*Panicum miliaceum*

#### Yellow Foxtail

*Setaria glauca*

### OTHER

#### Dodder

*Cuscuta spp.*

## ANNUAL BROADLEAF WEEDS

### **Chickweed**

*Stellaria media*

### **Cleavers**

*Galium aparine*

### **Cocklebur**

*Xanthium strumarium*

### **Corn Spurry**

*Spergula arvensis*

### **Cow Cockle**

*Saponaria vaccaria*

### **Eastern Black Nightshade**

*Solanum ptycanthum*

### **Fleabane (Canada)**

*Erigeron canadensis*

### **Flixweed**

*Descurainia sophia*

### **Green Smartweed**

*Polygonum scabrum*

### **Hempnettle**

*Galeopsis tetrahit*

### **Kochia**

*Kochia scoparia*

### **Lady's-Thumb**

*Polygonum persicaria*

### **Lamb's-quarters (common)**

*Chenopodium album*

### **Narrow-leaved Hawk's Beard**

*Crepis tectorum*

### **Narrow-leaved Vetch**

*Vicia angustifolia*

### **Night-flowering Catchfly**

*Silene noctiflora*

### **Pennsylvania Smartweed**

*Polygonum pensylvanicum*

### **Prickly Lettuce**

*Lactuca scariola*

### **Ragweed (common)**

*Ambrosia artemisiifolia*

### **Redroot Pigweed**

*Amaranthus retroflexus*

### **Round-Leaved Mallow**

*Malva pusilla*

### **Russian Thistle**

*Salsola pestifer*

### **Shepherd's Purse**

*Capsella bursa-pastoris*

### **Smooth Pigweed**

*Amaranthus hybridus*

### **Sowthistle (annual)**

*Sonchus oleraceus*

### **Stinkweed**

*Thlaspi arvense*

### **Storksbill**

*Erodium cicutarium*

### **Velvetleaf**

*Abutilon theophrasti*

### **Volunteer Canola (rapeseed)**

*Brassica spp.*

### **Volunteer Flax**

*Linum spp.*

### **Wild Buckwheat**

*Polygonum convolvulus*

### **Wild Mustard**

*Sinapis arvensis*

### **Wild Tomato**

*Solanum triflorum*

## 6.2 PERENNIAL WEEDS

### PERENNIAL GRASSES/SEDGES

**Blue Grass (Canada)**

*Poa compressa*

**Brome Grass (smooth)**

*Bromus inermis*

**Cattail (common)**

*Typha latifolia*

**Cottontop**

*Eriophorum chamissonis*

**Foxtail Barley**

*Hordeum jubatum*

**Blue Grass (Kentucky)**

*Poa pratensis*

**Quackgrass**

*Elymus repens*

**Wire-Stemmed Muhly**

*Muhlenbergia frondosa*

**Yellow Nutsedge**

*Cyperus esculentus*

### PERENNIAL BROADLEAVED WEEDS

**Alfalfa**

*Medicago spp.*

**Curled Dock**

*Rumex crispus*

**Field Bindweed**

*Convolvulus arvensis*

**Hemp Dogbane**

*Apocynum cannabinum*

**Hoary Cress**

*Cardaria draba*

**Knotweed (Japanese)**

*Polygonum cuspidatum*

**Milkweed (common)**

*Asclepias syriaca*

**Poison Ivy**

*Rhus radicans*

**Purple Loosestrife**

*Lythrum salicaria*

**Sow Thistle (perennial)**

*Sonchus arvensis*

**Thistle (Canada)**

*Cirsium arvense*

**Toad Flax**

*Linaria vulgaris*

**Wormwood (Absinth)**

*Artemisia absinthium*

## 6.3 WOODY BRUSH AND TREES

**Alder**

*Alnus spp.*

**Birch**

*Betula spp.*

**Broadleaved meadowsweet**

*Spiraea latifolia*

**Cedar**

*Thuja spp.*

**Cherry**

*Prunus spp.*

**Douglas Fir**

*Pseudotsuga spp.*

**Hemlock**

*Tsuga spp.*

**Maple**

*Acer spp.*

**Mountain-fly honeysuckle**

*Lonicera villosa*

**Pine**

*Pinus spp.*

**Poplar**

*Populus spp.*

**Raspberry/Salmonberry**

*Rubus spp.*

**Rhododendron (Canadian)**

*Rhododendron canadense*

**Sheep laurel**

*Kalmia angustifolia*

**Snowberry (Western)**

*Symphoricarpos occidentalis*

**Sweet fern**

*Comptonia peregrina*

**Willow**

*Salix spp.*

**Withrod**

*Viburnum cassinoides*

## **CROPLAND USES**

**ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.**

**DO NOT** apply by air.

## 7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

### 7.1 ANNUAL WEED CONTROL WITH VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION

**DO NOT** apply by air.

| <b>RATE<br/>(L/ha)</b> | <b>GROWTH<br/>STAGE</b>       | <b>WEEDS<br/>CONTROLLED</b>   | <b>COMMENTS<br/>(Apply in 50-100 L/ha water)</b>   |
|------------------------|-------------------------------|---|--|
| 0.5                    | Weeds up to 8 cm in height    | Wild oats, green foxtail, volunteer barley, volunteer wheat<br><br>Non-Roundup Ready volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed   | For wild oats apply at 1- to 3- leaf stage.<br>Add 350 mL of a non-ionic surfactant registered for use<br><br>For heavy wild oat infestations use 0.67 L/ha rate.  |
| 0.67                   | Weeds 8 cm to 15 cm in Height | All annual grasses listed above.<br><br>All annual broadleaved weeds listed above plus flixweed*, and kochia*   | Add 350 mL of a non-ionic surfactant registered for use.<br><br>* Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.   |
| 0.83 – 1.27            | Weeds up to 15 cm in Height   | All annual grasses listed above plus downy brome, giant foxtail, and Persian darnel.<br><br>All annual broadleaved weeds listed above plus cleavers, lamb's-quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, and narrowleaved hawk's beard*** | No surfactant required.<br><br>For tank mix weed control options see section 7.2.<br><br>* DO NOT use these rates on plants greater than 8 cm in height.<br><br>** For 3- to 4-leaf stage use 1.27 L/ha rate.<br><br>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. |
| 1.5                    | Weeds up to 15 cm in Height   | All annual grasses listed above plus crab grass and annual blue grass   | For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).   |



|      |                            |   |  |
|------|----------------------------|---|--|
|      |                            | All annual broadleaved weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sowthistle, and narrowleaved vetch |  |
| 2.33 | Weeds over 15 cm in height | All annual grasses and broadleaved weeds listed above   | For additional annual broadleaved weed control options, refer to tank mix table (section 7.2). |

**NOTE:** For spot treatment, 0.5 to 2.33 litres per hectare is approximately equivalent to 5 – 23 mL/100m<sup>2</sup>, respectively.

Agral is a registered trademark of Syngenta group company.

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Companion is a trademark of Corteva Agriscience Canada Company.

## 7.2 ANNUAL WEED CONTROL WITH VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION TANK MIXTURES

FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

| TANK MIXTURES   | RATE (L/ha)  | WEEDS CONTROLLED ♦  | COMMENTS (Apply in 50-100 L/ha water)  |
|---|--|---|--|
| VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION   | 0.83 – 1.27  | Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel   | Weeds should be less than 15 cm tall and actively growing for best results.  |
| + MCPA <sup>A</sup> 500 g/L formulation; if another formulation is used, adjust rate accordingly. | + 0.5 – 0.7 <sup>1</sup> OR 0.5 – 1.0 <sup>2</sup> | Volunteer canola (rapeseed) (non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, | Use higher rate if weeds are beyond 8 cm in height.<br>No surfactant required.<br>* DO NOT use these rates on plants greater than 8 cm in height.<br>** For 3- to 4-leaf stage use 1.27 L/ha rate. |

|  |  |  |
|--|--|--|
|  | <p>Canada fleabane, wild buckwheat**, narrowleaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)<sup>1,2</sup>, bluebur<sup>3</sup>, burdock<sup>3</sup> (before 4 leaf stage), false flax<sup>3</sup>, flixweed<sup>3</sup>, lamb's quarters<sup>3</sup>, mustards<sup>3</sup> (except dog and tansy), prickly lettuce<sup>3</sup>, ragweeds<sup>3</sup>, redroot pigweed<sup>3</sup>, Russian pigweed<sup>3</sup>, shepherd's purse<sup>3</sup>, stinkweed (field pennycress)<sup>3</sup>, vetch<sup>3</sup>, wild radish<sup>3</sup>, wild sunflower<sup>3</sup></p> | <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p><sup>1</sup> MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ae/ha) prior to peas.</p> <p><sup>2</sup> MCPA at 0.5 – 1.0 L/ha (250 – 500 g ae/ha) prior to wheat, barley, oats, corn (field)<sup>A</sup>, rye and flax.</p> <p><sup>3</sup> MCPA at 0.7 – 1.0 L/ha (350 – 500 g ae/ha) only.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field)<sup>A</sup>, flax and field peas<sup>A</sup>.</p> |
|--|--|--|

| TANK MIXTURES   | RATE (L/ha)   | WEEDS CONTROLLED ♦   | COMMENTS (Apply in 50-100 L/ha water)  |
|---|---|--|--|
| <p>VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION</p> <p>+<br/>Buctril M</p> | <p>0.83 – 1.27</p> <p>+<br/>0.5 – 1.0<sup>1</sup></p> | <p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel.</p> <p>Volunteer canola (rapeseed) (non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady’s thumb, stinkweed, kochia, lamb’s quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk’s beard***</p> <p>Volunteer Roundup Ready Canola (1-4 leaf stage)<sup>1,2</sup></p> <p>Seedlings up to the 4 leaf stage<sup>2</sup>: green smartweed, pale smartweed, lady’s thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd’s purse, kochia<sup>3</sup>, Russian thistle<sup>3</sup>, scentless chamomile<sup>4</sup>, volunteer sunflower,</p> | <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p><sup>1</sup> Buctril M at 0.5 – 1.0 L/ha (280 – 560 g ai/ha) for all crops listed.</p> <p><sup>2</sup> Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p><sup>3</sup> Spray before plants are 5 cm high.</p> <p><sup>4</sup> Spring annuals only.</p> <p><sup>5</sup> Spray before plants are 8 cm high.</p> |

|  |  |   |
|--|--|---|
|  | <p>night flowering catchfly, cocklebur, velvetleaf<sup>5</sup>, ball mustard, American nightshade</p> <p>Seedlings up to the 6-leaf stage<sup>2</sup>: wild tomato</p> <p>Seedlings up to the 8 leaf stage<sup>2</sup> : wild buckwheat, tartary, buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)<sup>2</sup>: Canada thistle, perennial sowthistle</p> | <p>Use this tank mix prior to seeding in <b>wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling streambank wheatgrass and reed canary grass.</b></p> <p>No surfactant required.</p> |
|--|--|---|

| <b>TANK MIXTURES</b>                              | <b>RATE (L/ha)</b> | <b>WEEDS CONTROLLED ♦</b>                                       | <b>COMMENTS (Apply in 50-100 L/ha water)</b>                                |
|---|--------------------|---|---|
| VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION | 0.83 – 1.27        | Volunteer cereals, wild oats, green foxtail, downy brome, giant | Weeds should be less than 15 cm tall and actively growing for best results. |

|   |                            |   |   |
|---|----------------------------|---|---|
| <p>+<br/>MCPA amine<br/>(500 g/L<br/>formulation; if<br/>another<br/>formulation is<br/>used, adjust rate<br/>accordingly).</p> | <p>+<br/>0.5 –<br/>0.7</p> | <p>foxtail, Persian dandel.<br/><br/>Volunteer canola<br/>(rapeseed)(non Roundup<br/>Ready), wild mustard,<br/>flixweed, redroot<br/><br/>pigweed, lady’s thumb,<br/>stinkweed, kochia,<br/>lamb’s quarters,<br/><br/>hempnettle, Russian<br/>thistle, volunteer flax,<br/>common ragweed*,<br/>Canada fleabane, wild<br/>buckwheat**,<br/>narrowleaved hawk’s<br/>beard***<br/><br/>Volunteer Roundup<br/>Ready canola (1-4 leaf<br/>stage)<sup>3</sup>, bluebur<sup>4</sup>,<br/>burdock<sup>4</sup> (before 4-leaf<br/>stage), false flax<sup>4</sup>,<br/>flixweed<sup>4</sup>, lamb’s<br/>quarters<sup>4</sup>, mustards<sup>4</sup><br/>(except dog and tansy),<br/><br/>4<br/><br/>prickly lettuce<br/><br/>ragweeds<sup>4</sup>, redroot<br/>pigweed<sup>4</sup>, Russian<br/>pigweed<sup>4</sup>, shepherd’s<br/>purse<sup>4</sup>, stinkweed<sup>4</sup> (field<br/>pennycress), vetch<sup>4</sup>, wild<br/>radish<sup>4</sup>, wild sunflower<sup>4</sup></p> | <p>Use higher rate if weeds are<br/>beyond 8 cm in height.<br/><br/>No surfactant required.<br/><br/>* DO NOT use these rates on plants<br/>greater than 8 cm in height.<br/><br/>** For 3- to 4-leaf stage use 1.27<br/>L/ha rate.<br/><br/>*** For weeds 8 cm to 15 cm in<br/>height use 1.27 L/ha rate.<br/><br/><sup>3</sup> MCPA amine at 0.5 – 0.7<br/>L/ha (250 – 350 g ae/ha) prior to<br/>lentils and chickpeas.<br/><br/><sup>4</sup> MCPA amine at 0.7 L/ha<br/>(350 g ae/ha) only.<br/><br/>Use this tank mix prior to seeding<br/>in <b>lentil and chickpea. Under<br/>drought conditions, deep seeding<br/>and/or brief rain showers after<br/>seeding may cause injury to<br/>emerging seedlings in sprayer<br/>overlaps.</b><br/><br/>No surfactant required.</p> |
|---|----------------------------|---|---|

| TANK MIXTURES                                     | RATE (L/ha)             | WEEDS CONTROLLED ♦   | COMMENTS (Apply in 50-100 L/ha water)  |
|---|-------------------------|--|--|
| VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION | 0.83 – 1.27             | Volunteer cereals, Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's beard, downy  | Use this tank mix in summerfallow or prior to seeding <b>wheat and barley</b> . Refer to Express SG Herbicide label for the appropriate weed growth stage. |
| + Express SG Herbicide                            | + 15 g/ha (7.5 g ai/ha) | brome, flixweed, giant foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats | Add 350 mL/ha of a non-ionic surfactant  |

♦ For foxtail barley, refer to “Perennial Weed Control” table (section 8.1)

<sup>A</sup>Use only amine formulations of MCPA prior to seeding in corn and field peas.

Buctril M is a registered trademarks of Bayer.

Express SG Herbicide is a registered trademarks of FMC of Canada Limited.

### 7.3 SURFACTANT

#### INFORMATION NOTE:

**Addition of Non-Ionic Surfactant** – VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION tank mixtures for annual weed control may require the addition of a non-ionic surfactant registered for use. A non-ionic surfactant should be added at a rate of 350 millilitres per hectare, in 50-100 litres of clean water.

### 7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION applied alone will not control volunteers from crops containing the Roundup Ready gene.

Allow at least 1 day after treatment before tillage.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0).

## **7.5 WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES**

**WARNING: APPLY VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION ON ROUNDUP READY® CANOLA VARIETIES ONLY**

**NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) ROUNDUP READY® CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.**

- **For additional information and precautions refer to “General Information” and “Mixing and Application” (sections 4.0 and 5.0).**
- Apply VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION in Roundup Ready® canola varieties only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

**DO NOT** apply by air.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in Roundup Ready® canola varieties.

**WEED CONTROL IN ROUNDUP READY CANOLA VARIETIES**

| <b>RATE<br/>(L/ha)</b> | <b>GROWTH<br/>STAGE OF<br/>CROP</b> | <b>WEEDS CONTROLLED</b>   | <b>COMMENTS<br/>(Apply in 50 –100 L/ha water)</b>  |
|------------------------|-------------------------------------|---|--|
| 0.55 –<br>1.27         | 0 to 6 leaf                         | <p><b><u>Annual Grasses</u></b><br/>Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><b><u>Annual Broadleaves</u></b><br/>Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers*, wild buckwheat*, shepherd’s purse*, cow cockle*, night-flowering catchfly*, smartweed*, stork’s-bill*, flixweed*, narrow-leaved hawk’s beard*, round-leaved mallow***</p> <p><b><u>Perennials (suppression)**</u></b><br/>Canada thistle, perennial sow thistle</p> <p><b><u>Perennials (season-long control)</u></b><br/>Quackgrass**, foxtail barley***, Canada thistle****, perennial sow thistle****</p> | <p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p><b>* Use 0.83 L/ha for control of these weeds at all crop growth stages.</b> The lower rate can be used for control of shepherd’s purse, cow cockle and nightflowering catchfly at the 1– to 3 leaf stage of the crop or for control of smartweed at the 4– to 6-leaf stage.</p> <p>** A single application of 0.83 L/ha rate is required.</p> <p>*** Sequential applications of 0.83 L/ha rate are required.</p> <p>**** Sequential applications of 0.83 L/ha or a single application of 1.27 L/ha are required.</p> <p>For sequential applications, ensure the crop has not advanced beyond the recommended growth stage.</p> <p>Maximum 1.66 L/ha is allowed for the postemergence use.</p> |

## **7.5.1 ROUNDUP READY® HYBRID CANOLA SEED PRODUCTION**

### **For Use only in Roundup Ready® Hybrid Canola Seed Production Systems**

Apply using ground boom spray equipment.

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION may be applied for the control of non- Roundup Ready® canola pollen parental line(s) in hybrid canola seed production fields containing both Roundup Ready® line(s) and non-Roundup Ready® line(s).

When pollination is complete or near completion, non - Roundup Ready® canola pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

## **7.6 WEED CONTROL IN ROUNDUP READY SOYBEAN VARIETIES**

### **7.6.1 WEED CONTROL IN ROUNDUP READY SOYBEAN VARIETIES**

**WARNING: APPLY VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION ON ROUNDUP READY SOYBEAN VARIETIES ONLY.**

**NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.**

**DO NOT** apply by air.

| <b>RATE<br/>(L/ha)</b> | <b>GROWTH<br/>STAGE OF<br/>CROP</b>                         | <b>WEEDS CONTROLLED♦</b>   | <b>COMMENTS<br/>(Use 100 – 200 L/ha water<br/>volumes)</b>  |
|------------------------|---|--|---|
| 1.67                   | First<br>trifoliolate leaf<br>Stage<br>Through<br>Flowering | Velvetleaf, common<br>ragweed, common lamb's<br>quarters, redroot pigweed,<br>smooth pigweed, cocklebur,<br>green smartweed, lady's-<br>thumb, Pennsylvania<br>smartweed, Eastern black<br>nightshade, wild mustard,<br>wild buckwheat, foxtail<br>(green, yellow, giant),<br>barnyard grass, crabgrass<br>(smooth, large), quackgrass,<br>fall panicum, | <sup>1</sup> A single application of<br>1.67 L/ha will provide<br>suppression only.<br><br><sup>2</sup> For control of common<br>milkweed, yellow nutsedge,<br>round-leaved mallow and field<br>bindweed, a second sequential<br>application may be applied at<br>least 2 weeks after the first<br>application. |

| RATE<br>(L/ha) | GROWTH<br>STAGE OF<br>CROP | WEEDS CONTROLLED♦  | COMMENTS<br>(Use 100 – 200 L/ha water<br>volumes)  |
|----------------|----------------------------|--|--|
|                |                            | <p>wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non-Roundup Ready® canola (rapeseed), hempnettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard</p> <p>common milkweed<sup>1,2</sup>, yellow nutsedge<sup>1,2</sup>, field bindweed<sup>2</sup>, perennial sow thistle, Canada thistle. wire-stemmed muhly.</p> <p>Bur cucumber (<i>Sicyos angulatus</i>)<sup>3</sup></p> <p>Volunteer adzuki beans (<i>Vigna angularis</i>)<sup>4</sup></p> <p>Biennial Wormwood<sup>5</sup> (<i>Artemisia biennis</i>)</p> | <p>A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment.</p> <p>Any second application made must be applied no later than the flowering stage of the soybean.</p> <p>Common milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p> <p>Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will escape treatment.</p> <p><sup>3</sup>Sequential applications of 1.67 L/ha followed by 1.67 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results.</p> |

|  |  |  |   |
|--|--|--|---|
|  |  |  | <p><sup>4</sup>For control of volunteer adzuki beans (unifoliate to the 4<sup>th</sup> trifoliate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliate to fourth trifoliate leaf stage and actively growing</p> <p><sup>5</sup> Only one application per season at 1.67L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.</p> |
|--|--|--|---|

| RATE<br>(L/ha) | GROWTH<br>STAGE OF<br>CROP                                | WEEDS CONTROLLED♦   | COMMENTS<br>(Use 100 – 200 L/ha water<br>volumes)   |
|----------------|---|---|---|
| 3.33           | First<br>Trifoliate<br>leaf stage<br>Through<br>Flowering | All weeds listed above plus<br>horse-nettle <sup>6</sup> and tall<br>waterhemp <sup>7</sup> | <ul style="list-style-type: none"> <li>• Only one application per season at 3.33 L/ha.</li> <li>• Common milkweed should be 15-60 cm in height and actively growing.</li> <li>• Yellow nutsedge should be 5-15 cm in height and actively growing.</li> <li>• Plants not fully emerged at the time of application will escape treatment.</li> </ul> <p><sup>6</sup> For season-long control of horse-nettle (<i>Solanum carolinense</i>) (2- to 12-leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 3.33 L/ha. Alternatively, sequential applications of 1.67 L/ha followed by 1.67 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p><sup>7</sup> For the control of tall waterhemp use the higher rate if weeds are beyond the 6-leaf stage.</p> |

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

## 7.6.2 TANK MIXTURES

### **VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Pursuit Herbicide**

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit Herbicide may be tank mixed with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION at a rate of 1.67 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit Herbicide and apply up to and including the 3<sup>rd</sup> trifoliolate leaf stage of the Roundup Ready soybeans varieties in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit Herbicide as per instructions on the Pursuit Herbicide label and then add VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION as per instructions on this label.

A PHI of 100 days is required for the tank mix of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION and Pursuit Herbicide on Roundup Ready soybeans.

Only one application per season of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION at 1.67 litres per hectare tank mixed with Pursuit Herbicide at 0.16 to 0.21 litres per hectare is permitted.

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

### **VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION Plus FirstRate™ Herbicide (For Use in Eastern Canada Only)**

For added residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed, FirstRate Herbicide may be tank mixed with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION at a rate of 0.83 - 1.67 liters per hectare. Use 20.8 grams per hectare of FirstRate Herbicide.

Do not harvest soybean plants for forage or hay. Do not harvest soybeans for 65 days after application.

Only one application per season of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION tank mixed with FirstRate Herbicide is permitted.

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

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Classic Herbicide**

For season-long control of annual sow thistle, and yellow nutsedge\*, apply Classic Herbicide at 36 grams per hectare plus VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION at 1.67 litres per hectare. Add a non-ionic surfactant at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. USE THIS TANK MIXTURE ONLY ON SOYBEANS WITH THE ROUNDUP READY® TRAIT.

Consult the Classic Herbicide label for tank mixing instructions and use precautions including instructions on replanting to other crops.

\*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Sencor® 75 DF Herbicide for Control of Spreading Atriplex (Eastern Canada only)**

For the control of spreading atriplex, apply a preplant application of Sencor 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 – 1.5 kg product per hectare on fine textured soils plus VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION at 1.67 litres per hectare. Do not apply on coarse textured soils. Apply when spreading atriplex is up to the 10-leaf stage of growth. Only one application per year is permitted.

Refer to the Sencor 75 DF Herbicide label for further use directions, safety precautions and handling instructions. Consult Table entitled "Sencor 75 DF Alone: Preemergence Application" for specific rates based on soil types and organic matter.

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus  
Assure II Herbicide**

| <b>RATE</b>  | <b>GROWTH<br/>STAGE OF<br/>CROP</b>                               | <b>WEEDS<br/>CONTROLLED♦</b>   | <b>COMMENTS</b>   |
|--|---|--|---|
| 1.67 – 3.33 L/ha<br>VANGUARD<br>GLYPHOSATE 540<br>LIQUID HERBICIDE<br>SOLUTION<br><br>+<br><br>0.25 - 0.38 L/ha Assure<br>II Herbicide | First trifoliolate<br><br><br>leaf stage<br>through<br>flowering. | Volunteer Roundup<br><br><br>Ready corn.<br><br>Apply at the 2- to<br>6 leaf stage of the<br>weed. | See additional<br><br><br>information<br>following this<br>table. |

\*Sure Mix may or may not be added to this tank mix

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

**Volunteer Roundup Ready Corn Control**

For control of volunteer Roundup Ready corn, Assure II Herbicide may be tank mixed with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION. Use 1.67 to 3.33 litres per hectare VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION and 0.25 - 0.38 litre per hectare of Assure II Herbicide.

The higher rate of Assure II Herbicide may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 300 litres per hectare of clean water.

**Mixing:** Add and mix Assure II Herbicide as per instructions on the Assure II Herbicide label and then add VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through flowering and when the volunteer Roundup Ready corn is at the 2- to 6-leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank-mix of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION and Assure II Herbicide on Roundup Ready soybeans.

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

FirstRate is a trademark of Corteva Agriscience Canada Company.

Pursuit is a registered trademark of BASF.

Sencor is a registered trademark of Bayer.

Assure is a registered trademark of AMVAC Canada ULC.

Classic is a trademark of Corteva Agriscience Canada Company.

## **7.7 WEED CONTROL IN CORN VARIETIES WITH ROUNDUP READY® 2 TECHNOLOGY**

**WARNING: APPLY VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION ONLY ON CORN VARIETIES THAT ARE DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY I.E. CONTAINS A ROUNDUP READY GENE**

**NOTE: CORN VARIETIES CONTAINING ROUNDUP READY® 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION. ALWAYS USE PEDIGREED (I.E., CERTIFIED) CORN SEED DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY. CORN WHICH IS NOT DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.**

DO NOT apply by air.

| RATE<br>(L/ha) | GROWTH<br>STAGE OF<br>CROP       | WEEDS CONTROLLED<br>♦   | COMMENTS<br>(use 100-200 L/ha water volumes)  |
|----------------|----------------------------------|---|---|
| 1.67           | Up to and including 8 leaf stage | Velvetleaf, common ragweed, common lamb'squarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, non-Roundup Ready canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's-bill, flixweed, narrow-leaved hawk's- beard<br><br>common milkweed <sup>1,2</sup> , yellow nutsedge <sup>1,2</sup> , roundleaved mallow <sup>2</sup> , field bindweed <sup>2</sup> , perennial sow thistle, Canada thistle, wire-stemmed muhly | <sup>1</sup> A single application of 1.67 L/ha will provide suppression only.<br><br><sup>2</sup> For control of common milkweed, yellow nutsedge, roundleaved mallow and field bindweed, a second sequential application may be used at least 2 weeks after the first application.<br><br><ul style="list-style-type: none"> <li>• A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment.</li> <li>• Any second application must be applied no later than the 8 leaf stage of the corn.</li> <li>• Common milkweed should be 15-60 cm in height and actively growing.</li> <li>• Yellow nutsedge should be 5-15 cm in height and actively growing.</li> <li>• Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</li> <li>• Wire-stemmed muhly should be 10-20 cm in height and actively growing.</li> <li>• Plants not fully emerged at the time of application will escape treatment.</li> </ul> |

|      |                                  |                        |  |
|------|----------------------------------|------------------------|--|
| 3.33 | Up to and including 6 leaf stage | All weeds listed above | <ul style="list-style-type: none"> <li>• Only one application per season at 3.33 L/ha.</li> <li>• Common milkweed should be 15-60 cm in height and actively growing.</li> <li>• Yellow nutsedge should be 5-15 cm in height and actively growing.</li> </ul> <p>Plants not fully emerged at the time of application will escape treatment.</p> |
|------|----------------------------------|------------------------|--|

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

### 7.7.1 TANK MIXTURES

For tank mixtures, add herbicide according to instructions on the product label, and then add VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION according to instructions on this label (section 5). Refer to the tank mix herbicide product labels for further safety precautions and product handling instructions.

**DO NOT** apply by air.

| <b>RATE</b>  | <b>GROWTH STAGE OF CROP</b>                             | <b>WEEDS CONTROLLED ♦</b>  | <b>COMMENTS<br/>(Use 100-200 L/ha water volumes)</b>   |
|--|---|--|--|
| 1.67 L/ha<br>VANGUARD<br>GLYPHOSATE 540<br>LIQUID<br>HERBICIDE<br>SOLUTION<br><br>+<br>1.1 L/ha<br>Dyvel DSp Liquid<br>Herbicide | Before the corn is<br><br>15 cm tall (leaf<br>extended) | Volunteer Roundup<br><br>Ready canola – up<br>to the 4 leaf stage. | Tank mix is most<br><br>effective when<br>treating small (4 leaf<br>or less) canola<br>plants. |

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

Dyvel DSp is a registered trademark of BASF Corporation.

## 7.8 WEED CONTROL IN ROUNDUP READY® SUGAR BEETS

**WARNING: APPLY VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION ON ROUNDUP READY® SUGAR BEET VARIETIES ONLY**

**NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SUGAR BEET SEED DESIGNATED AS ROUNDUP READY®. SUGAR BEET WHICH ARE NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.**

**DO NOT** apply by air.

For weed control in Roundup Ready® sugar beets apply 0.83 – 2.30 L/ha of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION to emerged weeds. Refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (Sections 7.1 and 8.1, respectively) for a listing of weeds controlled.

Apply VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION to emerged weeds up to 15 cm in height.

Up to four applications of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION may be applied to Roundup Ready® sugar beets. Allow a minimum of 10 days between applications.

Do not exceed a total maximum quantity of 7.31 L/ha of this product per season (e.g. the first application of up to 2.30 L/ha plus 3 applications of up to 1.67 L/ha).

Do not harvest Roundup Ready® sugar beets within 30 days after the final application of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION.

## 8.0 PERENNIAL WEED CONTROL

**ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.**

**DO NOT** apply by air.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table.

### 8.1 PERENNIAL WEED CONTROL WITH VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION

| WEED   | APPLICATION                 |             |                     | COMMENTS  |
|--|-----------------------------|-------------|---------------------|---|
|  | GROWTH STAGE                | RATE (L/ha) | WATER VOLUME (L/ha) |   |
| <b>Quackgrass</b><br>(control, light to moderate infestations) | 3 to 4 green leaves or more | 1.67        | 50 - 300            | Apply in clean water using flat fan nozzles.<br><br>Allow 3 or more days after treatment before tillage.<br><br>Refer to “ <b>Quackgrass</b> ” notes in section 8.2.1 for more information.<br><br>For higher volumes (i.e., 150 – 300 L/ha) a non-ionic surfactant must be added at 0.5 L per 100 L of clean water (0.5% v/v). Refer to list in section 8.2.2. |

| WEED   | APPLICATION                     |             |                     | COMMENTS  |
|--|---------------------------------|-------------|---------------------|---|
|  | GROWTH STAGE                    | RATE (L/ha) | WATER VOLUME (L/ha) |   |
| <b>Quackgrass</b><br>(long term control, heavy infestations, high water volumes) | 3 to 4 green leaves or more     | 1.67 – 4.67 | 50 - 300            | <p>Allow 3 or more days after treatment before tillage.</p> <p>Rates higher than 1.67 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e., 150 – 300 L/ha).</p> <p>Refer to “<b>Quackgrass</b>” notes in section 8.2.1 for more information.</p> |
| <b>Canada Thistle</b>  | Rosette stage (summerfallow)    | 1.67        | 50 - 100            | <p>Apply in clean water using flat fan nozzles.</p> <p>Allow 10 or more days after treatment before tillage.</p> <p>Refer to “<b>Canada Thistle</b>” notes in section 8.2.3 for more information.</p>   |
| <b>Canada Thistle</b>  | Bud stage or beyond             | 3.17 – 4.67 | 100 - 300           | <p>Allow 5 or more days after treatment before tillage.</p>   |
| <b>Field Bindweed</b>  | Full bloom or beyond            | 4.67 – 8.0  | 100 - 300           | <p>Allow 7 or more days after treatment before tillage.</p>   |
| <b>Common Milkweed*</b>  | Bud to full bloom (preharvest)  | 1.67        | 50 – 100            | <p>See “<b>Preharvest Treatment</b>” (section 9.9) for more information.</p>  |
|  | Bud to full bloom               | 8.0         | 100 - 300           | <p>Allow 7 or more days after treatment before tillage.</p> <p>Reduced control may occur after full bloom.</p> <p>Common milkweed may not all be in the correct stage, therefore, repeat treatments may be required.</p>  |
| <b>Toadflax</b>  | Vegetative Stage (summerfallow) | 1.67        | 50 - 100            | <p>Apply in clean water using flat fan nozzles.</p>   |

| WEED                  | APPLICATION  |             |                     | COMMENTS  |
|-----------------------|--|-------------|---------------------|---|
|                       | GROWTH STAGE   | RATE (L/ha) | WATER VOLUME (L/ha) |   |
|                       | Bud to full bloom (preharvest)                                     |             |                     | <p>Allow 7 or more days after treatment before tillage in summerfallow.</p> <p>For more information, see “<b>Toadflax Control</b>” (section 8.2.4), or “<b>Preharvest Treatment</b>” (Section 9.9).</p> |
| <b>Alfalfa</b>        | <p>Early bud to full bloom stage</p> <p>Fall applications Only</p> | 2.47 – 3.33 | 50 - 300            | <p>Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present.</p>                                   |
| <b>Foxtail Barley</b> | Seeding to heading   | 1.67 – 3.33 | 50 - 100            | <p>Allow a minimum of 1 day after treatment before tillage or seeding.</p> <p>Use higher rates for larger, more established plants, heavy infestations or if plants are stressed.</p>                   |

| WEED   | APPLICATION                      |             |                     | COMMENTS   |
|--|----------------------------------|-------------|---------------------|--|
|  | GROWTH STAGE                     | RATE (L/ha) | WATER VOLUME (L/ha) |  |
| <b>Other Perennials</b><br>(see listing section 6.2) | Early heading or early bud stage | 4.67 - 8    | 100 - 300           | Allow 7 or more days after treatment before tillage. |

\*NOTE: For spot treatment, mix 80 millilitres of product in 5 litres of clean water per 100 m<sup>2</sup> (1.67 – 8 litres per hectare is approximately equivalent to 17 – 80 mL/100m<sup>2</sup>, respectively).

## 8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

### 8.2.1 QUACKGRASS

For **season-long control on fall tilled ground**: Apply 1.67 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

**NOTE:** This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

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

**If a frost has occurred**, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

### 8.2.2 SURFACTANT INFORMATION

The following is a list of non-ionic surfactants for use with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION for control of quackgrass:

- Agral 90 Non-Ionic Wetting and Spreading Agent Liquid
- Agral 90 Liquid Wetting and Spreading Agent
- IPCO Ag-Surf Original
- IPCO Ag-Surf II
- Weedaway Ag-Surf Liquid Spray Adjuvant
- Weedaway Ag-Surf II

- Companion Adjuvant

**Always refer to surfactant label for specific instructions regarding use of that product.**

### **8.2.3 CANADA THISTLE**

**Control of Canada Thistle at the rosette stage:** to ensure the proper timing of application the following steps must be followed:

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

**NOTE: Canada thistle can be treated after a mild frost** provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

### **8.2.4 TOADFLAX**

#### **Control of Toadflax in a Summerfallow Vegetative Stage**

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

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

**NOTE: Toadflax can be treated after a mild frost** provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

### **8.2.5 ALL PERENNIAL WEEDS**

**Weed Stages:** Weeds must be at the proper stage for effective control. Refer to “**Perennial Weed Control with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION**” (section 8.1).

**Nozzle Type:** For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

**Rhizome Dormancy:** Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

**Mowing Effects:** Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

**Tillage Effects:** Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5 to 7 days for best results. See “**Weed Control**” tables (sections 7.1 and 8.1) for specific tillage interval for each weed.

**Rainfall Effects:** Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

**Regrowth from Germinating Seeds:** This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

**Frost Effects:** Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

## 9.0 CROPLAND SITUATIONS

**ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.**

**DO NOT APPLY BY AIR EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2).**

**DO NOT APPLY BY AIR UNLESS SPECIFIED ON THIS LABEL.**

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, postharvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in Roundup

Ready® Corn 2, soybean, or canola (sections 7.5, 7.6 and 7.7). It may be applied as a directed spray in orchards, vineyards, blueberries and strawberries, and using selective equipment in soybean and dry beans, orchards, vineyards, cranberries and strawberries (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to “Annual and Perennial Weed Control” (sections 7.0 and 8.0) for more information.**

## **9.1 PRIOR TO PLANTING – ALL CROPS**

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

### **9.1.1 PRIOR TO PLANTING – TANK MIXES\* - SOYBEANS**

**\*TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

**WHERE TANK MIX PARTNER LABELS REFER TO ONLY THE OLDER (360 G/L) GLYPHOSATE PRODUCTS, E.G., ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.**

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Pursuit Herbicide**

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION product label). Pursuit Herbicide will control weeds germinating from seed.

**ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT HERBICIDE APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT**

HERBICIDE APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus metribuzin (Sencor 75 DF, Sencor 480F, Sencor for Soybeans, or Lexone DF Herbicide Dispersible Granules)**

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION in tank mix with Sencor 75 DF, Sencor 480F, Sencor For Soybeans or Lexone DF Herbicide Dispersible Granules as a preplant surface or pre-emergence application before crop emergence.

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Dual Magnum Herbicide or Dual II Magnum Herbicide**

For burndown and residual control of selected annual weeds in soybeans. Apply VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15–1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION. Use higher rates of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION if perennial weeds are present.

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75 DF, Sencor for Soybeans, Sencor 480 F, or Lexone DF Herbicide Dispersible Granules)**

For burndown and residual control of selected annual weeds in soybeans. Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION.

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Axiom DF 68% Water Dispersible Granular Herbicide**

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF 68% Water Dispersible Granular Herbicide treatment in tank mixture with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION. Apply Axiom DF 68% Water Dispersible Granular Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Axiom DF 68% Dispersible Granular Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence. **For conservation tillage systems:** Apply this tank mixture in a minimum of 200 L/ha of total volume.

### **9.1.2 PRIOR TO PLANTING – TANK MIXES\* - CORN**

**\*TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

**WHERE TANK MIX PARTNER LABELS REFER TO ONLY TO OLDER (360 G/L) GLYPHOSATE PRODUCTS, EG ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.**

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Dual Magnum Herbicide or Dual II Magnum Herbicide**

For burndown and residual control of selected annual weeds in corn. Apply VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION. Use higher rates of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION if perennial weeds are present.

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus Aatrex Liquid 480 Herbicide**

For burndown and residual control of selected annual weeds in corn. Apply VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid 480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION. Use higher rates of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION if perennial weeds are present.

## **VANGUARD GLYPHOSATE 540**

### **LIQUIDHERBICIDE SOLUTION plus Axiom DF**

#### **Herbicide 68% Water Dispersible Granular**

##### **Preplant Surface:**

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF 68% Water Dispersible Granular Herbicide treatment in tank mixture with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION. Apply Axiom DF 68% Water Dispersible Granular Herbicide in a minimum of 200 L/ha of total volume.

##### **Preemergence:**

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Axiom DF 68% Water Dispersible Granular Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

##### **For conservation tillage systems:**

Apply this tank mixture in a minimum of 200 L/ha of total volume.

Sencor and Axiom are registered trademarks of Bayer.

Lexone is a registered trademark of Corteva Agriscience Canada Company.

Dual Magnum, Dual II Magnum and Primextra are registered trademarks of Syngenta group company.

## **9.2 POSTHARVEST STUBBLE TREATMENT**

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the

desired stage (20 to 25 centimetres tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green colouration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

### 9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the “**Weed Control**” tables (sections 7.1 and 8.1) or use a 0.67 percent solution for annual weeds and quackgrass and a 1.34 percent solution for other perennial weeds (a 0.67 percent solution equals 0.67 litres of VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION in 100 litres of spray solution). 0.67 and 1.34 percent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in “**Application Equipment**” (section 5.2).

#### 9.3.1 GRAZING RESTRICTIONS

Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

### 9.4 SUMMERFALLOW TREATMENT

This product, or labeled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

## **9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)**

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

### **Minimum and Zero Tillage Tank Mixtures**

#### **9.5.1**

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Pursuit Herbicide** can be applied prior to, or after seeding, but before crop emergence in soybeans. **VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION** will control emerged weeds listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” section 7.0 and 8.0). Pursuit Herbicide will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water per hectare, following the instructions on the Pursuit Herbicide label.

**ALWAYS REFER TO THE PURSUIT HERBICIDE LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT HERBICIDE APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT HERBICIDE APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.**

**DO NOT APPLY AFTER CROP EMERGENCE.**

Pursuit is a registered trademark of BASF

#### **9.5.2**

**VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus MCPA** can be applied prior to seeding in wheat, barley, rye, oats, corn (field; MCPA amine only), flax and field peas (MCPA amine only). Refer to “**Annual Weed Control with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION Tank Mixtures**” table for information (section 7.2).

#### **9.5.3**

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Buctril M can be applied prior to seeding in wheat, rye, corn, barley, oats, flax, canary **seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass)**. Refer to “Annual Weed Control with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION Tank Mixtures” table for information (section 7.2).

#### **9.5.4**

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus MCPA amine can be applied prior to seeding in **lentil and chickpea**. Refer to “Annual Weed Control with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION Tank Mixtures” table for information (section 7.2).

#### **9.5.5**

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION plus Express SG Herbicide in pre-seed situations, **wheat and barley** may be seeded after a minimum of 24 hours after application. Refer to “Annual Weed Control with VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION Tank Mixtures” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® SG HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

## **9.6 FORAGES LEGUMES AND GRASSES**

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

## **9.7 PASTURE RENOVATION**

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

## 9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 centimetres in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target areas for the same reason.

## 9.9 PREHARVEST TREATMENT

### **CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT**

For control of quackgrass, Canada thistle, common milkweed, toadflax; and season-long control of perennial sow thistle, VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including Roundup Ready® varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including Roundup Ready® varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE. Preharvest treatment to Roundup Ready® varieties of canola and soybean provides weed control only.

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 1.67 to 3.33 litres per hectare 3 to 7 days prior to the last cut before rotation or forage renovation. Consult the table “**Guidelines for Timing of Preharvest Applications**” (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results, quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 to 14 days (or 3 to 7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

**DO NOT** apply by air.

### 9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

| <b>CROP(S)</b>                                   | <b>PERCENT GRAIN MOISTURE</b> | <b>VISUAL SYMPTOMS</b>  |
|--|-------------------------------|---|
| WHEAT/BARLEY/OATS                                | Less than 30                  | Hard dough stage; a thumbnail impression remains on seed.   |
| CANOLA<br>(including Roundup Ready® varieties)   | Less than 30                  | Pods are green to yellow; most seeds are yellow to brown.   |
| FLAX<br>(including low linolenic acid varieties) | Less than 30                  | Majority (75% - 80%) of bolls are brown.  |
| PEAS   | Less than 30                  | Majority (75% - 80%) of pods are brown.   |
| LENTILS  | Less than 30                  | Lowermost pods (bottom 15%) are brown and seeds rattle.   |
| DRY BEANS  | Less than 30                  | Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80% - 90% leaf drop (original leaves). |
| SOYBEANS<br>(including Roundup Ready varieties)  | Less than 30                  | Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80% - 90% leaf drop.                     |
| FORAGES  | Not applicable                | Normal stage for forage harvesting.   |

**NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (PREHARVEST TREATMENT OF CHICKPEA, DRIED LUPIN AND DRIED FAVA BEAN).**

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by

persons other than AGX PIONEER ENTERPRISE LIMITED under the User Requested Minor Use Label Expansion program. For these uses, AGX PIONEER ENTERPRISE LIMITED has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

**DIRECTIONS FOR USE**

**Preharvest Treatment of Chickpea, Dried Lupin and Dried Fava Bean**

For control of quackgrass, Canada thistle, common milkweed, toadflax; and season-long control of perennial sow thistle and harvest management, VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION can be applied prior to harvest of chickpea, dried lupin and dried fava bean. DO NOT apply to crops if grown for seed production.

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare (100L/ha for dense vegetative cover) of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For further information see guidelines above. The Pre-harvest interval is 7 days.

**GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS**

| <b>CROP(S)</b>  | <b>PERCENT GRAIN MOISTURE</b> | <b>VISUAL SYMPTOMS</b>   |
|-----------------|-------------------------------|--|
| Chickpea        | Less than 30                  | Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves) |
| Dried Lupin     |                               |  |
| Dried Fava Bean |                               |  |

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

## 9.9.2 PREHARVEST AERIAL APPLICATION

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

**RESTRICTED USE  
AERIAL PREHARVEST APPLICATION  
PRAIRIE PROVINCES ONLY  
(including PEACE RIVER REGION AND INTERIOR OF B.C.)**

**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.

**NATURE OF RESTRICTION:** This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial/territorial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial/territorial approval, the following requirements must be demonstrated to the provincial/territorial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial/territorial requirements for general comprehensive insurance coverage.

Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

Refer to general directions and precautions concerning aerial application, section 5.2, and 5.3, buffer zones.

### DIRECTIONS FOR USE

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax, and season-long control of perennial sow thistle. VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. **Do not use on forages. DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION should be applied at 1.67 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% of less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

## 9.10 TREE PLANTINGS

### SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

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

#### DECIDUOUS

##### Ash

*Fraxinus spp.*

##### Caragana

*Caragana spp.*

##### Cherry

*Prunus spp.*

##### Elm

*Ulmus spp.*

##### Lilac

*Syringa spp.*

##### Maple

*Acer spp.*

##### Mountain Ash

*Sorbus spp.*

##### Poplar

*Populus spp.*

##### Russian Olive

*Elaeagnus spp.*

##### Willow

*Salix spp.*

#### CONIFEROUS

##### Fir

*Abies spp.*

##### Juniper

*Juniperus spp.*

##### Pine

*Pinus spp.*

##### Spruce

*Picea spp.*

##### Yew

*Taxus spp.*

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

## **9.11 TREE, VINE, BERRY AND OTHER CROPS**

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand held and high volume orchard guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See “**Mixing and Application Equipment Information**” (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or preemergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 23 litres of this product per hectare per year.

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.**

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

## WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

| CROP  | RATE<br>(L/ha)  | PRE-<br>HARVEST<br>INTERVAL<br>(days) | MAX.<br>APPL.<br>PER<br>YEAR | WEEDS<br>CONTROLLED           | COMMENTS<br>(Refer to sections 7.1<br>and 8.1 for specific<br>rates for weed control)   |
|---|---|---------------------------------------|------------------------------|-------------------------------|---|
| Apples,<br>Apricot,<br>Cherry<br>(sweet/sour),<br>Peaches,<br>Pears,<br>Plums | 1.5 – 8   | 30                                    | 3                            | Annual and<br>perennial weeds |   |
| Apples,<br>Grapes   | Tank Mix<br>1.5 – 8<br>+<br>Simazine<br>2.0 – 4.5 kg<br>ai/ha | -                                     | 1                            | Annual and<br>perennial weeds | <p>Will provide season-long preemergent control.</p> <p>Do not apply to coarse, sandy or gravelly soil.</p> <p>Use according to the more restrictive label direction for each product in the mix.</p> <p>DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively.</p> <p>Simazine rate is</p> |

| <b>CROP</b>                                  | <b>RATE<br/>(L/ha)</b>                   | <b>PRE-<br/>HARVEST<br/>INTERVAL<br/>(days)</b> | <b>MAX.<br/>APPL.<br/>PER<br/>YEAR</b> | <b>WEEDS<br/>CONTROLLED</b>         | <b>COMMENTS<br/>(Refer to sections 7.1<br/>and 8.1 for specific<br/>rates for weed control)</b>  |
|--|--|---|--|-------------------------------------|--|
|  |  |   |  |                                     | equivalent to 2.25 – 5.0 kg/ha Princep® Nine-T Herbicide, or 4.0 – 9.0 kg/ha Simadex® Simazine Flowable  |
| Grapes                                       | 1.5 – 8                                  | 14  | 3                                      | Annual and perennial weeds.         | Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape.<br><br>Suckering should be conducted within 2 weeks prior to application.<br><br>Do not apply to vines which have been established less than 3 years. |
| Highbush (cultivated) blueberry              | 1.87 – 3.73                              | 30  | 1                                      | quackgrass                          | Use as a directed spray, with no more than 275 kPa pressure.   |
| Lowbush blueberry                            | 0.67 – 1.34% solution (spot application) | Apply in non-bearing year only                  | 1                                      | Woody Brush and Trees (section 6.3) | Apply as a directed spray in mid-summer of the vegetative (non-bearing) year.<br><br>See section 9.3 for instructions on spot treatments.  |
| Filberts, Hazelnut (established plantations) | 1.5 – 2.33                               | 14  | -                                      | Annual Weeds                        | Use as a directed spray, with no more than 275 kPa pressure.   |
| Walnut, Chestnut, Japanese Heartnut          | 1.5 – 8                                  | -   | 2                                      | Annual and perennial weeds          | Apply late spring and fall, postharvest but prior to a damaging frost.<br><br>Apply in 200 – 300 L water as a directed spray, using no more  |



| CROP        | RATE (L/ha)  | PRE-HARVEST INTERVAL (days)        | MAX. APPL. PER YEAR | WEEDS CONTROLLED           | COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)   |
|-------------|--|------------------------------------|---------------------|----------------------------|--|
|             |  |                                    |                     |                            | Apply alternatively as a 1.34% wiper solution (see “ <b>Wiper Applications</b> ” section 9.12).  |
| Cranberry   | 13.4% solution (0.62 L VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION<br><br>+<br>4L water) | 30                                 | 1                   | Annual and perennial weeds | Apply using wick or wiper applicators<br><br>(section 9.12).   |
| Strawberry  | 0.67 – 1.34% solution (spot application)<br>22% solution (wiper application)                   | 30                                 | 1                   | Emerged perennial weeds    | Apply when weeds are at a susceptible growth stage (see sections 8.1 and 8.2).<br><br>See section 9.3 for instructions on spot treatments.<br><br>See section 9.12 for instructions on wiper applications. |
| Sugar Beets | 0.67 – 1.34% solution (spot application)   | Treated crop MUST NOT be harvested | 1                   | Dodder species             | Apply when dodder is vigorously growing but before flowering.<br><br>See section 9.3 for instructions on spot treatments.  |
| Asparagus   | 0.83 – 1.67  | 7                                  | 1                   | Fall seeded ryegrass       | Apply in spring before emergence of crop shoots.   |

Princep Nine-T Herbicide is a registered trademarks of Syngenta group company.

Simadex Simazine Flowable is a registered trademark of Bayer.

## **SHORT ROTATION INTENSIVE CULTURE (SRIC) POPLAR (*Populus***

*spp*)

**DO NOT** apply by air.

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established crops of short rotation intensive culture (SRIC) Poplar species (*Populus spp.*)

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.**

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION may be applied prior to planting or as a post directed spray in established short rotation intensive culture crops. Apply VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION up to 8 L/ha in 50 – 100 liters or 150 – 300 L/h for quackgrass control by ground application only. Applications can be made 1-3 times per year during establishment however, not to exceed the limit of 8 L/ha per year. Shielded sprayers must be utilized when applying post directed spray solutions. Allow a 6-8 week interval between spray applications. Apply to actively growing weeds.

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

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than AGX PIONEER ENTERPRISE LIMITED under the User Requested Minor Use Label Expansion program. For these uses, AGX PIONEER ENTERPRISE LIMITED has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

#### **DIRECTIONS FOR USE**

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

#### **NORTH AMERICAN GINSENG**

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

**Existing/Established Gardens:** Apply this product in the spring before the crop has emerged above the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 1.67 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

## 9.12 SELECTIVE EQUIPMENT

### WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberries. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10 and 10.1).

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

**AVOID CONTACT WITH DESIRABLE VEGETATION.** Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 centimetres above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 centimetres above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

## NOTES

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

**For Roller Applicators** – Mix 0.33 to 0.67 litres of this product in 10 litres water to prepare a 3 to 7 percent solution. Roller speed should be maintained at 50 to 150 RPM.

**For Wick or other Wiper Applicators** – Mix 0.57 litres of this product in 2 litres of water to prepare a 22 percent solution.

## 10.0 NON-CROPLAND USES

**INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS.**

**ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.**

**DO NOT** apply by air.

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

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

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

***10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION***

| WEEDS                                 | GROUND APPLICATION* |                          |   | COMMENTS  |
|---------------------------------------|---------------------|--------------------------|---|---|
|                                       | BOOM APPLICATION    |                          | HAND HELD<br>HIGH VOLUME<br>APPLICATION<br>% SOLUTION |   |
|                                       | RATE*<br>(L/ha)     | WATER<br>VOL.*<br>(L/ha) |   |   |
| <b>Annual grasses and broadleaves</b> | 1.5–2.33            | 50-100                   | 0.67  | Actively growing weeds.   |
| <b>Perennial Weeds</b>                |                     |                          |   | Actively growing weeds.   |
| Quackgrass                            | 1.67<br>3.17-4.67   | 50-300<br>50-300         | 0.67<br>1.34  | Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2). |
| Canada Thistle (bud stage)            | 3.17- 4.67          | 100- 300                 | 1.34  |   |
| Purple Loosestrife                    | 4                   | 300-600                  | 0.67-1.34 (or 22% for wiper application)              |   |
| Other Perennials                      | 4.67-8              | 100-300                  | 1.34  | See section 10.2.2 for instructions on purple   |

|   |     |          |           |  |
|---|-----|----------|-----------|--|
|   |     |          |           | loosestrife applications.<br>Summer through fall is optimum. |
| <b>Brush and Trees</b><br>Birch, Cherry,<br>Poplar, Western<br>Snowberry,<br>Willow | 2-4 | 100-300  | 0.67-1.34 | Summer through early fall (see section 10.2).                |
| Maple,<br>Raspberry/<br>Salmonberry,<br>Alder                                       | 4   | 100- 300 | 1.34      | Late summer through fall. Fall is optimum.                   |

**GROUND APPLICATION\***

| WEEDS  | BOOM APPLICATION   |                          |   | COMMENTS   |
|--|--|--------------------------|---|--|
|  | RATE*<br>(L/ha)  | WATER<br>VOL.*<br>(L/ha) | HAND HELD<br>HIGH VOLUME<br>APPLICATION<br>% SOLUTION |  |
| <b>Turf Renovation</b><br>Annual and<br>perennial weeds  | 1.67-8   | 100-300                  | 0.67-1.34   | Use higher end of the rate range for perennials.   |
| <b>Residual Control</b><br>Annual<br>and perennial<br>weeds (the<br>simazine<br>component of this<br>tank mixture will<br>provide season<br>long control of<br>most germinating<br>broadleaf weeds<br>and grasses. It<br>may also provide<br>postemergent<br>activity on certain<br>annual weeds). | 1.67 – 8<br>+<br>4.0 -9.0 L<br>Simadex<br>Simazine<br>Flowable | 200-400                  | -   | Do not apply to coarse, sandy or gravelly soil. One application per year.<br><br>Use according to the most restrictive label directions for each product in the mixture.<br><br>For other simazine formulations registered for industrial/ non-cropland areas, use equivalent rates; i.e., 2.0 – 4.5 kg simazine/ha. |

\* For more information on rates, water volumes and application, refer to “**Annual and Perennial Weed Control**” (sections 7.1 and 8.1, respectively).

Simadex Simazine Flowable is a registered trademark of Bayer.

## **10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES**

### **FOLIAR APPLICATIONS**

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

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

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

#### **10.2.1 GROUND APPLICATIONS:**

##### **For all non-cropland uses**

For woody brush and trees, apply 2 to 4 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.67 to 1.34 percent solution using hand held, high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 4 litres per hectare rate for Maple, Alder and Willow\* species, as well as for hard to control perennial weed species. (\*suppression only).

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

#### **10.2.2 PURPLE LOOSESTRIFE CONTROL**

- **DO NOT TREAT PLANTS OVER OPEN WATER. VANGUARD GLYPHOSATE 540 LIQUID HERBICIDE SOLUTION is not registered for direct application to bodies of water.**

- Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray-to-wet.
- For wiper applications see section 9.12.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

### 10.3 SELECTIVE APPLICATION FOR ALL NON-CROPLAND USES

Selective equipment such as WIPER and ROLLER applicators can be used to control emerged weeds in non- crop areas and tree plantings. See “**Selective Equipment**” (section 9.12) for more information.

### 10.4 TURF GRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in “**Weed Control in Non-Cropland Areas**” (section 10.1).

#### **DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.**

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in “**Weed Control**” (sections 7.1 and 8.1, respectively). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrass may be established following the above procedures.

## 10.5 INJECTION APPLICATIONS -- FOR ALL NON-CROPLAND USES

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

Total control may not be evident for 1 to 2 years following treatment.

A partial list of species controlled includes:

### **Alder**

*Alnus spp.*

### **Birch**

*Betula spp.*

### **Cedar**

*Thuja spp.*

### **Cherry**

*Prunus spp.*

### **Douglas Fir**

*Pseudotsuga spp.*

### **Hemlock**

*Tsuga spp.*

### **Maple\***

*Acer spp.*

### **Pine**

*Pinus spp.*

### **Poplar**

*Populus spp.*

### **Willow**

*Salix spp.*

\* This treatment may only provide suppression of Bigleaf Maple. Late fall applications will provide optimum suppression of Bigleaf Maple.

## 10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g., squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump

i.e., within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.33 millilitres product for every 5 centimetres DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1 to 2 years after treatment.

See “**Injection Applications**” (section 10.5) of this label for a partial list of species controlled.