

# LIBERTY<sup>®</sup> <sup>®</sup> 150 SN Herbicide

|       |           |           |
|-------|-----------|-----------|
| GROUP | <b>10</b> | HERBICIDE |
|-------|-----------|-----------|

**For sale for use in glufosinate ammonium tolerant Canola grown in the Prairie Provinces and Interior of British Columbia only.**

**SOLUTION**

**COMMERCIAL**



**WARNING: SKIN AND EYE IRRITANT**

**REGISTRATION NUMBER 28837 PEST CONTROL PRODUCTS ACT**

**ACTIVE INGREDIENT:** glufosinate ammonium 150 g/L

**NET CONTENTS:** 1L – Bulk

**READ THE LABEL AND BOOKLET BEFORE USING**

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY  
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT  
1-800-454-2673**

BASF Canada Inc.  
100 Milverton Drive, 5<sup>th</sup> Floor  
Mississauga, Ontario  
L5R 4H1  
1-877-371-2273

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**PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN.** Harmful or fatal if absorbed through the skin. Harmful if swallowed. Causes eye irritation. DO NOT get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

**Protective Clothing and Equipment:** Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes, and protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair. Gloves and protective eyewear (goggles or face shield) are not required during application within a closed cab and/or cockpit. If used in a tank mix, follow the most protective PPE directions of the products used.

**Re-entry Restriction:** Workers should not enter treated fields within 24 hours of treatment. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

**FIRST AID:** Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention. **If swallowed:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. **If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice. **If 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 treatment advice.

**TOXICOLOGICAL INFORMATION:** Note to physician: If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

**ENVIRONMENTAL HAZARDS:** TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under Directions for Use. Avoid spray drift to susceptible plants and USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES. To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

**STORAGE:** CANNOT be stored below freezing. If stored for 1 year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage. To prevent contamination, store this product away from food or feed.

**DISPOSAL: Recyclable Container Disposal (less than 23 litres):** Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site: 1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. 2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. **Returnable Container Disposal:** Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer). **Refillable Container Disposal:** For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. **Disposal of Unused, Unwanted Product:** For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills. **Disposal of Unused Spray Solution:** If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

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

**Booklet**

**LIBERTY<sup>®</sup>**  **150 SN Herbicide**

|       |           |           |
|-------|-----------|-----------|
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## LIBERTY 150 SN HERBICIDE

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## GENERAL INFORMATION

### Section 1: The Product

- LIBERTY 150 SN Herbicide provides control of a broad spectrum of grassy and broadleaf weeds in Canola varieties or hybrids that are specially developed to be tolerant to glufosinate ammonium.
- LIBERTY 150 SN Herbicide is registered for use on glufosinate ammonium tolerant Canola varieties or hybrids [example: varieties or hybrids labelled with LibertyLink® and the  symbol].
- LIBERTY 150 SN Herbicide may also be applied to glufosinate ammonium tolerant lines or varieties grown for seed production.

## SAFETY AND HANDLING

### Section 2: Precautions and Protective Clothing and Equipment

#### PRECAUTIONS:

**KEEP OUT OF REACH OF CHILDREN.** Harmful or fatal if absorbed through the skin. Harmful if swallowed. Causes eye irritation. DO NOT get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

#### Protective Clothing and Equipment

- Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes, and protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair. Gloves and protective eyewear (goggles or face shield) are not required during application within a closed cab and/or cockpit.
- If used in a tank mix, follow the most protective PPE directions of the products used.

#### Re-entry Restriction

- Workers should not enter treated fields within 24 hours of treatment. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

### Section 3: First Aid and Toxicological Information

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

**If swallowed:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

**If 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 treatment advice.

#### **TOXICOLOGICAL INFORMATION:**

**NOTE TO PHYSICIAN:** If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

#### **Section 4: Environmental Hazards**

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

#### **Section 5: Storage**

- CANNOT be stored below freezing.
- If stored for 1 year or longer, shake well before using.
- Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs.
- Do not use or store in or around the home.
- Keep in original container during storage.
- To prevent contamination, store this product away from food or feed.

#### **Section 6: Disposal**

##### **Recyclable Container Disposal: (less than 23 litres):**

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

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

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

**Returnable Container Disposal:**

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

**Refillable Container Disposal:**

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

**Disposal of Unused, Unwanted Product:**

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

**Disposal of Unused Spray Solution:**

If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.


**DIRECTIONS FOR USE**

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

**POST EMERGENT USE**

**Section 7: Crops, Weeds, Timing and Rates**

**CANOLA - PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA ONLY**

LIBERTY 150 SN Herbicide is registered for aerial and ground application to glufosinate ammonium tolerant Canola varieties or hybrids [example: varieties or hybrids labelled with LibertyLink® and the symbol 

- **To assure crop safety and optimal herbicide performance, only use LIBERTY 150 SN Herbicide on glufosinate ammonium tolerant (i.e., LibertyLink) Canola grown from certified seed.**
- LIBERTY 150 SN Herbicide is not registered for use on other glufosinate ammonium tolerant crops.
- **Application of LIBERTY 150 SN Herbicide to non-tolerant Canola varieties or hybrids or other non-tolerant crops will result in severe crop injury or death of the crop.**
- Apply LIBERTY 150 SN Herbicide from the cotyledon stage up until, but prior to, early bolting stage of Canola.
- Refer to weed/rate chart in this label for application rates and weeds controlled.
- For control/suppression of late emerging weeds or if new weed germination or growth is present, re-apply LIBERTY 150 SN Herbicide.



- Up to three applications of LIBERTY 150 SN Herbicide, each at a maximum of 4 L/ha may be made. The third application must occur prior to the early bolting stage of Canola.
- **Do not apply more than a total of 12 L/ha per year.**
- Apply when the new weed growth is in the correct leaf stage and up until, but prior to, the bolting stage of Canola. For best results, apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.
- LIBERTY 150 SN Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced.
- Slight discoloration of the Canola may be visible after application. This effect is temporary and will not influence crop growth, maturity or yield.
- LIBERTY 150 SN Herbicide may also be applied to glufosinate ammonium tolerant Canola lines or varieties grown for seed production.
- **For hybrid seed production** - Two applications are required to remove the segregating wild type plants. The first application should occur when the Canola is in the 2-4 leaf stage, the second application when the Canola plants are in the 4-6 leaf stage and the third application, if necessary, may be applied to the Canola up until, but prior to, the bolting stage. All applications of LIBERTY 150 SN Herbicide for hybrid seed production should be made at 3.33 – 4 L/ha.
- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

**SUSCEPTIBLE WEEDS:** LIBERTY 150 SN Herbicide has an effect on all weeds and crops except for those crops which are developed to be tolerant to applications of LIBERTY 150 SN Herbicide. The following weeds are susceptible to application of LIBERTY 150 SN Herbicide. Best control will be obtained when LIBERTY 150 SN Herbicide is applied in the recommended leaf stages.

| WEED          | RECOMMENDED WEED LEAF STAGE |   |   |   |   |   |                   |   | RATE |           |
|---------------|-----------------------------|---|---|---|---|---|-------------------|---|------|-----------|
|               | 1                           | 2 | 3 | 4 | 5 | 6 | 7                 | 8 |      |           |
| Cow Cockle    | -----                       |   |   |   |   |   |                   |   |      | 1.33 L/ha |
| Green Foxtail | -----                       |   |   |   |   |   | Maximum 3 tillers |   |      |           |

| WEED            | RECOMMENDED WEED LEAF STAGE |   |   |   |   |   |   |   | RATE |        |
|-----------------|-----------------------------|---|---|---|---|---|---|---|------|--------|
|                 | 1                           | 2 | 3 | 4 | 5 | 6 | 7 | 8 |      |        |
| Barnyard Grass  | -----                       |   |   |   |   |   |   |   |      | 2 L/ha |
| Lady's Thumb    | -----                       |   |   |   |   |   |   |   |      |        |
| Lamb's-quarters | -----                       |   |   |   |   |   |   |   |      |        |
| Russian Thistle | Up to 8 cm height           |   |   |   |   |   |   |   |      |        |
| Smartweed       | -----                       |   |   |   |   |   |   |   |      |        |
| Stinkweed       | -----                       |   |   |   |   |   |   |   |      |        |
| Volunteer Flax  | Up to 6 cm height           |   |   |   |   |   |   |   |      |        |
| Wild Mustard    | -----                       |   |   |   |   |   |   |   |      |        |

| WEED                          | RECOMMENDED WEED LEAF STAGE |   |   |                   |   |   |   |   | RATE      |
|-------------------------------|-----------------------------|---|---|-------------------|---|---|---|---|-----------|
|                               | 1                           | 2 | 3 | 4                 | 5 | 6 | 7 | 8 |           |
| Canada Thistle <sup>1</sup>   | Up to 10 cm height          |   |   |                   |   |   |   |   | 2.67 L/ha |
| Common Chickweed              | -----                       |   |   | Leaf Pairs        |   |   |   |   |           |
| Hemp-nettle                   | -----                       |   |   | Leaf Pairs        |   |   |   |   |           |
| Kochia                        | Up to 8 cm height           |   |   |                   |   |   |   |   |           |
| Perennial Sow Thistle         | -----                       |   |   |                   |   |   |   |   |           |
| Quackgrass <sup>1</sup>       | -----                       |   |   |                   |   |   |   |   |           |
| Redroot Pigweed               | -----                       |   |   |                   |   |   |   |   |           |
| Round-leaved Mallow           | -----                       |   |   |                   |   |   |   |   |           |
| Scentless Chamomile           | Up to 10 cm height          |   |   |                   |   |   |   |   |           |
| Shepherd's-purse              | -----                       |   |   |                   |   |   |   |   |           |
| Volunteer Barley <sup>2</sup> | -----                       |   |   | Maximum 2 tillers |   |   |   |   |           |
| Volunteer Wheat               | -----                       |   |   | Maximum 2 tillers |   |   |   |   |           |
| Wild Buckwheat                | -----                       |   |   |                   |   |   |   |   |           |

| WEED                    | RECOMMENDED WEED LEAF STAGE |   |        |                   |   |   |   |   | RATE      |
|-------------------------|-----------------------------|---|--------|-------------------|---|---|---|---|-----------|
|                         | 1                           | 2 | 3      | 4                 | 5 | 6 | 7 | 8 |           |
| Cleavers                | -----                       |   | Whorls |                   |   |   |   |   | 3.33 L/ha |
| Dandelion               | 1-15 cm rosette             |   |        |                   |   |   |   |   |           |
| Flixweed                | Up to 10 cm height          |   |        |                   |   |   |   |   |           |
| Hemp-nettle             | -----                       |   |        | Leaf Pairs        |   |   |   |   |           |
| Jimsonweed              | -----                       |   |        |                   |   |   |   |   |           |
| Quackgrass <sup>3</sup> | -----                       |   |        |                   |   |   |   |   |           |
| Stork's Bill            | -----                       |   |        |                   |   |   |   |   |           |
| Wild Oats               | -----                       |   |        | Maximum 2 tillers |   |   |   |   |           |

| WEED                          | RECOMMENDED WEED LEAF STAGE |   |   |                   |   |   |   |   | RATE      |
|-------------------------------|-----------------------------|---|---|-------------------|---|---|---|---|-----------|
|                               | 1                           | 2 | 3 | 4                 | 5 | 6 | 7 | 8 |           |
| <b>Heavy Populations</b>      |                             |   |   |                   |   |   |   |   | 3.33 L/ha |
| Canada Thistle <sup>1</sup>   | Up to 10 cm height          |   |   |                   |   |   |   |   |           |
| Quackgrass <sup>1</sup>       | -----                       |   |   |                   |   |   |   |   |           |
| Volunteer Barley <sup>2</sup> | -----                       |   |   | Maximum 2 tillers |   |   |   |   |           |
| Volunteer Wheat               | -----                       |   |   | Maximum 2 tillers |   |   |   |   |           |
| Wild Buckwheat                | -----                       |   |   |                   |   |   |   |   |           |

| WEED                        | RECOMMENDED WEED LEAF STAGE                      |   |   |   |   |   |   |   | RATE   |
|-----------------------------|--|---|---|---|---|---|---|---|--------|
|                             | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 |        |
| Canada Thistle <sup>4</sup> | Up to 10 cm height                               |   |   |   |   |   |   |   | 4 L/ha |
| Jimsonweed <sup>5</sup>     | -----  |   |   |   |   |   |   |   |        |
| Quackgrass <sup>6</sup>     | -----  |   |   |   |   |   |   |   |        |
| Japanese Brome <sup>7</sup> | -----  up to emergence of 1 <sup>st</sup> tiller |   |   |   |   |   |   |   |        |
| Downy Brome <sup>7</sup>    | -----  up to emergence of 1 <sup>st</sup> tiller |   |   |   |   |   |   |   |        |

<sup>1</sup> Top Growth Suppression Only

<sup>2</sup> Suppression Only

<sup>3</sup> Improved Top Growth Control

<sup>4</sup> Better Top Growth Suppression

<sup>5</sup> Improved Control

<sup>6</sup> Season Long Control for Heavy Populations

<sup>7</sup> Spring-germinated Brome Only; best results are obtained after a pre-seed or burndown application with a glyphosate herbicide.

### Section 8: Tank Mixes

- Do not tank mix LIBERTY 150 SN Herbicide with herbicides, fertilizers or chemical additives unless recommended on this label.
- When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.
- Tank mix partners may have additional restrictions for leaf staging.
- For enhanced activity LIBERTY 150 SN Herbicide may be tank mixed with the following products.

#### CANOLA

| TANK MIX PRODUCT            | RATE      | DIRECTIONS  |
|-----------------------------|-----------|---|
| Centurion®<br>or<br>Select® | 63 mL/ha  | For control of Volunteer Barley and Wild Oats, apply LIBERTY 150 SN Herbicide at a rate of 2.67 – 4.0 L/ha plus Centurion or Select at 63 mL/ha with adjuvant as recommended on the Centurion or Select label. Apply when the weeds are in the 1-4 leaf stage with a maximum of 2 tillers.  |
| Centurion®<br>or<br>Select® | 190 mL/ha | For control of weed species listed on the LIBERTY 150 SN Herbicide and Centurion or Select labels plus foxtail barley, spring-germinated Japanese and downy brome apply LIBERTY 150 SN Herbicide at a rate of 3.33 – 4.0 L/ha in tank mixture with Centurion or Select at 190 mL/ha and adjuvant as recommended on the Centurion or Select label. Apply when the weeds are at growth stages listed on the LIBERTY 150 SN Herbicide, Centurion and Select labels, foxtail barley is at the 1-4 leaf stage with a maximum of 2 tillers and spring-germinated Japanese and downy brome are at the 1- to 6-leaf up to the emergence of the 1 <sup>st</sup> tiller |

|  |  |   |
|--|--|---|
|  |  | stage.  |
| Facet® L<br>+<br>Merge®                              | 0.28 –<br>0.56 L/ha<br>+<br>0.5 – 1.0<br>L/ha                  | For enhanced and more consistent control of cleavers from the 1 to 6 whorl stage, apply LIBERTY 150 SN Herbicide at a rate of 3.33 - 4 L/ha plus Facet L at 0.28 L/ha. Higher rates of Facet L (0.42 – 0.56 L/ha) will provide suppression of secondary flushes of cleavers. Use the 0.56 L/ha rate when cleaver densities are high, when staging is late or for improved residual control. Apply in 100 L/ha of water with Merge Adjuvant at a rate of 0.5 to 1 L/ha. Application should be made from the cotyledon to 6 true leaf stage of the canola crop. |
| Facet® L<br>+<br>Centurion®<br>+<br>Amigo® or Merge® | 0.28 –<br>0.56 L/ha<br>+<br>63 –<br>190 mL/ha<br>+<br>0.5 L/ha | For enhanced and more consistent control of cleavers from the 1 to 6 whorl stage and annual grasses, apply LIBERTY 150 SN Herbicide at a rate of 3.33 – 4 L/ha plus Facet L at 0.28 – 0.56 L/ha plus Centurion at 63 – 190 mL/ha. Apply in 100 L/ha of water with Amigo or Merge Adjuvant at 0.5 L/ha. Application should be made from the cotyledon to 6 true leaf stage of the canola crop.   |

### **Section 9: Herbicide Resistance Management Recommendations**

For resistance management, LIBERTY 150 SN Herbicide is a Group 10 herbicide. Any weed population may contain or develop plants naturally resistant to LIBERTY 150 SN Herbicide and other Group 10 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 LIBERTY 150 SN Herbicide or other Group 10 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 BASF at 1-877-371-2273 or at [www.agsolutions.ca](http://www.agsolutions.ca).

## **Section 10: Application Instructions and Precautions**

### **APPLICATION INSTRUCTIONS:**

- The speed of action of LIBERTY 150 SN Herbicide is influenced by environmental factors. At cool temperatures (below 10° C), poor moisture and low humidity, the speed of action may be reduced. Generally, visual symptoms appear 2-4 days after application.
- For best results, apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.
- LIBERTY 150 SN Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced.
- LIBERTY 150 SN Herbicide works primarily as a contact herbicide. Thorough coverage of the weeds to be controlled is essential.
- When a rate range is given the higher rate should be utilized:
  1. when the weed or crop growth is dense;
  2. when the weeds are large and/or mature - i.e., advanced leaf stages and plant height;
  3. when the environmental conditions are cool and dry.
- Refer to Section 7 for weeds controlled.

### **Ground Application Instructions:**

- Ensure that all circuits (pipes, booms etc.) have the correct LIBERTY 150 SN Herbicide / water concentration before application is started.
- Apply LIBERTY 150 SN Herbicide in a minimum of 110 L/ha of water, at a pressure of 275 kPa and at a ground speed of 6-8 kph. If check valves are used, apply at 310 kPa. The use of 80° or 110° flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration.
- Application of the spray at a 45° angle forward will result in better spray coverage. Refer to Sections 7 and 8 for the correct rate and timing of application.

### **Aerial Application Instructions:**

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

- Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.
- Exercise extreme caution during the aerial application of any insecticide, herbicide or fungicide. Drift of pesticides is not always visible with the human eye. Small droplets may drift into sensitive areas without obvious signs of danger. Follow these directions precisely.
- When applying LIBERTY 150 SN Herbicide by aircraft, uniform spray coverage is essential. Applicators are required to use the correct combination of spray nozzle tips, nozzle placement and spray pressures which will provide a coarse droplet size distribution with a volume mean diameter greater than 350 microns. Do not use raindrop nozzles. To avoid streaked, uneven or overlapped application, use appropriate marking devices.
- **Post-emergent Use in Glufosinate Ammonium Tolerant Canola Water Volume:** Apply LIBERTY 150 SN Herbicide in a minimum of 55 L/ha of water only.

#### **APPLICATION PRECAUTIONS**

- Weed control may be reduced when heavy dew, fog or mist is present at the time of application.
- Uniform, thorough spray coverage is important to achieve consistent weed control.
- Crop injury may result if LIBERTY 150 SN Herbicide is applied to a crop stressed by severe weather conditions, frost, drought, water-saturated soil, low fertility, disease or insect damage.
- LIBERTY 150 SN Herbicide is a non-selective herbicide and has the potential to desiccate, defoliate or kill all green plants. Avoid contact with other desirable plants or crops by direct application or from spray drifts as severe damage may occur.
- **Application of LIBERTY 150 SN Herbicide to non-tolerant Canola varieties, hybrids or other non-tolerant crops will result in severe crop injury or death of the crops.**
- **To assure crop safety and optimal herbicide performance, only use LIBERTY 150 SN Herbicide on glufosinate ammonium tolerant (i.e., LibertyLink) Canola grown from certified seed.**

#### **Plant-back Intervals:**

- No plant-back interval is required for field corn, canola and soybeans, dry common beans (not grown for seed), alfalfa, carrot, lettuce, onion and potato.
- 70 days for buckwheat, barley, millet, oats, rye, sorghum, triticale, wheat, other root and leafy vegetables.
- 120 days for all other crops.

#### **Ground Application Precautions:**

- Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.
- Do NOT apply if winds exceed 16 kph when using open boom sprayers for ground application.
- Do NOT apply if winds exceed 25 kph when using hooded sprayer for ground application.

- Do not use flood jet nozzles, controlled droplet application equipment or air-assisted spray equipment.

#### **Aerial Application Precautions:**

- Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wingspan or rotorspan.
  - Read and understand the entire label before opening this product. If you have questions, call BASF Canada at 1-877-371-2273 or obtain technical advice from the distributor or your provincial agricultural representative.

#### **Aerial Application Operator Precautions:**

- Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
- It is desirable that the pilot have communication capabilities at each treatment site at the time of application.
- The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the 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.

#### **Rainfast Period**

- If rainfall occurs within 4 hours of application, effectiveness may be reduced.

#### **Buffer Zones:**

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

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

| Method of application | Crop   |             | Buffer Zones (metres) Required for the Protection of: |                  |                     |
|-----------------------|--------|-------------|---|------------------|---------------------|
|                       |        |             | Freshwater Habitat of Depths:                         |                  | Terrestrial Habitat |
|                       |        |             | Less than 1 m   | Greater than 1 m |                     |
| Field sprayer         | Canola |             | 1   | 0                | 1                   |
| Aerial                | Canola | Fixed-wing  | 1   | 0                | 35                  |
|                       |        | Rotary-wing | 1   | 0                | 30                  |

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

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| <b>Section 11: Mixing Instructions</b> |
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- LIBERTY 150 SN Herbicide must be applied with properly calibrated, clean equipment.
- LIBERTY 150 SN Herbicide is specially formulated to mix readily in water.
- Prior to adding LIBERTY 150 SN Herbicide to the spray tank, ensure that the spray tank is thoroughly clean (see Section 12, “Sprayer Cleanup”).
  1. Fill the tank three-quarters full with clean water.
  2. Add the correct amount of LIBERTY 150 SN Herbicide.
  3. Add the remaining amount of water, begin agitation, and spray out immediately.

**TANK-MIXES:**

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

**LIBERTY 150 SN Herbicide and Facet L (Glufosinate Ammonium Tolerant Canola only):**

When tank mixing with Facet L, always add LIBERTY 150 SN Herbicide first followed by Facet L, then add Merge Adjuvant.

**LIBERTY 150 SN Herbicide and CENTURION or SELECT: Glufosinate Ammonium Tolerant Canola only**

When tank mixing LIBERTY 150 SN Herbicide and CENTURION or SELECT, always add AMIGO adjuvant to the tank first, *then* add LIBERTY 150 SN Herbicide to the tank followed by the CENTURION or SELECT. When tank mixing with Facet L, always add AMIGO or Merge Adjuvant to the tank first, *then* add LIBERTY 150 SN Herbicide followed by Facet L, followed by CENTURION.



**The addition of an anti-foaming agent may reduce foaming, especially when using soft water.**

1. Thoroughly clean the sprayer by flushing the system with water containing detergent (see Section 12, “Sprayer Cleanup”).
2. Fill clean spray tank half full with clean water. Agitation should be running the entire mixing procedure.
3. Add the correct amount of AMIGO. Continue to agitate until AMIGO is thoroughly mixed.
4. Add the required amount of LIBERTY 150 SN Herbicide to the spray tank. Continue to agitate until LIBERTY 150 SN Herbicide is thoroughly mixed.
5. If required, add the correct amount of Facet L.
6. Add the correct amount of CENTURION or SELECT along with the remaining amount of water necessary to fill the spray tank.
7. Continue to agitate or run the by-pass system, and spray out immediately.
8. After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
9. If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
10. Immediately after use, thoroughly clean the sprayer by flushing the system with water containing detergent (see Section 14, “Sprayer Cleanup”).

## **Section 12: Sprayer Cleanup**

- Before and after using LIBERTY 150 SN Herbicide always complete a thorough cleaning of the spray tank, lines, and filter. Spray equipment should be thoroughly rinsed using a strong detergent solution.

## **Section 13: Livestock Feeding and Preharvest Intervals**

### **LIVESTOCK FEEDING:**

#### **Canola:**

- Grain and meal from treated crop can be fed to livestock.
- Do not graze the treated crop or cut for hay; sufficient data are not available to support such use.

### **PREHARVEST INTERVALS:**

#### **Canola:**

- When LIBERTY 150 SN Herbicide is tank mixed with Centurion or Select, observe a PHI of 60 days from the date of treatment (or last treatment when a second application has been made).
- When LIBERTY 150 SN Herbicide is tank mixed with Facet L, observe a PHI of 60 days from the date of treatment.

|                            |
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| <b>Section 14: Notices</b> |
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**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.

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