



264-660 04/10/2000 1/11

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Paul A. Cain, Ph.D.
Aventis CropSciences
2 T.W. Alexander Drive
Research Triangle Park, NC 27709

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Dear Dr. Cain:

APR 10 2000

Subject: Liberty® Herbicide
EPA Registration No. 264-660
Application and Letter Dated August 21, 1997,
Request To Amend Registration To Permit Use in
the Culture of Canola and Sugar Beets; and
Request for an EPA Pesticide Petition To Establish
a Tolerance Regulation for Residues of Glufosinate-
Ammonium (EPA Pesticide Petition 7F4910); and
Revised Labeling Submitted in Your Letters of
December 1, 1999, August 5, 1999, December 1, 1999,
February 24, 2000, March 17, 2000, and March 31,
2000

The proposed labeling submitted with your letter of March 31, 2000 has been reviewed and found acceptable as an amendment to the registration of the subject pesticide product under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended.

This Agency has concerns about the use of herbicides in genetically altered crops. These concerns include a potential increase in weediness to related weed species, herbicide tolerant crop volunteers, and tolerant weeds resulting from high selection pressure from the excessive use of a single herbicide mode of action. This potential increase in weediness could adversely affect herbicide use rates, and agricultural practices or natural populations of plant relatives in the wild.

1. This Agency is requiring as a condition of this registration that you track the use of Liberty Herbicide in culture of canola and sugar beets where this product is applied and report annually to this Agency:
 - a. Any increase in glufosinate-ammonium tolerance in weed species related to canola and sugar beets.
 - b. Any increase in weediness from herbicide tolerant crop volunteers.



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- c. Any weed tolerance resulting from high selection pressure from the glufosinate-ammonium mode of action.
 - d. Changes in herbicide useage on the canola crop and the sugar beet crop treated with glufosinate-ammonium.
 - e. Any significant changes in crop culture practices, e.g., rotation and tillage.
2. The US EPA reserves the right to call-in additional data as necessary to determine the potential environmental impacts from use of Liberty Herbicide in the culture of transgenic canola and transgenic sugar beets.
 3. Submit a revised analytical method of analysis for residues of glufosinate ammonium in or on canola and sugar beet commodities, reflecting revisions described in this Agency's March 17, 2000 review of the tolerance method submitted as an amendment to EPA Pesticide Petition 7F4910. A copy of the March 17, 2000 review was FAXed to you on March 28, 2000.
 4. Submit one (1) copy of the final printed labeling prior to shipment of the subject pesticide product under the enclosed stamped label.

If these conditions are not complied with, the registration will be subject to cancellation in accordanced with FIFRA, section 6(e). Your release for shipment of the product constitutes acceptance of these contitions.

A stamped copy of the proposed label is enclosed for your records.

Sincerely yours,

Eugene M. Wilson
 for Joanne I Miller
 Product Manager (23)
 Herbicide Branch
 Registration Division (7505C)

Enclosure

APR 10 2000

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
264-660

LIBERTY® HERBICIDE

A SELECTIVE HERBICIDE FOR USE ONLY ON SUGAR BEETS AND CANOLA TOLERANT TO THE ACTIVE INGREDIENT IN THIS PRODUCT. AVENTIS CROPS SCIENCE RECOMMENDS USE ONLY ON SEED DESIGNATED AS LIBERTYLINK® OR WARRANTED BY AVENTIS CROPS SCIENCE AS BEING TOLERANT TO LIBERTY HERBICIDE.

ACTIVE INGREDIENT: Glufosinate-ammonium*	18.19%**
OTHER INGREDIENTS:	81.81%
*CAS Number 77182-82-2, protected by U.S. Patent No 4,400,196	
**Equivalent to 1.67 pounds of active ingredient per U.S. gallon.	
TOTAL 100.00%	

EPA Reg No. 264-660

EPA Est. No. 45639-MI-001
EPA Est. No. 407-IA-2

KEEP OUT OF REACH OF CHILDREN WARNING - AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

For **MEDICAL** And **TRANSPORTATION** Emergencies **ONLY** Call 24 Hours A Day 1-800-334-7577

For **PRODUCT USE** Information Call 1-888-AVENTIS (1-888-283-6847)

FIRST AID

If Swallowed: Rinse mouth thoroughly with plenty of water. Do NOT induce vomiting. Get medical attention immediately.

If in Eyes: Flush with plenty of water. Get medical attention if irritation persists.

If on Skin: Remove contaminated clothing. Wash skin immediately with plenty of soap and water. Get medical attention.

If Inhaled: Remove individual to fresh air. Get medical attention if breathing difficulty develops.

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. Additionally, call 1-800-334-7577 immediately for further information.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING

May be fatal if absorbed through skin. Causes moderate eye irritation. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category C on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

Coveralls worn over short-sleeved shirt and short pants; chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils, or Viton® ≥14 mils; chemical resistant footwear plus socks; protective eyewear. Wear a chemical resistant apron when mixing/loading and cleaning equipment.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering control statement:

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [(40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPF immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Do not use or store near heat or open flame. Keep the container tightly closed and dry in a cool, well-ventilated place. Storage temperature should be between 32°F and 85°F, with a maximum of 125°F. Protect against direct sunlight.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

CONTAINER DISPOSAL: *[1 and 2: Gallon Containers Only]*

Empty containers should be triple rinsed (or equivalent), then offer for recycling or reconditioning; or puncture and dispose of in a sanitary landfill, or by incineration; or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

[15 Gallons, 60 Gallons, 120 Gallons & Bulk Containers Only]

This is a sealed returnable container to be used only for Liberty® Herbicide. When this container is empty, it must not be opened, cleaned, or discarded. Empty containers must be returned to the original purchase location.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not use this product until you have read the entire label. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses; and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls worn over short-sleeved shirt and short pants; chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils, or Viton ≥14 mils; chemical resistant footwear plus socks; protective eyewear.

GENERAL INFORMATION

Liberty Herbicide is a water-soluble herbicide for application as a foliar spray for the control of a broad spectrum of emerged annual and perennial grass and broadleaf weeds in sugar beets and canola. This product is for use only on sugar beets and canola tolerant to the active ingredient in this product. Aventis CropScience recommends use only on sugar beets and canola designated as LibertyLink® or warranted by Aventis CropScience as being tolerant to Liberty Herbicide. The basis of selectivity of Liberty Herbicide in sugar beets and canola is the presence of a gene in LibertyLink or other Aventis CropScience warranted sugar beet and canola varieties which results in a plant that is tolerant to the active ingredient of Liberty Herbicide.

IMPORTANT CROP SAFETY INFORMATION

READ BEFORE USING THIS PRODUCT

Liberty Herbicide is for use only on sugar beets and canola tolerant to the active ingredient in this product. Aventis CropScience recommends use only on sugar beets and canola designated as LibertyLink or warranted by Aventis CropScience as being tolerant to Liberty Herbicide.

The basis of selectivity of Liberty Herbicide in sugar beets and canola is the presence of a gene in LibertyLink or other Aventis CropScience warranted sugar beet and canola varieties which results in a plant that is tolerant to the active ingredient of Liberty Herbicide. Sugar beets and canola not containing this gene will not be tolerant to Liberty Herbicide and severe injury may result.

Use of Liberty Herbicide on sugar beets or canola not designated as LibertyLink or not warranted by Aventis CropScience may result in severe crop injury and/or yield loss.

Do not allow spray to contact foliage or green tissue of desirable vegetation other than sugar beets and canola tolerant to the active ingredient in this product. This product may injure or kill all green vegetation contacted by the spray other than LibertyLink sugar beet and canola or other sugar beet and canola varieties warranted by Aventis CropScience.

Aventis CropScience does not warrant the crop safety or weed control of this product if used on sugar beet or canola varieties other than those designated as LibertyLink or warranted by Aventis CropScience to safely withstand the application of Liberty Herbicide.

APPLICATION DIRECTIONS FOR USE ON SUGAR BEETS

THOROUGH SPRAY COVERAGE IS VERY IMPORTANT. Liberty Herbicide works best when weeds are actively growing. A cultivation may be made at least 5 days before a Liberty application or 5 days after a Liberty application.

APPLICATION TIMING

Applications of Liberty Herbicide on sugar beets may be made from the cotyledon stage up to the 10-leaf stage of the sugar beet. Liberty Herbicide is a foliar-active material with no soil-residual activity. For best results, apply to emerged, young actively growing weeds. Weeds that emerge after application will not be controlled. Liberty Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced. Weed control may be reduced when heavy dew is present or when weeds are under stress due to drought, cool temperatures or extended periods of cloudiness. Liberty Herbicide is rainfast 4 hours after application, and rainfall within 4 hours may necessitate retreatment.

For best weed control and sugar beet yield, Liberty Herbicide applications should begin when weeds are up to 1 inch in height or diameter. Repeat applications should be made when newly germinated weeds again reach 1 inch in height or diameter. Refer to the *Rate Recommendation Tables for Weed Control In Sugar Beets* for selection of the proper rate dependent upon the weed species present and size. A repeat application of Liberty Herbicide or a tank mix application with appropriate residual herbicides will be needed to control weeds that have not yet emerged at the time of application.

RESTRICTIONS TO THE DIRECTIONS FOR USE

1. DO NOT apply more than 42 ounces per acre of Liberty Herbicide in one application and DO NOT apply more than 84 ounces per acre of Liberty Herbicide on the sugar beet crop per growing season.
2. DO NOT apply Liberty Herbicide within 60 days of harvesting sugar beets.
3. DO NOT plant rotation crops in a field treated with Liberty Herbicide for 120 days after the last application of this product with the exception of wheat, barley, buckwheat, millet, oats, rye, sorghum, and triticale which may be planted 70 days after the last application of this product. Corn, soybeans, canola, and sugar beets tolerant to the active ingredient of Liberty Herbicide may be planted at any time.
4. DO NOT graze the treated crop or cut for hay.
5. DO NOT add surfactants. Anti-foams or drift control agents may be added if needed.
6. DO NOT apply Liberty Herbicide if sugar beets show injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
7. DO NOT apply this product through any type of irrigation system.

MIXING INSTRUCTIONS

Liberty Herbicide must be applied with properly calibrated and clean equipment. Liberty Herbicide is specially formulated to mix readily in water. Prior to adding Liberty Herbicide to the spray tank, ensure that the spray tank is thoroughly clean, particularly if a herbicide with the potential to injure crops was previously used (see *Cleaning Instructions*).

1. Fill tank to one-half full with clean water prior to adding Liberty Herbicide.
2. Add the correct amount of Liberty Herbicide.
3. Add the remaining amount of water, begin agitation, and spray out immediately.
4. The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

Ensure that all spray system lines including pipes, booms, etc. have the correct concentration of Liberty Herbicide/water mixture before the application is started. Flush out any remaining air or water from the spray system lines before starting the crop application. Keep bypass line on or near bottom of the tank to minimize foaming

If the tank mix partners recommended on this label are added, maintain good agitation at all times until contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed. Keep bypass line on or near bottom of tank to minimize foaming. Screen size in nozzles or line strainers should be no finer than 50 mesh.

CLEANING INSTRUCTIONS

Before using Liberty Herbicide, thoroughly clean nurse tanks, spray tank, lines, and filter, particularly if a herbicide with the potential to injure crops was previously used. Spray equipment should be thoroughly rinsed using a strong detergent solution.

After using Liberty Herbicide, triple rinse sprayer and use a commercial tank cleaner before using for crops not labeled LibertyLink or warranted by Aventis CropScience. Make sure any rinsate or foam is thoroughly removed from spray tank and boom. Rinsate may be disposed following the pesticide disposal directions on this label.

APPLICATION METHODS

Do not use flood jet nozzles, controlled droplet application equipment or air-assisted spray equipment. Uniform, thorough spray coverage is important to achieve consistent weed control.

Ground application: Refer to the Rate Recommendation Tables for Weed Control in Sugar Beets for proper application rates. DO NOT apply when winds are gusty, or when conditions will favor movement of spray particles off the desired spray target. To avoid drift and insure consistent weed control, apply Liberty Herbicide with the spray boom as low as possible while maintaining a uniform spray pattern. Liberty Herbicide should be applied broadcast in a minimum of 10 gallons of water per acre using a minimum spray pressure of 40 pounds per square inch and a maximum ground speed of 10 mph. The use of 80 degree or 110 degree flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration. Application of the spray at a 45 degree angle forward will result in better spray coverage. Under dense weed/crop canopies, a broadcast rate of 15-20 gallons of water per acre should be used so that thorough spray coverage will be obtained.

Aerial application: Calibrate the spray equipment prior to use. Liberty Herbicide should be applied in a minimum of 5 gallons of water per broadcast acre. To get uniform spray coverage, use nozzles to provide 200-350 micron size droplets. DO NOT use raindrop nozzles. Aerial applications with this product should be made at a maximum height of 10 feet above the crop with low drift nozzles at a maximum pressure of 40 psi.

Avoid application under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur. Do Not apply when wind causes drift to off-site vegetation.

RATE RECOMMENDATION TABLES FOR WEED CONTROL IN SUGAR BEETS

The rate of Liberty Herbicide in fluid ounces (pints) of formulated product per acre to be used for the control of weeds at selected heights are shown in the following tables. In weed populations with mixed species, apply the rate needed for all species present.

Grass Weeds Controlled with Liberty Herbicide

Weed Species	Growth Stage of Weed* (Maximum Height)		Comments on Weed Growth Stage/ Application Timing/ Number of Applications
	20 fl.oz./A (1.25 pt./A)	28 fl.oz./A (1.75 pt./A)	
Barley, volunteer	1 - 2 leaf (2")	3 leaf (3")	Multiple applications may be required
Barnyardgrass	1 - 3 leaf (2")	4 - 5 leaf (3")	Maximum of 1 tiller
Corn, volunteer	1 - 2 leaf (3")	3 - 4 leaf (6")	---
Crabgrass, large	1 - 3 leaf (2")	4 - 5 leaf (3")	Maximum of 1 tiller
Crabgrass, smooth	1 - 3 leaf (2")	4 - 5 leaf (3")	Maximum of 1 tiller
Cupgrass, woolly	1 - 5 leaf (4")	(8")	---
Foxtail, giant	1 - 4 leaf (3")	5 - 6 leaf (4")	Maximum of 2 tillers
Foxtail, green	1 - 4 leaf (3")	5 - 6 leaf (4")	Maximum of 2 tillers
Foxtail, yellow	1 - 3 leaf (1")	4 leaf (2")	Apply prior to tillering
Millet, volunteer proso	1 - 3 leaf (2")	4 - 5 leaf (3")	Maximum of 1 tiller
Millet, wild proso	1 - 3 leaf (2")	4 - 5 leaf (3")	Maximum of 1 tiller
Oat, wild	1 - 2 leaf (2")	3 leaf (3")	Maximum of 1 tiller
Panicum, fall	1 - 3 leaf (2")	4 - 5 leaf (3")	Maximum of 1 tiller
Panicum, Texas	1 - 3 leaf (2")	4 - 5 leaf (3")	Maximum of 1 tiller
Sandbur, field	---	1 - 4 leaf (2")	Apply prior to tillering
Wheat, volunteer	1 - 2 leaf (2")	3 leaf (3")	Maximum of 1 tiller

* Apply up to 42 fluid ounces/acre (2.63 pints/acre) if weeds exceed the growth stage shown in the table.

For improved control of heavy populations or larger than recommended volunteer wheat, volunteer barley, yellow foxtail, and wild oats, Liberty Herbicide can be tank mixed with Assure II Herbicide, Poast Herbicide, Prism Herbicide or Select 2EC Herbicide.

Perennial Weeds Controlled by Liberty Herbicide

Weed Species	Growth Stage of Weed* (Maximum Height/Diameter)		Comments on Number of Applications
	20 fl.oz./A (1.25 pt./A)	28 fl.oz./A (1.75 pt./A)	
Quackgrass	---	1 - 3 leaf (3")	Multiple applications required
Sowthistle, perennial	---	1 - 4 leaf (3")	Multiple applications required
Thistle, Canada	---	1 - 4 leaf (3")	Multiple applications required

* Apply up to 42 fluid ounces/acre (2.63 pints/acre) if weeds exceed the growth stage shown in the table.

Broadleaf Weeds Controlled by Liberty Herbicide

Weed Species	Growth Stage of Weed* (Maximum Diameter)	
	20 fl.oz./A (1.25 pt./A)	28 fl.oz./A (1.75 pt./A)
Buckwheat, wild	1 - 4 leaf (2")	5 - 6 leaf (3")
Buffalobur	1 - 4 leaf (2")	5 - 6 leaf (3")
Carpetweed	---	1 - 4 leaf (2")
Chickweed, common	1 - 4 leaf (2")	5 - 6 leaf (3")
Cocklebur, common	1 - 6 leaf (3")	7 - 8 leaf (5")
Kochia	(1")	(2")
Ladysthumb	1 - 2 leaf (1")	3 - 4 leaf (3")
Lambsquarter, common	1 - 2 leaf (1")	4 - 5 leaf (3")
Mallow, Venice	1 - 4 leaf (2")	5 - 6 leaf (3")
Marshelder	1 - 2 leaf (1")	3 - 4 leaf (2")
Mustard, wild	1 - 4 leaf (2")	5 - 6 leaf (3")
Nightshade, eastern black	1 - 4 leaf (2")	5 - 6 leaf (3")
Pigweed, prostrate	(1")	(3")
Pigweed, redroot	1 - 2 leaf (1")	3 - 4 leaf (3")
Pigweed, smooth	1 - 2 leaf (1")	3 - 4 leaf (3")
Pigweed, spiny	1 - 2 leaf (1")	3 - 4 leaf (3")
Purslane, common	(1")	(2")
Ragweed, common	1 - 6 leaf (3")	7 - 8 leaf (5")
Ragweed, giant	1 - 4 leaf (2")	5 - 6 leaf (3")
Sheperd's purse	1 - 4 leaf (2")	5 - 6 leaf (3")
Smartweed, Pennsylvania	1 - 2 leaf (1")	3 - 4 leaf (3")
Sowthistle, annual	1 - 4 leaf (2")	5 - 6 leaf (3")
Sunflower, common	1 - 6 leaf (3")	7 - 8 leaf (5")
Thistle, Russian	(1")	(2")
Velvetleaf	1 - 2 leaf (1")	3 - 4 leaf (3")

* Apply up to 42 fluid ounces/acre (2.63 pints/acre) if weeds exceed the growth stage shown in the table.

APPLICATION DIRECTIONS FOR USE ON CANOLA

THOROUGH SPRAY COVERAGE IS VERY IMPORTANT. Liberty Herbicide works best when weeds are small and are actively growing. In situations when weed populations are high, early removal of weeds is important to prevent stressing the canola due to weed competition. A cultivation may be made at least 5 days before a Liberty application or 5 days after a Liberty application.

APPLICATION TIMING

Applications of Liberty Herbicide on canola may be made from the cotyledon stage up to the early bolting stage of the canola. Slight discoloration of the canola may be visible after application. This effect is temporary and will not influence crop growth, maturity or yield. Liberty Herbicide is a foliar-active material with no soil-residual activity. For best results, apply to emerged, young actively growing weeds. Weeds that emerge after application will not be controlled. Liberty Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced. Weed control may be reduced when heavy dew is present or when weeds are under stress due to drought, cool temperatures or extended periods of cloudiness. Liberty Herbicide is rainfast 4 hours after application, and rainfall within 4 hours may necessitate retreatment.

RESTRICTIONS TO THE DIRECTIONS FOR USE

1. DO NOT use on canola in the states of Alabama, Delaware, Georgia, Kentucky, Maryland, New Jersey, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.
2. DO NOT apply more than 68 ounces per acre of Liberty Herbicide for weed control on the canola crop per growing season.
3. DO NOT apply Liberty Herbicide within 65 days of harvesting canola.
4. DO NOT plant rotation crops in a field treated with Liberty Herbicide for 120 days after the last application of this product with the exception of wheat, barley, buckwheat, millet, oats, rye, sorghum, and triticale which may be planted 70 days after the last application of this product. Corn, soybeans, canola, and sugar beets tolerant to the active ingredient in Liberty Herbicide may be planted at any time.
5. DO NOT graze the treated crop or cut for hay.
6. DO NOT add surfactants or crop oils. Anti-foams or drift control agents may be added if needed.
7. DO NOT apply Liberty Herbicide if canola shows injury from prior herbicide applications or environmental stress (drought, excessive rainfall, etc.).
8. DO NOT apply this product through any type of irrigation system.
9. Do Not tank mix Liberty Herbicide with other pesticides including herbicides unless recommended on this label.

SPRAY ADDITIVES

Liberty Herbicide must be applied with ammonium sulfate (AMS). Use only fine feed grade or spray grade AMS at 3 pounds per acre or 17 pounds per 100 gallons of water. Anti-foams or drift control agents may be added if needed.

MIXING INSTRUCTIONS

Liberty Herbicide must be applied with properly calibrated and clean equipment. Liberty Herbicide is specially formulated to mix readily in water. Prior to adding Liberty Herbicide to the spray tank, ensure that the spray tank is thoroughly clean, particularly if a herbicide with the potential to injure crops was previously used (see *Cleaning Instructions*).

1. Fill tank to one-half full with clean water.
2. Add the appropriate amount of AMS to the spray tank.
3. If tank mixing with a grass herbicide specified on this label, add the correct amount of the grass herbicide.
4. Add the correct amount of Liberty Herbicide.
5. Add the remaining amount of water, begin agitation, and spray out immediately.

The addition of an antifoaming agent may reduce foaming, especially when using soft water.

Ensure that all spray system lines including pipes, booms, etc. have the correct concentration of Liberty Herbicide/water mixture before the application is started. Flush out any remaining air or water from the spray system lines before starting the crop application. Keep bypass line on or near bottom of tank to minimize foaming.

If the tank mix partners recommended on this label are added, maintain good agitation at all times until contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed. Keep bypass line on or near bottom of tank to minimize foaming. Screen size in nozzles or line strainers should be no finer than 50 mesh.

CLEANING INSTRUCTIONS

Before and after using Liberty Herbicide, always complete a thorough cleaning of the spray tank, lines and filter, particularly if a herbicide with the potential to injure crops was previously used. Spray equipment should be rinsed using a strong detergent solution.

After using Liberty Herbicide, triple rinse sprayer and use a commercial tank cleaner before using for crops not labeled LibertyLink or warranted by Aventis CropScience. Make sure any rinsate or foam is thoroughly removed from spray tank and boom. Rinsate may be disposed following the pesticide disposal instructions on this label.

APPLICATION METHODS

Do not use flood jet nozzles, controlled droplet application equipment or air-assisted spray equipment. Uniform, thorough spray coverage is important to achieve consistent weed control.

Ground application Refer to the *Rate Recommendation Tables for Weed Control in Canola* for proper application rates. DO NOT apply when winds are gusty, or when conditions will favor movement of spray particles off the desired spray target. To avoid drift and insure consistent weed control, apply Liberty Herbicide with the spray boom as low as possible while maintaining a uniform spray pattern. Liberty Herbicide should be applied broadcast in a minimum of 10 gallons of water per acre using a minimum spray pressure of 40 pounds per square inch and a maximum ground speed of 10 mph. The use of 80 degree or 110 degree flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration. Application of the spray at a 45 degree angle forward will result in better spray coverage. Under dense weed/crop canopies, a broadcast rate of 15-20 gallons of water per acre should be used so that thorough spray coverage will be obtained.

Aerial application Calibrate the spray equipment prior to use. Liberty Herbicide should be applied in a minimum of 5 gallons of water per broadcast acre. To get uniform spray coverage, use nozzles to provide 200-350 micron size droplets. DO NOT use raindrop nozzles. Aerial applications with this product should be made at a maximum height of 10 feet above the crop with low drift nozzles at a maximum pressure of 40 psi.

Avoid application under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur. Do Not apply when wind causes drift to off-site vegetation

RATE RECOMMENDATION TABLES FOR WEED CONTROL IN CANOLA

The rate of Liberty Herbicide in fluid ounces (pints) of formulated product per acre to be used for the control of weeds at selected heights are shown in the following tables. In weed populations with mixed species, apply the rates needed for all species present.

**Grass Weeds Controlled with Liberty Herbicide at 34 fl. oz./A (2.1 pt./A)
Plus Ammonium Sulfate**

Weed Species	Growth Stage of Weed (Leaves/Max. Height)	Comments
Barley, volunteer*	1-3 leaves (3")	A second application may be required
Foxtail, yellow	1-4 leaves (2")	Apply prior to tillering
Sandbur, field		
Oat, wild	1-4 leaves (4")	Maximum of 1 tiller; a second application may be required
Wheat, volunteer		
Corn, volunteer	1-4 leaves (6")	---
Barnyardgrass	1-5 leaves (3")	Maximum of 1 tiller
Crabgrass, large		
Crabgrass, smooth		
Millet, volunteer proso		
Millet, wild proso		
Panicum, fall		
Panicum, Texas		
Foxtail, giant	1-6 leaves (4")	Maximum of 2 tillers
Foxtail, green		
Cupgrass, woolly	1-8"	---

* Suppression only

For improved control of heavy populations or larger than recommended volunteer wheat, volunteer barley, yellow foxtail, and wild oats, Liberty Herbicide can be tank mixed with Assure II Herbicide, or Poast® Herbicide.

**Perennial Weeds Controlled with Liberty Herbicide at 34 fl. oz./A (2.1 pt./A)
Plus Ammonium Sulfate**

Weed Species	Growth Stage of Weed (Leaves/Max. Height)	Comments
Quackgrass	1-4 leaves (4")	Top growth control; a second application may be required.
Sowthistle, perennial	1-6 leaves (4")	
Thistle, Canada		

Broadleaf Weeds Controlled with Liberty Herbicide at 34 fl. oz./A (2.1 pt./A)
Plus Ammonium Sulfate

Weed Species	Growth Stage of Weed (Leaves/Max. Height)	Comments
Buckwheat, wild	1-3 leaves	Up to 1" in height
Pigweed, redroot		Up to 2" in height
Carpetweed	1-4 leaves	Up to 2" in height
Lambsquarter, common		
Marshelder		
Ladythumb		Up to 3" in height
Pigweed, smooth		
Pigweed, spiny		
Smartweed, Pennsylvania		
Velvetleaf		
Mustard, wild	1-5 leaves	Up to 3" in height
Buffalobur	1-6 leaves	Up to 3" in height
Chickweed, common		
Mallow, Venice		
Nightshade, eastern black		
Ragweed, giant		
Shepherd's purse		
Sowthistle, annual		
Cocklebur, common	1-8 leaves	Up to 5" in height
Ragweed, common		
Sunflower, common		
Kochia	1-2"	---
Thistle, Russian		---
Pigweed, prostrate	1-3"	---
Purslane, common		
Waterhemp, tall		
Wormwood, biennial		
Pennycress, field		
Dandelion	1-6"	Diameter of rosette

For optimum canola yield, early weed removal and application prior to canola bolting is important. For optimum control of both early and late germinating grass and broadleaf weed species, Liberty Herbicide may be applied sequentially at 20 fl. oz./A to 1-3 leaf grass and 1-2" broadleaf weed species followed by a second application of 20 fl. oz./A 7-10 days later.

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once.

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Net Contents: 1 Gallon, 2.5 Gallons, 15 Gallons, 60 Gallons, 120 Gallons & Bulk

**ACCEPTED
with COMMENTS
In EPA Letter Dated
APR 10 2000**

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**Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
264-660**

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