

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

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3/31/2009

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

Nang-Ly Chow Ph.D. Bayer CropScience LP P.O. Box 12014, 2 T.W. Alexander Drive Research Triangle Park, NC 27709

Dear Dr. Chow:

Subject: Rotational Crop and Spray Additive Label Revisions Laudis Herbicide EPA Registration No. 264-860 Your Letter Dated November 17, 2008

The amendment referred to above, submitted in connection with registration under section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is acceptable provided that you:

1. Submit/cite all data required for registration/reregistration of your product under FIFRA section 3(c)(5) or 4(a) when the Agency requires all registrants of similar products to submit such data.

2. Submit one (1) copy of your final printed labeling before you release the product for shipment. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

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

If you have any questions concerning this letter please contact Mr. James Stone at 703-305-7391. For your information enclosed is a copy of the scientific review.

Sincerely yours,

J. Miller

Joanne I. Miller Product Manager (23) Herbicide Branch Registration Division (7505P)

Enclosure

GROUP 27 HERBICIDE

# LAUDIS<sup>™</sup> Herbicide

A Herbicide for control of annual broadleaf and grass weeds in field and silage corn, seed corn, sweet corn, and popcorn.

#### ACTIVE INGREDIENTS:

Tembotrione: 2-[2-chloro-4-(methylsulfonyl)-3-[(2,2,2-trifluoroethoxy)methyl]benzoyl]-1,3-cyclohexanedione *					34.5%
INERT INGREDIENTS:	•				65.5%
				TOTAL:	100.0%

#### Contains 3.5 lb of active ingredient per gallon

\*(CAS Number 335104-84-2) Protected by U.S. Patent No 6,376,429

# EPA Reg No. 264-860

E.P.A. Est. No.

Private of the states

# KEEP OUT OF REACH OF CHILDREN CAUTION

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 <u>MEDICAL</u> And <u>TRANSPORTATION</u> Emergencies <u>ONLY</u> Call 24 Hours A Day 1-800-334-7577 For <u>PRODUCT USE</u> Information Call 1-866-99BAYER (1-866-992-2937)

	FIRST AID	ACCEPTED
IF SWALLOWED:	Call a poison control center or doctor immediately for treatment advice.	MAR 3 1 2009
· .	Have person sip a glass of water if able to swallow.	Under the Federal Insecticide Fungicide, and Rodenticide Ac
	• Do not induce vomiting unless told to do so by a poison control center or doctor.	as amended, for the perticid
	Do not give anything by mouth to an unconscious person.	registered under EPA Rog. No.
IF IN EYES:	Hold eye open and rinse slowly and gently with water for 15-20 minutes.	264-860
	• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing	eye.
	Call a poison control center or doctor for treatment advice.	

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

# PRECAUTIONARY STATEMENTS

# CAUTION HAZARD TO HUMANS AND DOMESTIC ANIMALS

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with cocp and water after handling and before eating, drinking, chewing gum, or using tobacco.

# **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 A on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear: Long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves made of any waterproof material such as natural rubber  $\geq$  14 mils.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

# Engineering control statement:

When handlers use closed systems, such as enclosed cabs, 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.

# **ENVIRONMENTAL HAZARDS**

This product is toxic to non-target plants. 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 when cleaning equipment or disposing of equipment washwaters or rinsate.

This product may contaminate water through drift of spray in wind. Follow precautions for use to avoid wind spray drift.

This product has a high potential for runoff after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams and springs will reduce the potential for contamination of water from runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

This chemical has properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination.

# DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read entire label before using this product.

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 same area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticides.

# 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 that is 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 over long-sleeved shirt and long pants, socks and shoes and chemical-resistant gloves made of any waterproof material.

# STORAGE AND DISPOSAL

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

#### PESTICIDE STORAGE

Keep container tightly closed when not in use. Avoid cross contamination with other pesticides.

#### PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. For questions about proper disposal, contact your state pesticide and environmental control agency.

#### CONTAINER DISPOSAL

Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. After triple rinsing procedure dispose of container in a sanitary landfill, or by incineration; or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

# **GENERAL INFORMATION**

This product is intended for post emergence application in field corn, silage corn, seed corn, sweet corn, and popcorn for the control of annual broadleaf and grass weeds. Weed growth ceases within hours after LAUDIS Herbicide is applied. Symptoms on susceptible weed species progress from yellowing and bleaching to necrosis resulting in eventual plant death generally within 7 to 14 days after application.

Do not apply LAUDIS Herbicide to corn that exhibits injury from previous herbicides applications.

# **APPLICATION INFORMATION**

Uniform, thorough spray coverage is important to achieve consistent weed control. Select nozzles and pressure that deliver MEDIUM spray droplets as indicated in nozzle manufacturer's catalogs and in accordance with ASAE Standard S-572. Nozzles that deliver COARSE spray droplets may be used to reduce spray drift provided spray volume per acre (GPA) is increased to maintain coverage of weeds. Flat fan nozzles of 80° or 110° are recommended for optimum post emergence coverage.

• Do not use nozzles that produce FINE (e.g. - Cone) or EXTRA COARSE (e.g. - Flood jet) spray droplets.

# **Ground Application**

LAUDIS Herbicide can be applied broadcast in a minimum of 10 gallons of water per acre (unless a higher volume is specified for a tank-mix partner). For weed control in dense weed populations or under adverse growing conditions, 15 to 20 gallons of water per acre is recommended. Good coverage is essential to achieve optimum weed control.

Typically, flat-fan nozzles operated at 30-60 PSI will deliver MEDIUM spray droplets, providing optimum spray coverage and canopy penetration. Lower pressure operation and/or higher volume flat fan nozzles typically deliver COARSE sprays. Refer to nozzle manufacturer catalogs.

- Boom height should be based on the height of the crop at least 15 inches above the crop canopy.
- Air induction nozzles should be used at or near 80 psi to produce a medium droplet size.
- Proper agitation should be maintained within the tank to keep the product dispersed.
- See the Spray Drift Management section of this label for additional information on proper application of LAUDIS Herbicide.

# **Mixing Instructions**

LAUDIS Herbicide must be applied with clean and properly calibrated equipment. Prior to adding LAUDIS Herbicide, ensure that the spray tank, filters and nozzles have been thoroughly cleaned and that agitation system is properly working.

- 1. Fill spray tank with 50% of the required volume of water, and begin agitation.
- 2. Agitate the LAUDIS Herbicide product container thoroughly by shaking, circulating or stirring prior to adding the herbicide into the spray tank.
- 3. Add the appropriate amount of LAUDIS Herbicide slowly to the spray tank or mixing system and ensure complete dispersion. Maintain and ensure thorough dispersion and sufficient agitation during both mixing and spraying.
- 4. If tank mixing with another pesticide, add the tank mix product next (except in the case of glyphosate which should be added after the nitrogen fertilizer is dispersed).
- 5. Add nitrogen fertilizer.
- 6. Add the adjuvant.
- 7. Fill the spray tank with balance of water needed.

# Compatibility

If LAUDIS Herbicide is to be tank mixed with other pesticides, compatibility must be tested prior to mixing. To test for compatibility, use a small container and mix a small amount (0.5 to 1qt) of spray, combining all ingredients in the same ratio as the anticipated use. If any indications of physical incompatibility develop, do not use this mixture for spraying. Indications of incompatibility usually occur within 5-15 minutes after mixing. If the mixture balls-up, forms flakes, sludges, gels, oily film or layers, or other precipitates, it is not compatible and the tank mix combination should not be used. in residual activity.

- LAUDIS Herbicide is for postemergence use. Best results are obtained when it is applied to young actively growing weeds. LAUDIS
  Herbicide will affect weeds that are larger than the recommended height; however it may result in incomplete weed control.
- Broadcast applications of LAUDIS Herbicide must be made to corn from emergence up to the V8 stage of growth for field corn or popcorn, or from emergence up to the V7 stage of growth for sweet corn.
- A second post-emergence application may be made to field corn or popcorn. Applications of this product must be made a minimum of 14 days apart.
- Do not exceed a total of 6 fl oz/A of LAUDIS Herbicide per growing season on field corn or popcorn, or 3 fl oz/A per growing season on sweet corn.

#### Sweet Corn, Seed Corn and Popcorn Only

Herbicide sensitivity in all hybrids and inbreds of seed corn, sweet corn and popcorn has not been tested. Consult with your seed provider, your local Bayer CropScience representative and/or other knowledgeable agricultural professionals for advice on hybrid/inbred tolerance before applying LAUDIS Herbicide. If the tolerance of a hybrid/inbred is not known, apply LAUDIS Herbicide to a small area to first determine if the hybrid/inbred is tolerant prior to spraying large acreages of that hybrid/inbred. As an example, do not use LAUDIS Herbicide on Merit or Shogun sweet corn varieties as unacceptable crop response will occur.

#### Spray Additives

LAUDIS Herbicide is a suspension concentrate that requires the use of an external surfactant and a nitrogen fertilizer source to achieve optimum weed control. For specific adjuvant recommendations with tank mixes, see the Tank Mix section of this label.

#### Surfactant

The use of a Methylated Seed Oil (MSO) is recommended when LAUDIS Herbicide is used or when alternative adjuvants are not otherwise specified on this label. MSO can improve control of weeds under stress, in high populations, in mixed grass and broadleaf weed populations, and under conditions of low humidity. Use MSO at 1 gallon per 100 gallons of water (1% v/v), but with a minimum of 1.25 pt/A. MSO should contain at least 80% MSO and 10% emulsifier or greater. The use of adjuvants such as non-ionic surfactants or refined vegetable oils will result in unacceptable or erratic weed control.

As an alternative to traditional MSO surfactants, High Surfactant oil Concentrates (HSOC) at recommended rates may be used with LAUDIS Herbicide. An HSOC is an emulsifiable oil based product containing 25-50% surfactant (wt/wt) in a minimum of 50% oil (wt/wt). The oil concentrates in HSOC can be based on MSO or COC. MSO based products are preferred with LAUDIS Herbicide particularly when used alone or with atrazine.

#### Ammonium Nitrogen Fertilizer

Use 1.5 qt/A of a high-quality urea ammonium nitrate (UAN) or 1.5 lb/A (8.5 lb per 100 gallons) of a spray-grade ammonium sulfate (AMS). Use UAN under conditions of low relative humidity for greater weed control.

#### Late or Rescue Applications

Applications of LAUDIS Herbicide at 3 fl oz/A may be applied to escaped weeds beyond labeled weed heights. In these situations, partial control and reduced weed competition can be expected. Apply up to the V8 stage of growth for field corn or popcorn, or up to the V7 stage of growth for sweet corn.

#### **Tank Mix Recommendations**

Certain tank mixes may aid in the performance of LAUDIS Herbicide. See Spray Adjuvant section of this label for use recommendations for use with all tank mix partners used in conjunction with LAUDIS Herbicide unless otherwise specified in the following tank mix directions. When using LAUDIS Herbicide in tank mix combinations, refer to individual product labels for precautionary statements, restrictions, rates, approved used and a list of weeds controlled and follow the directions of the most restrictive label.

#### Atrazine

An application of LAUDIS Herbicide at 3 fl oz/A in combination with atrazine at 0.5 lb ai/A will increase the speed of control, weed spectrum and consistency of control. Do not use atrazine if corn is greater than 12 inches tall.

Ignite<sup>®</sup> 280 SL

LAUDIS Herbicide at 2 to 3 fl oz/A can be tank mixed with Ignite<sup>®</sup> 280 SL Herbicide at 22 fl oz/A. Ignite<sup>®</sup> 280 SL Herbicide can only be used on corn seed designated as LibertyLink<sup>®</sup>. Apply in a minimum of 15 gallons of water per acre. Do not use MSO/ESO or COC adjuvants in this mixture, only add AMS at 8.5 lbs/100 gallons (1.5 lb/A).

#### Define<sup>™</sup> SC

LAUDIS Herbicide at 3 fl oz/A can be tank mixed with Define<sup>™</sup> SC at 7 to 15 fl oz/A for additional residual weed control on corn up to the 5 leaf stage.

#### Glyphosate (including Roundup and Touchdown branded products)

LAUDIS Herbicide can be tank mixed with glyphosate for use on glyphosate-tolerant corn. LAUDIS Herbicide will enhance control of broadleaf and glyphosate-resistant weeds, and reduce glyphosate induced weed shifts. LAUDIS Herbicide should be added to the water in the tank and dispersed first prior to adding ammonium sulfate, glyphosate or any other pesticide or adjuvant. Follow all other directions on the glyphosate label regarding adjuvants and mixing instructions with loaded (adjuvant-containing) formulations of glyphosate when used at full rates. The addition of a glyphosate-compatible HSOC is recommended to optimize weed control in combination with LAUDIS Herbicide. The addition of a glyphosate-compatible HSOC is required with tank mixtures of LAUDIS Herbicide plus unloaded glyphosate formulations, or when using less than full rates of loaded glyphosate formulations, or under arid climatic conditions.

# Accent<sup>®</sup>, Option<sup>®</sup>, Stout<sup>™</sup>, or Steadfast<sup>®</sup>

LAUDIS Herbicide at a rate of 3.0 fl. oz. /A can be tank mixed with Accent, Option, Stout, or Steadfast.

#### Buctril<sup>®</sup> and equivalent bromoxynil products

To aid in the control of certain broadleaf weeds (e.g. ragweeds), LAUDIS Herbicide at a rate of 3.0 fl. oz./A can be tank mixed with Buctril at a rate up to 6 fl. oz./A. Buctril can be used in place of atrazine in corn that is greater than 12 inches tall, which is the corn height limit for the use of atrazine. The use of crop oil concentration (COC) or MSO at 1% v/v + UAN at 1.5 qt/A or AMS at 8.5 lb/100 gal is recommended with tank mixture of LAUDIS Herbicide and Buctril.

#### **Tank Mixtures for Insect Control**

To provide weed and insect control in corn, LAUDIS Herbicide may be mixed with foliar insecticides including the following:

Ambush<sup>®</sup> Asana<sup>®</sup> XL Baythroid<sup>®</sup> XL Capture<sup>®</sup> Decis<sup>®</sup> Lorsban<sup>®</sup> Mustang<sup>®</sup> Pounce<sup>®</sup> 3.2EC Sevin<sup>®</sup> XLR Warrior™ Oberon<sup>®</sup>

# PRECAUTIONS FOR USE

- LAUDIS Herbicide is rainfast 1 hour after application to most weed species. Avoid application if rainfall is predicted during this period. Rainfall within 1 hour of application may necessitate retreatment with LAUDIS Herbicide or may result in reduced weed control.
- 2. Weed control may be reduced if the application is made when weeds are dust covered or in the presence of heavy dew, fog, and mist/rain or when weeds are under stress due to drought.
- 3. If a second application of Laudis is made (field corn and popcorn only), the application must be made a minimum of 7 days after the first application.
- 4. DO NOT apply when wind causes drift to off-site vegetation as injury may occur. LAUDIS Herbicide delivered via drift or tank contamination can cause severe damage to other crops. Careful management of spray drift and tank cleanout is required.
- 5. DO NOT apply more than two applications of LAUDIS Herbicide to field corn or popcorn, or more than one application to sweet corn, per growing season.
- 6. DO NOT graze livestock or harvest corn forage within 45 days of application.
- Field corn, sweet corn, or popcorn can be planted immediately after an application of LAUDIS Herbicide. DO NOT plant other rotational crops immediately following LAUDIS Herbicide application. For all other crops refer to the Rotational Guidelines section of this label.
- 8. DO NOT apply LAUDIS Herbicide with liquid fertilizers as the primary spray carrier. Only apply with water as the primary spray carrier plus recommended adjuvants. See spray adjuvants section.
- 9. DO NOT apply this product by air or through any type of irrigation system.
- 10. Apply LAUDIS Herbicide spray mixtures within 24 hours of mixing to avoid product degradation.
- 11. Avoid drift onto adjacent crops.
- 12. When weeds are stressed due to drought, heat, lack of fertility, flooding, or prolonged cool temperatures control can be reduced or delayed because weeds are not actively growing. To obtain optimum weed control, apply LAUDIS Herbicide when weeds are actively growing.

# WEED CONTROL RECOMMENDATIONS

LAUDIS Herbicide effectively controls the following broadleaf weeds, including biotypes resistant to glyphosate, triazine, phenoxy, benzoic, and ALS-inhibiting herbicides, when applied at 3 fl oz/A along with the recommended adjuvant system. Best control of broadleaf weeds is achieved when weeds are less than 6" in height and actively growing. The addition of atrazine at a minimum of 0.5 lb ai/A will improve control of weeds larger than 6" in height.

#### **Broadleaf Weeds Controlled**

Broadleaf Weeds	LAUDIS 3 fl oz/A	LAUDIS 3 fl oz/A + atrazine min. 0.5 lb ai/A		
· · · · · · · · · · · · · · · · · · ·	Control of weeds <6" tall			
Amaranth, palmer	С	C ·		
Amaranth, Powell	С	С		
Amaranth, spiny	С	С		
Amaranth, tumbleweed	С	С		
Buckwheat, wild	PC	С		
Buffalobur	С	· C		
Burcucumber	PC	PC		
Canada thistle	PC	С		
Carpetweed	C	С		
Chickweed, common	С	C.		
Cocklebur, common	С	C		
Dandelion	PC	PC		
Deadnettle, purple	С	C ·		
Dock, curly	PC	PC		
Galinsoga	С	С		
Hemp	C	C .		
Henbit	С	С		
Jimsonweed	C	С		
Knotweed, prostrate	PC	PC		
Kochia	С	С		
Ladysthumb	C.	C		
Lambsquarters, common	С	C .		
Mallow, venice	C .	С		
Marestail/Horseweed	PC	C		
Morningglory, cotton	PC	С		
Morningglory, ivyleaf	PC	C		
Morningglory, pitted	PC	C		
Mustard, wild	C ·	С		
Nightshade, black	C ·	С		
Nightshade, Eastern black	С	С		
Nightshade, hairy	С	С		
Pigweed, redroot	С	С		
Pigweed, smooth	С	С		
Pokeweed, common	PC	PC		
Potato, volunteer	С	С		
Purslane, common	NC	C		
Pusley, Florida	C <sup>1</sup>	C <sup>1</sup>		
Ragweed, common	C	C		

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Broadleaf Weeds	LAUDIS 3 fl oz/A	LAUDIS 3 fl oz/A + atrazíne min. 0.5 lb ai/A		
	Control of weeds <6" tall			
Ragweed, giant	С	С		
Sesbania, hemp	C	C		
Shepherd's-purse	С	С		
Sicklepod	PC	С		
Sida, prickly (teaweed)	NC	С		
Smartweed, pale	C	С		
Smartweed, Pennsylvania	C	С		
Sunflower, common	С	С		
Thistle, Russian	C	С		
Velvetleaf	С	C		
Waterhemp, common	C	С		
Waterhemp, tall	C .	C		

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<sup>1</sup>Apply before weed exceeds 2 inches in height.

C=Control PC=Partial Control\* NC= Not controlled \*Partially controlled weeds will be stunted in growth and/or be reduced in number as compared to non-treated areas; performance may not be commercially acceptable. The degree of weed control will vary with weed size, density, spray coverage, and/or growing conditions.

#### **Grass Weeds Controlled**

LAUDIS Herbicide effectively controls the following grass weeds when applied at 3 fl oz/A. The best control of grass weeds is achieved prior to tillering and actively growing. The addition of atrazine at a minimum 0.5 lb ai/A will increase the speed, spectrum, and consistency of weed control.

Grass Weeds	LAUDIS 3 fl`oz/A		LAUDIS 3 fl oz/A + atrazine	min. 0.5 lb ai/A
	Maximum Weed Height (inches)	Performance	Maximum Weed Height (inches)	Performance
Barnyardgrass	5	С	6	С
Crabgrass, large	3	C	4	С
Crabgrass, smooth	2	PC	2	PC
Cupgrass, woolly	3	C	4	C
Foxtail, giant	3	, C	4	C
Foxtail, green	2 .	PC	2	PC
Foxtail, yellow	3	C	4	C
Goosegrass	3	C	4	C
Johnsongrass, seeding	5	C	6	C
Junglerice	. 4	C	. 5	C
Millet, wild proso	4	C	5	C
Panicum, Texas	3	C	4	С
Sandbur, field	2	PC	2	PC
Shattercane / vol. sorghum	6	С	8 .	С
Signalgrass, broadleaf	4	C	5	С

C=Control PC= Partial control\*

#### Cultivation

Cultivation can help remove suppressed weeds or multiple flushing weeds. However, cultivation should not be performed within 7 days of an application of LAUDIS Herbicide as this could decrease the effectiveness of weed control due to disruption of herbicide translocation in the plant.

# Tank Cleanup Procedure

#### Cleaning Equipment After LAUDIS Herbicide Application .

- 1. Flush tank, hoses, boom and nozzles with clean water.
- 2. Prepare a cleaning solution of 1 gal of household ammonia per 25 gallons of water. Many commercial spray tank cleaners may be used.
- 3. Use a pressure washer to clean the inside of the spray tank with this solution. Take care to wash all parts of the tank, including the inside top surface. If a pressure washer is not available, completely fill the sprayer with the cleaning solution to ensure contact of the cleaning solution with all internal surfaces of the tank and plumbing. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
- 4. Flush hoses, spray lines, and nozzles for at least 1 minute with the cleaning solution.
- 5. Dispose of rinsate from steps 1-3 in an appropriate manner.
- 6. Repeat steps 2-5.
- 7. Remove nozzles, screens and strainers and clean separately in the ammonia solution after completing the above procedures.
- 8. Rinse the complete spraying system with clean water.

# **ROTATIONAL GUIDELINES**

If a corn crop has been destroyed by hail or other means soon after a LAUDIS Herbicide application, field corn, sweet corn, or popcorn can be replanted immediately after a LAUDIS Herbicide application. See chart below for rotational interval to all other crops after a LAUDIS Herbicide application. Planting at shorter than recommended intervals may result in injury to the rotational crop.

Immediate	4 months	8 months	10 months	18 months
Field corn	Cereal grains (except	Soybean	Sorghum	Cucurbits
Sweet corn	corn and sorghum)		Peas	Dry beans (red
Popcorn	Sugarcane		Cotton	kidney, cranberry
			Potatoes	bean, non-commercial
		•	Canola	"garden" types and
			Alfalfa	varieties)
		· .	Tomato	Sunflowers
			Snapbeans	All other crops
		•	Sugar beets <sup>1, 2</sup>	
			Dry beans <sup>1</sup> (types and	
			varieties for	
			commercial	
		•	production except	· · · ·
			those listed under 18	· · ·
			months)	

<sup>1</sup> Cumulative precipitation between application of LAUDIS Herbicide and replanting to sugar beets or dry beans must total 20 inches. Neither furrow or flood irrigation cannot be included in the total. The amount of cumulative precipitation required before planting a rotational crop is in addition to the required rotational interval given in months.

<sup>2</sup> Through tillage should follow the crop in which LAUDIS Herbicide was used and precede the rotation to sugar beets.

# **RESISTANCE MANAGEMENT**

Naturally occurring biotypes of certain weed species with resistance to various herbicide modes of action are known to exist. However, no known resistance to LAUDIS Herbicide exists, and there are no known instances of cross resistance between LAUDIS Herbicide (HPPD inhibitor) and other classes of herbicides, or modes of action. Performance of LAUDIS Herbicide is not affected by the presence of biotypes resistant to glyphosate, triazines, ALS-inhibiting, growth regulant, or other herbicide modes of action.

Prevention of the development and spread of resistant weed populations can include the use of herbicides with different modes of action in tank mixture, rotation, or in conjunction with alternate cultural practices.

#### Integrated Pest (Weed) Management

LAUDIS Herbicide may be integrated into an overall weed and pest management strategy whenever the use of a herbicide is required. Practices known to reduce weed development (tillage, crop competition) and herbicide use (weed scouting, proper application timing) should be followed wherever possible. Consult local agricultural and weed authorities for additional IPM strategies established for your area.

# SPRAY DRIFT MANAGEMENT

Spray drift may result in injury to non target crops or vegetation. To avoid spray drift, do not apply when wind speed is greater than 10 MPH or during periods of temperature inversions. Do not apply when weather conditions, wind speed or wind direction may cause spray drift to non-target areas. AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

#### Sensitive Areas

Only apply this product when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non target crops) is minimal (e.g. when wind is 10 MPH or less and is blowing away from sensitive areas).

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

Do not apply under circumstances where possible drift to unprotected persons, or to food, forage, or other plantings that might be damaged, as crops thereof may be rendered unfit for sale, use or consumption.

#### Information on droplet size:

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that still provide sufficient weed coverage and control. Applying larger droplets will reduce drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion sections below).

Uniform, thorough spray coverage is important to achieve consistent weed control. Select nozzles and pressure that deliver **MEDIUM** spray droplets as indicated in nozzle manufacturer's catalogs and in accordance with ASAE Standard S-572. Nozzles that deliver **COARSE** spray droplets may be used to reduce spray drift provided spray volume per acre (GPA) is increased to maintain coverage of weeds.

#### **Controlling Droplet Size:**

- Volume Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of nozzles Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Type Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles
  produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets
  and the lowest drift.

#### **Application Height:**

For ground boom applications, apply with nozzle height no more than 15 inches above the ground or crop canopy.

#### Wind:

Drift potential is lowest between wind speeds of 2 - 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. **NOTE:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

#### Temperature and Humidity:

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry. Avoid spraying during conditions of low humidity and/or high temperatures.

#### Temperature Inversion:

Do not make applications into areas of temperature inversion. Temperature inversion restricts vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversion. Temperature inversion is characterized by an increasing temperature with altitude and is common on nights with limited cloud cover and light to no wind. It begins to form as the sun sets and often continues into the morning. Its presence can be indicated by ground fog; however, if fog is not present, inversion can also be identified by the movement of smoke from a ground source. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

# **IMPORTANT: READ BEFORE USE**

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