



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

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

FEB 24 2011

Luz Chan  
Drexel Chemical Company  
P.O. Box 13327  
Memphis, TN 38113

Subject: Label & CSF Amendment (reformat label and revise Directions for Use)  
Drexel Linuron DF  
EPA Reg. No. 19713-251  
Application Dated January 24, 2011  
Resubmission Dated February 16, 2011

Dear Ms. Chan:

The labeling and the basic Confidential Statement of Formula (CSF) dated February 16, 2011 referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, are acceptable. The revised CSF supersedes all previously accepted ones and will be placed in your file.

A stamped copy of your label is enclosed for your records. This label supersedes all previously accepted labels. You must submit one (1) copy of the final printed label before you release the product for shipment. Products shipped after eighteen (18) months from the date of this letter or the next printing of the label, whichever occurs first, must bear the new revised label. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA §6(e). Your release for shipment of the product constitutes acceptance of these conditions.

If you have any questions, please contact Mindy Ondish at 703-605-0723 or at [ondish.mindy@epa.gov](mailto:ondish.mindy@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Kable Bo Davis".

Kable Bo Davis  
Product Manager 25  
Herbicide Branch  
Registration Division (7505P)

**ACCEPTED**  
 FEB 24 2011  
 Under the Federal Insecticide,  
 Fungicide, and Rodenticide Act  
 as amended, for the pesticide  
 registered under  
 EPA Reg. No. 19713-251



***Linuron DF***  
 Herbicide

<b>ACTIVE INGREDIENT:</b>		
Linuron.....	.....	50.0%
<b>OTHER INGREDIENTS:</b>	.....	50.0%
<b>TOTAL:</b>	.....	100.0%

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**  
 See FIRST AID Below

EPA Reg. No. 19713-251  
 EPA Est. No. 19713-XX-XXX

Net Content: \_\_\_\_\_

FIRST AID
<b>IF SWALLOWED:</b> • Call a poison control center 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 center or doctor. • Do not give anything by mouth to an unconscious or convulsing person.
<b>IF ON SKIN OR CLOTHING:</b> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
<b>IF IN EYES:</b> • Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For information on this pesticide product (including health concerns, medical emergencies or pesticide incidents), call the National Pesticide Information Center at 1-800-858-7378.

Manufactured For:  
**Drexel Chemical Company**  
 P.O. BOX 13327, MEMPHIS, TN 38113-0327  
**SINCE 1972**

### PRECAUTIONARY STATEMENTS

#### Hazards to Humans and Domestic Animals

**CAUTION:** Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemically-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.

**Mixers and loaders must wear:** Coveralls over long-sleeved shirt and long pants, chemical-resistant footwear, chemical-resistant gloves made of any waterproof material such as nitrile, butyl, neoprene, and/or barrier laminate, and chemical-resistant apron.

**Applicators and other (other than mixers and loaders) handlers must wear:** Coveralls over long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material such as nitrile, butyl, neoprene, and/or barrier laminate, and chemical-resistant footwear.

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 CONTROLS:

When handlers used 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:** 1) Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. 2) Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. 3) Remove PPE 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

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply where weather conditions favor drift from areas treated. Do not contaminate water when cleaning of equipment or disposing of equipment washwaters or rinsate.

**Ground Water Advisory:** This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

**Surface Water Advisory:** Linuron may contaminate surface water through spray drift or, under certain conditions, from surface runoff into adjacent surface water bodies (ponds, lakes, streams, etc.). For several weeks post-application, this product has a high potential to runoff when applied to fields with any of the following conditions: sloping land draining into nearby surface waters; very poorly to somewhat poorly drained soils; areas with extremely shallow ground water; frequently flooded areas; fields with surface water canals or ditches; and highly erodible land cultivated with poor management practices.

### USE INFORMATION

Linuron DF Herbicide is a dispersible granule to be mixed in water and applied as a spray for selective control of weeds in certain crops and for non-selective weed control on non-cropland areas. It is non-corrosive to equipment, non-flammable and non-volatile.

To control susceptible weed seedlings for an extended period of time, apply this product to soil before weed emergence. The degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other conditions. Higher dosages are needed for soils high in clay or organic matter. Soil low in clay or organic matter will require lower dosages to obtain equivalent herbicide performance. Since moisture is needed to activate this product, rainfall or irrigation is needed within 2 weeks of application. In the Columbia River Basin, use this product only if the crop is sprinkler irrigated.

When using this product to control emerged weeds, best results are obtained on succulent weeds growing in temperatures of 70°F or higher with high humidity. Where recommended, addition of a surfactant to the spray increases contact effects of this product.

It is suggested that growers limit their first use to small areas as the effect of this product varies with soils, uniformity of application and environmental conditions. Follow all label directions on this and any product used in mixtures.

### DIRECTIONS FOR USE

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

**RESISTANCE**

When herbicides that affect the same biological site of action are used repeatedly over several years to control the same weed species in the same field, naturally-occurring resistant biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field.

Adequate control of these resistant weed biotypes cannot be expected. If weed control is unsatisfactory, it may be necessary to retreat the problem area using a product affecting a different site of action.

To better manage herbicide resistance through delaying the proliferation and possible dominance of herbicide resistant weed biotypes, it may be necessary to change cultural practices within and between crop seasons such as using a combination of tillage, retreatment, tank-mix partners and/or sequential herbicide applications that have a different site of action. Weed escapes that are allowed to go to seed will promote the spread of resistant biotypes. It is advisable to keep accurate records of pesticides applied to individual fields to help obtain information on the spread and dispersal of resistant biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative cultural practices or herbicide recommendations available in your area.

**INTEGRATED PEST MANAGEMENT**

This product may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop systems in your area.

**GRASSES AND BROADLEAF WEEDS CONTROLLED BY THIS PRODUCT**

**PREEMERGENCE USE (GERMINATING WEEDS)**

This product at specified rates, controls annual weeds such as:

<b>Broadleaved Weeds</b>	
Carpetweed	Nettleleaf goosefoot
Chickweed	Pigweed
Common dayflower	Purslane (common)
Florida beggarweed	Ragweed (common)
Florida purslane (Florida pusley)	Shepherdspurse
Galinsoga	Smartweed (Pennsylvania)
Lambsquarters	Wild radish
Mustard	
<b>Grasses</b>	
Barnyardgrass (watergrass)	Fall panicum
Canarygrass	Foxtails (including giant)
Crabgrasses	Goosegrass

This product will provide partial control of the following:

<b>Partial Control</b>	
Annual morningglory	Sicklepod
Cocklebur (common)	Velvetleaf (buttonweed)
Eastern black nightshade	Waterhemp
Prickly sida (teaweed)	

The lower dosage rates are effective on coarser soils and the higher rates on finer soils and on the more resistant seedling weeds. Sufficient moisture (one-half to 1 inch on moist soils; 1 to 2 inches on dry soils) in the form of rainfall or sprinkler irrigation is necessary after treatment to carry the chemical into the root zone of germinating weeds; best results are obtained when this occurs within two weeks after application. If heavy rainfall occurs soon after application, injury to crop may result.

This product applied pre-emergence, before emergence of Asparagus, Carrots, Corn (field), Parsnips, Potatoes, Soybeans and weeds, is an effective procedure because susceptible weeds are controlled in an early, vulnerable seedling stage before they compete with the crop. With favorable moisture conditions, this product continues to control weeds for some time as the crop becomes better able to compete. Should weed seedlings begin to break through the pre-emergence treatment in significant numbers, secondary weed control procedures should be implemented. These include cultivation and post-emergence herbicide application.

A good seed bed must be prepared before application of this product as crop injury may result if application is made

to ground which is cloddy or compacted resulting in improperly planted seed. Plant seed to depth specified. Surface of the soil should not be cultivated or disturbed after application of this product and before emergence of the crop as weed control may be reduced and crop injury may result. However, if moisture is insufficient to activate the herbicide, a shallow cultivation (rotary hoe preferred) should be made after emergence of row crops while weeds are small enough to be controlled by mechanical means. Deep cultivation reduces the effectiveness of this product.

**POST-EMERGENCE USE (Emerged Seedling Weeds):** This product, at specified rates, controls weeds such as:

<b>Broadleaved Weeds</b>	
Annual morningglory	Lambsquarters
Carpetweed	Mustard
Chickweed (common)	Nettleleaf goosefoot
Cocklebur (common)	Pigweed
Common dayflower	Prickly sida (teaweed)
Common ragweed	Purslane (common)
Dog fennel	Sesbania
Fiddleneck (Amsinckia)	Sicklepod
Florida beggarweed	Smartweed, (Pennsylvania)
Florida purslane (Florida pusley)	Velvetleaf (buttonweed)
Groundsel	Wild buckwheat
Knawel	
<b>Grasses</b>	
Annual ryegrass	Fall panicum
Barnyardgrass (watergrass)	Foxtail (including giant)
Broadleaf signalgrass	Goosegrass
Canarygrass	Rattail fescue
Crabgrass	Texas panicum

Results of post-emergence treatment of emerged weeds vary with rate applied and environmental conditions. Best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70°F or higher. Addition of a surfactant such as Surf-Ac® 820 to the spray (where recommended), increases contact effects of this product. Application will also provide control of emerging susceptible weed seedlings for an extended period of time.

**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, 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 interval (REI). 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 of 24 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, chemical-resistant gloves made of any waterproof material, shoes plus socks, and chemical-resistant headgear for overhead exposure.

**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses. Non-crop weed control is not within the scope of the Worker Protection Standard. Do not enter or allow unprotected persons to enter treated areas until the sprays have dried.

**APPLICATION DIRECTIONS:** This product must be used only in accordance with this label. Injury to or loss of desirable trees or other plants may result from failure to observe the following:

- Do not apply by air.
- Do not apply to sand or loamy sand.
- Do not use on soils with less than 1% organic matter.

**GROUND APPLICATION:** Use a fixed-boom power sprayer calibrated to a constant speed and rate of delivery. Openings in screen should be equal to or larger than 50 mesh. Continuous agitation in the spray tank is necessary to keep the material in suspension. Agitation can be by hydraulic or mechanical means. If a by-pass or return line is used, it should terminate at the bottom of the tank to minimize foaming. Avoid overlapping of spray swaths and shut off spray booms while starting, turning, slowing or stopping or crop injury may result.

For pre-emergence application, use a minimum of 15 gallons of water per acre. For post-emergence application, use sufficient volume of water (minimum of 25 gallons per acre) for thorough coverage of weed foliage. Always apply in a manner and under conditions favorable to avoid spray drift.

**CLEANING:** Equipment should be cleaned of all traces of this product immediately after use. Nozzle tips and screens should be removed and cleaned separately. Flush tank, pump, hoses and boom with several changes of water. Equipment should not be flushed or drained, or this product applied near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. This product should not be used on home plantings of trees, shrubs or herbaceous plants, lawns, walks, driveways, tennis courts or similar areas. Keep drift of dry powder or spray from desirable plants.

**SPRAY PREPARATION:** The tank should be one-quarter full with clean water. Start agitation system, add this product and continue adding water. Each component of any tank mix should be added separately while adding water. Surfactant, if used, should be added last when the tank is nearly full. Agitation should continue throughout. If poor mixing should occur with any component, premix the component with two parts water before adding to the spray tank.

**RATES:** All rates are expressed as broadcast rates. For band treatment, use proportionately less. For example, use one-third of the broadcast rate when treating a 14 inch band where row spacing is 42 inches. Where a range of dosages is given, use the lower rate on coarser soils (low in clay or organic matter) and the higher rate on finer soils (high in clay or organic matter). For post-emergence application, use the lower rate on smaller weeds and the higher rate on larger weeds. See crop sections for rates for specific crops.

**REPLANTING:** If initial seeding fails to produce a stand, any crop registered for the rate of this product that was applied may be replanted immediately. Thoroughly rework soil before replanting. Do not retreat field with second application as injury to the crop may result.

#### **CROP ROTATION DIRECTIONS:**

##### **East of the Rocky Mountains**

- Any crop registered for the rate of linuron that was applied may be replanted immediately.
- Any crop may be planted after 4 months, except for cereals, where only barley, oats, rye, and wheat may be planted.
- Cereal crops not listed above may be planted after 12 months.

##### **West of the Rocky Mountains**

- Any crop registered for the rate of linuron that was applied may be replanted immediately.
- Do not plant any other crop until 12 months after the last application of this product as crop injury may result.

**FERTILIZER SPRAY MIXTURES:** For pre-emergence application, non-pressure nitrogen or fertilizer solution may be used in the spray mixture unless otherwise directed. Small quantities should be tested for compatibility by the following procedure before full scale mixing.

1. Measure one pint of intended spray water or fertilizer solution into a jar.
2. Add in the order given the intended ingredients, shaking after each addition.
  - (a) Surfactants (spreaders), acidifiers, compatibility agents and activators: add 1 teaspoon for each pint/100 gallons.
  - (b) Dry ingredients (wetable powders, dry flowables): add 1 tablespoon for each pound/100 gallons.
  - (c) Flowables: add 1 teaspoon for each pint/100 gallons.
  - (d) Soluble ingredients: add 1 tablespoon for each pound/100 gallons.
  - (e) Spreaders/stickers: add 1 teaspoon for each pint/100 gallons.
3. The final mixture should be uniform and smooth with no evidence of coagulation occurring. If incompatibility is evident, begin test again with a compatibility agent added first. Six drops is equivalent to 4 ounces per 100 gallons. If this does not smooth the mixture, try higher concentrations and other compatibility agents.
4. Allow the mixture to stand undisturbed thirty minutes. If separation occurs, shake and observe the resulting mixture. If mixture is smooth, proceed with spraying, provided the tank has good agitation. If mixture is not smooth, do not spray. You may try:
  - (a) more compatibility agents.
  - (b) different formulations of the active ingredients (switch from WP or EC to flowable or from WP to EC).
  - (c) change active ingredients; some combinations will not tank mix.

#### **CHEMIGATION INSTRUCTIONS**

Apply this product only through one or more of the following types of systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set or hand move irrigation system(s). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness or illegal pesticide residues can result from the nonuniform distribution of treated water.

If you have any questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

### **CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS**

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into the reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional, interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

When mixing, fill nurse tank half full with water. Add this product slowly to tank while hydraulic or mechanical agitation is operating and continue filling with water. Stickers, spreaders, insecticides, nutrients, etc. should be added last. If compatibility is in question, use the compatibility jar test before mixing a whole tank. Because of the wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in mixtures.

This product should be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. Agitation is recommended. Shut off injection equipment after treatment and continue to operate irrigation system until this product has been cleared from the last sprinkler head.

### **SPRINKLER CHEMIGATION**

The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

When mixing, fill nurse tank half full with water. Add this product slowly to tank while hydraulic or mechanical agitation is operating and continue filling with water. Stickers, spreaders, insecticides, nutrients, etc. should be added last. If compatibility is in question, use the compatibility jar test before mixing a whole tank. Because of the wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in mixtures.

This product should be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. Agitation is recommended. Shut off injection equipment after treatment and continue to operate irrigation system until this product has been cleared from the last sprinkler head.

### **ASPARAGUS**

- Do not exceed a maximum of 4 pounds per acre of this product or 3 applications per year.

- Do not use surfactant or fertilizer solution in spray mixture.
- Do not apply within 1 day of harvest.

#### **DIRECT SEEDED OR NEWLY PLANTED CROWNS**

**Pre-emergence Application:** Make a single application of 2 to 4 pounds per acre after planting seed one-half inch deep in coarse soil and 1 inch deep in fine soils. During planting operation, spray activated charcoal as a 1 inch band on soil surface directly over seed rows at the rate of 300 pounds per acre (equivalent to 15 pounds per acre of crop with 20 inch row spacing). Pre-emergence weed control will be reduced in soils with high organic matter (greater than 5% and peat or muck).

**Post-emergence Application:** Make 1 or 2 applications of 1 to 2 pounds per acre when ferns are in 6 inches to 18 inches stage and weeds are not over 4 inches tall.

#### **ESTABLISHED BEDS**

**Pre-emergence Application:** Make a single application of 2 to 4 pounds per acre. Pre-emergence weed control will be reduced in soils with high organic matter (greater than 5% and peat or muck.)

**Post-emergence Application:** Make 1 to 3 applications of 1 to 2 pounds per acre before weeds exceed 4 inches in height. Apply before cutting season or immediately after cutting.

**Directed Post-emergence Application (Fern Stage):** Make a single application of 4 pounds per acre as directed. Spray to base of plants for control of Dudain melon. In California, Dudain melon and annual Nightshade are controlled.

#### **BULBS—Tulip, Caladium, Calla Lily, Daffodil and Dutch Iris (California, Florida)**

After planting of bulbs, settle the soil with sprinkler irrigation (rainfall will serve the same purpose). Before emergence of plants (bulbs), apply 2 pounds of this product per acre in a minimum of 20 gallons of water per acre. Treat only once during growing season.

#### **CARROTS**

Because Carrot varieties vary in their resistance, determine tolerance to this product prior to adoption as a field practice to prevent possible crop injury.

- Do not exceed 4 pounds of this product per acre per year East of Rocky Mountains.
- Do not exceed 3 pounds of this product per acre per year West of Rocky Mountains.
- Do not apply within 14 days of harvest.

#### **Pre-emergence Application—California, Colorado, Florida, Michigan, Minnesota, New Jersey, North Dakota, Ohio, Oregon, Washington, and Wisconsin only**

Make a single application of 1 to 2 pounds per acre in California, Florida, Minnesota, North Dakota, Oregon and Washington, and 1 to 3 pounds per acre in Colorado, Michigan, New Jersey, Ohio, and Wisconsin, after planting but prior to Carrots emergence. Plant seed at least one-half inch deep. Use the lower rate on lighter soils and higher rate on heavier soils. Subsequent post-emergence application may be made provided the total does not exceed the seasonal maximum for the geography.

#### **Post-emergence Application—Entire U.S.:**

Apply 1.5 to 3 pounds per acre as a broadcast spray.

Applications to Carrots that are less than 3 inches tall may result in crop injury; grower and/or applicator assumes all crop injury risk if applications are made to Carrots less than 3 inches tall. Repeat application may be made as long as the total use does not exceed the seasonal maximum of this product for the geography.

**Post-emergence Application—Alternate Treatment for New York:** For control of emerged broadleaf weeds early in the development of the Carrot crop, apply 0.25 pound per acre to Carrots having at least one fully developed true leaf and 0.5 pound per acre to Carrots having three or more leaves. A single application applied prior to the 5-leaf stage of Carrots may not provide adequate season-long control. Multiple applications at 1- and 3-, and 2- and 4-, or 3- and 5-leaf stages will significantly improve weed control. Early crop injury can occur; however the effect should be transitory, with no yield losses attributable to crop injury. At normal rate, Carrots must be at least 3 inches tall at the time of application. Failure to control weeds before this stage of development will result in significant yield losses due to weed competition.

#### **Crop Rotation—California**

Following this product use in Carrots grown to maturity, Barley, Garlic, and Onions may be planted after 6 months and Potatoes after 9 months.

#### **Precautions for Postemergence Carrot Applications:**

- Do not treat susceptible varieties which show an initial burning of foliage following postemergence treatment with this product.
- Do not exceed 40 psi spray nozzle pressure as crop injury may result.
- Do not apply when temperature exceeds 85°F as crop injury may result.
- The activity of this product on both Carrots and weeds is increased if applied after 3 or more cloudy days. If spraying is done under these conditions, the dosage of this product must be reduced.



- The addition or tankmix of Stoddard solvent, surfactants, nitrogen, or fertilizer solution, or other pesticides may cause crop injury. The grower/applicator assumes all risks in the tankmix situations.
- This product often interacts with other herbicides or insecticides and may damage carrots when chemicals are tank mixed or applied sequentially at close intervals. Several days, preferably a week should elapse between this product applications of this product and application of insecticides.

**FOR USE ON CARROTS IN CHEMIGATION SYSTEMS IN CALIFORNIA**

Follow the use direction in the section above and the chemigation instructions in the Chemigation section of this label.

For solid set and hand move irrigation systems, apply this product at the beginning of the set and then apply one-third to one inch of water for activation (sandy soils apply at least one third inch, sandy loams apply at least one-half inch, silt soils apply at least three-fourths inch, clay soils apply at least one inch). For center pivot and lateral move irrigation systems, apply this product in one-third to one inch of water for activation as a continuous injection (sandy soils apply at least one-third inch, sandy loams apply at least one-half inch, silt soils apply at least three-fourth inch, clay soils apply at least one inch).

**CELERY**

- Do not exceed 40 psi spray nozzle pressure.
- Do not apply when temperature exceeds 85°F nor as tank mixture with surfactants, nitrogen or fertilizer solution or other pesticides as injury to the crop may result.
- Do not apply within 45 days of harvest east of the Rocky Mountains. Do not apply within 67 days of harvest west of the Rocky Mountains.

**Post-transplant Application:** Make a single application of 1.5 to 3 pounds per acre in all states except California. In California, use 1.5 to 2 pounds per acre. Apply as broadcast spray after Celery is transplanted and established, but before Celery is 8 inches tall. In the Northeast, use only on Celery grown on muck soils.

**CORN (FIELD)—East of the Rocky Mountains Only**

- Do not exceed a seasonal maximum of 1.5 pounds of this product per acre.
- Do not spray over the top of emerged Corn.

**Pre-emergence Application:** Make a single application after planting but before crop emerges. Plant seed at least 1.75 inches deep on either flat or raised seedbeds only or injury to the crop may result.

Use this product alone at 1 to 1.5 pounds per acre. Use lower rates on lighter soils and higher rates on heavier soils. For improved grass and broadleaf weed residual, tank mix this product with such products registered for Field corn as "Lasso", atrazine, "Prowl", or "Dual Magnum II". See the following table for tank mix rates for this product and atrazine.

**THIS PRODUCT+ATRAZINE**

Soil Texture	1 to 2% Organic Matter This product (lbs.) + Lbs. A.I. Atrazine (Per Acre)	2 to 5% Organic Matter This product (lbs.) + Lbs. A.I. Atrazine (Per Acre)
Coarse: Sandy loam	0.66 to 1 + 0.4 to 0.5	1 to 1.5 + 0.5 to 1
Medium: Loam, Silt loam, Silt, Sandy clay, Sandy clay loam	1 to 1.5 + 0.5 to 0.8	1.5 + 0.8 to 1.2
Fine: Silty clay, Silty clay loam, Clay, Clay loam	1.33 to 1.5 + 0.6 to 0.8	1.5 + 0.8 to 1.6

**Directed Postemergence Application:** Make a single application as a directed spray after Corn is at least 15 inches high (measured to the highest leaf surface on free standing plants). Do not spray over top of Corn. Apply only when there is sufficient differential between height of Corn and weeds so that the directed spray thoroughly covers all weed foliage without contact of upper leaves or whorl of Corn by spray or drift, as such contact may cause crop injury. Early cultivation (rotary hoe or other suitable equipment) will aid in achieving proper differential between height of Corn and weeds.

Use 1.25 to 1.5 pounds per acre; add 1 pint of surfactant for each 25 gallons of spray mixture.

Non-pressure nitrogen solution may be substituted for all or part of the water.

Use the lower rate on lighter soils (low in clay or organic matter) and when weeds do not exceed 2 inches in height; use the higher rate on heavier soil (high in clay or organic matter) for weeds up to 5 inches in height. Do not apply within 57 days of harvest.

**HYBRID POPLAR (Midwest)**

Apply 2 to 4 pounds of this product per acre before bud break in the Spring. For application after bud break, apply 2 to 4 pounds of this product per acre as a directed spray. Spray should be directed to weed growth and to avoid contact with the Poplar plant. Do not spray over the top of the Poplar as injury to the plant will result. Use the lower rate on light soils and higher rate on heavier soils. For best results on emerged weeds, treat at the seedling stage. More than one treatment may be made but no more than 8 pounds of this product per acre should be applied per year.

**PARSLEY (East of Mississippi River and Texas)**

- Do not exceed a total of 3 pounds of this product per acre per season.
- Do not apply within 30 days of harvest.
- In Texas, use on mineral soils only.

**Pre-emergence Application (Mineral and Muck Soils):**

Make a single broadcast application of this product at a rate of 1 to 3 pounds per acre after planting, but before the crop emerges. Use lower rates on coarse soils and higher rates on heavier soils.

**Post-emergence Application (Muck Soils Only):**

Make a single application of this product at a rate of 1 pound per acre to control emerged weeds. Apply after Parsley has a minimum of 3 true leaves or crop injury may result. Apply when weeds are in the 1 to 3 true leaf stage.

**PARSLEY GROWN FOR SEED (OREGON AND WASHINGTON)**

For best results, apply preemergence to weeds or early postemergence while weeds are small. If weeds are up at time of application, add a non-ionic surfactant at 1 quart per 100 gallons to improve weed control performance. Before using other kinds of adjuvants, test on a small area to be sure the treatment is safe to the crop.

Apply this product at 1 to 2 pounds per acre after Parsley has a minimum of 3 true leaves or crop injury may result. More than one application can be made providing the user has prior experience to indicate adequate crop safety. Wait at least 21 days between applications. Do not treat plants that are under stress. Avoid late Fall applications prior to cold weather as crop injury may occur. Do not make more than two applications in the first growing season and do not make more than two applications in the second growing season. When using on a new variety for the first time, treat a small area to determine crop safety prior to treating a larger area.

User must accept all crop injury liability if an adjuvant other than a non-ionic surfactant at 1 quart per 100 gallons is used if more than one application per crop is made.

**Note:** All Parsley seed screenings shall be disposed of in such a way that they cannot be distributed or used for human food or animal feed. The seed conditioner shall keep records of screening disposal for three years from the date of disposal and shall furnish the records on request. Disposal records shall consist of documentation from a controlled dumpsite, incinerator, or other equivalent site and shall show the lot numbers, amount of material disposed of, its grower(s), and date of disposal.

No portion of the Parsley seed plant, including but not limited to green chop, hay, pellets, meal, whole seed, cracked seed, roots, bulbs, leaves and seed screenings may be used or distributed for food or feed purposes.

Parsley seed shall bear a tag or container label which forbids use of the seed for human consumption or animal feed.

Parsley seed may not be distributed for human consumption or animal feed.

**PARSNIPS**

**Pre-emergence Application:** Make a single application of 1.5 to 3 pounds per acre after planting but before crop emerges. Plant seed at least one-half inch deep.

**POTATOES**

- Do not use West of the Rocky Mountains
- Do not spray over top of emerged Potatoes.
- Do not exceed 3 pounds of this product per acre per year.

**East of the Rocky Mountains Only:** Apply 1.5 to 2.5 pounds per acre on lighter soils (sandy loam, silt loam, 1 to 2% organic matter) and 2.5 to 3 pounds per acre on heavier soils (silt, clay loam and soil with 2 to 5% organic matter); On soils over 5% organic matter, use 3 pounds per acre. For improved annual grass and nutsedge control, see following table for tank mixes with Me-Too-Lachlor™.

Pounds of This Product + Pints of Me-Too-Lachlor per acre		
	Percent Organic Matter in Soil	
Soil Texture	1 to 3%	3 to 5%
Coarse: Sandy loam	1 to 1.5 + 1	1.5 to 2 + 1.33
Medium: Loam, Silt loam, Silt, Sandy clay, Sandy clay loam	1.5 to 2 + 1.33	2 to 2.5 + 1.67 to 2

**Pre-emergence Application:** Make a single application of this product as a broadcast spray after planting but before crop emerges. Plant seed at least 2 inches deep. If beds are to be "dragged" and/or "hilled", apply after the final "dragging" or "hilling" operation. Apply before grasses are 2 inches tall and before broadleaf weeds are 6 inches tall, preferably just before or when weed seedlings emerge. If emerged weeds are present, add 1 pint Surf-Ac 820 for each 25 gallons of spray mixture. In irrigated areas, best results are obtained when application is made to moist soil, followed within 2 weeks by 1 to 2 inches of sprinkler irrigation (or rainfall). If soil is dry and powdery, irrigate prior to application and follow with sprinkler irrigation to activate the herbicide.

**SORGHUM**

- Do not apply over top of emerged Sorghum.
- Do not apply 75 days within harvest.
- Do not graze or feed plants to livestock within 3 months after directed postemergence application.

**Pre-emergence Application:** Select a registered herbicide treatment for application as a tank mixture. Make a single application after planting, but before crop emerges. In soil with 1 to 2% organic matter, apply 0.5 to 1 pound per acre on sandy loam and 1 to 1.5 pounds per acre on loam, silt loam, silt, sandy clay, or sandy clay loam. In soil with 2 to 4% organic matter, apply 1 to 1.5 pounds per acre on sandy loam and 1 to 2 pounds per acre on loam, silt loam, silt, sandy clay, or sandy clay loam. Plant seed at least 1 inch deep on flat or raised seedbeds only as injury to the crop may result.

**Directed Post-emergence Application**

Make a single application of this product as a directed spray. Add 1 pint of Surf-Ac 820 for each 25 gallons spray mixture. If sprayer is equipped with skids, shoes or shields, apply 1 pound per acre when Sorghum is 12 inches tall (free standing plants) and weeds are up to 2 inches in height. Use 1 to 2 pounds per acre when Sorghum is 15 inches tall and weeds are 2 to 4 inches in height. Apply only when there is sufficient differential between height of Sorghum and weeds so that the directed spray thoroughly covers all weed foliage without contact on upper leaves or whorl of Sorghum by spray or drift as such contact may cause crop injury.

**SOYBEANS**

- Make only a single pre-emergence application of this product per season.
- Do not exceed 2 pounds of this product in any application.
- Soybeans planted too shallow have increased potential for injury.
- Do not spray over top of emerged soybeans.
- Do not feed treated forage to livestock.

**Preemergence—All Tillage Types**

Apply this product prior to Soybean emergence at the rates specified in the following Table 1. For improved control or for a broader spectrum of control, this product may be tank mixed with such herbicides as "Dual Magnum" or "Dual Magnum II", "Sencor", DuPont™ SYNCHRONY® XP, Me-Too-Lachlor, DuPont™ CLASSIC®, "Prowl", "Boundary", "Domain", and "Gangster".

For specific tank mix rate specified for this product + "SENCOR", see the following Table 2.

**No-till, Minimum till or Stale Seedbed**

**Timing**

Apply this product up to 30 days prior to Soybean planting. For maximum in-season residual control, apply no earlier than 14 days before planting.

**Adjuvants and Tank mixes**

For burndown control (postemergence activity), addition of adjuvant is required.

- For best results, use 1 gallon crop oil concentrate per 100 gallons of spray.
- Alternately, use 1 quart nonionic surfactant per 100 gallons of spray.
- To burndown larger than 2 inch grasses and 6 inch broadleaves, or to expand the burndown spectrum, tank mix this product with such herbicides as 2,4-D LVE, SYNCHRONY® XP, CLASSIC®, glyphosate and/or paraquat. When tank-mixing this product with glyphosate, substitute nonionic surfactant (1 quart per 100 gallons spray) for crop oil concentrate. Follow the glyphosate manufacturer's instructions for addition of ammonium sulfate.
- 1 pint of this product + 1 pint 2,4-D LVE + 1 gallon Crop oil concentrate per 100 gallons spray will burn down the following winter annual weeds (up to 6 inches in size) as well as the weeds included in "POSTEMERGENCE USE" at the beginning of this label.

Bushy wallflower	Henbit
Chickweed, common	Pennycress
Chickweed, mouseear	Shepherd's purse
Cutleaf evening primrose	Speedwell, corn, field, purslane
Deadnettle*	White heath aster
* suppression	

**Table 1. Preemergence Rates of this Product for Soybeans — All Tillage Types**

This Product (lbs. per acre)		
Soil Texture	1 to 3% Organic Matter	3 to 6% Organic Matter
Coarse: Sandy loam	1 to 1.25	1.25 to 2
Medium: Loam, Silt loam, Silt, Sandy clay loam	1 to 2	1.5 to 2
Fine: Silty clay, Silty clay loam, Clay, Clay loam	1.25 to 2	2

**Table 2. This Product + SENCOR\***

Soil Texture	1 to 3% Organic Matter This Product + Sencor (lbs./A)	3 to 6% Organic Matter This Product + Sencor (lbs./A)
Coarse: Sandy loam	0.5 + 0.167 to 0.25	0.5 to 0.75 + 0.25 to 0.5
Medium: Loam, Silt loam, Silt, Sandy clay loam	0.5 to 0.75 + 0.25 to 0.5	0.5 to 1.5 + 0.25 to 0.5
Fine: Silty clay, Silty clay loam, Clay, Clay loam	0.75 to 1.5 + 0.25 to 0.5	1.5 to 2 + 0.5 to 0.75

\* Read and follow all precautions and restrictions on the Sencor label, especially with respect to Soybean varietal sensitivity and environmental conditions that may favor Soybean injury from Sencor.

### NONCROP WEED CONTROL

Apply 2 to 6 pounds of this product per acre in 40 to 100 gallons of water for short term control of annual weeds on noncropland areas such as roadsides and fence rows. Apply shortly before weed growth begins or at early seedling stage of growth for best results. Add 2 quarts of Surf-Ac 820 per 100 gallons of spray mixture for control of established weeds. Apply as a thorough coverage spray during periods when daily temperatures exceed 70°F and before weed growth exceeds 8 inches in height.

### SPRAY DRIFT MANAGEMENT

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

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

### Importance of 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 provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS! See **Wind, Temperature and Humidity, and Temperature Inversions sections of this label.**

### Controlling Droplet Size — General Techniques

- Volume — Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure — Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.
- 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.

### Controlling Droplet Size — Aircraft

- Number of Nozzles — Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- Nozzle Orientation — Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- Nozzle Type — Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce

larger droplets than other nozzle types.

- Boom Length — The boom length should not exceed three-fourth of the wing or rotor length — longer booms increase drift potential.
- Application Height — Application more than 10 ft. above the canopy increases the potential for spray drift.

**Boom Height**

Setting the boom at the lowest labeled height (if specified) which provides uniform coverage reduces the exposure of droplets to evaporation and wind. For ground equipment, the boom should remain level with the crop and have minimal bounce.

**Wind**

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. AVOID GUSTY OR WINDLESS CONDITIONS.

**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 hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

**Temperature Inversions**

Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud.

Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. 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.

**Shielded Sprayers**

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Store in a cool, dry area secure from access by unauthorized persons and children. Do not allow bags to become wet or store in a damp or humid area. Keep away from puncture source. Store in original container.

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

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Offer for recycling, if available. Dispose of empty container in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**WARRANTY—CONDITIONS OF SALE**

OUR DIRECTIONS FOR USE of this product are based upon tests believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

To the extent consistent with applicable law, in no case shall the Manufacturer or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by the Seller and is accepted as such by the Buyer.

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