

Reg # 19713-97

PM-25

File  
1924



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

MAY 17 1994

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Barbara Brown  
DREXEL CHEMICAL COMPANY  
BOX 9306  
2487 PENNSYLVANIA ST.  
MEMPHIS, TN 38109

Subject: Label Amendment Submission of 11/01/93 in Response to PR Notice 93-7  
EPA Reg. No. 19713-97  
LINURON 4L WEED KILLER

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted subject to the comments reflected on the enclosed sheet. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

**WHAT THIS ACCEPTANCE MEANS:**

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

**WHAT YOU NEED TO DO NEXT:**

By the next label printing make all the specified changes to your labeling. Send to EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling
- AND
- WITHIN one year from date of this acceptance.



**Recycled/Recyclable**  
Printed with Soy/Canola Ink on paper that  
contains at least 50% recycled fiber

2924

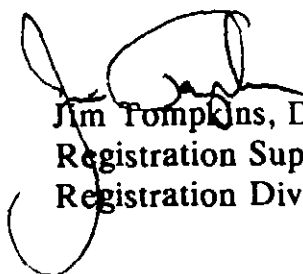
Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)  
Office of Pesticide Programs (7505C)  
U.S. Environmental Protection Agency  
401 M Street, SW  
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)  
Office of Pesticide Programs  
Room 266A, Crystal Mall 2  
1921 Jefferson Davis Highway  
Arlington, VA 22202

Sincerely,



Jim Tompkins, Deputy Chief  
Registration Support Branch  
Registration Division (7505W)

Attachment

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DREXEL  
LINURON 4L  
WEED KILLER

**ACTIVE INGREDIENT:**  
 Linuron [3-(3,4-dichlorophenyl)-1-methoxy-1-methylurea] . . . . . 41.0%

**INERT INGREDIENTS:** . . . . . 59.0%

**TOTAL:** . . . . . 100.0%

Contains 4 Lbs Linuron Per Gallon

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

**STATEMENT OF PRACTICAL TREATMENT**

**IF SWALLOWED:** Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

**IF SPLASHED IN EYES:** Immediately flush eyes with plenty of water. Get medical attention if irritation develops.

**IF SPILLED ON SKIN:** Immediately remove contaminated clothing, INCLUDING SHOES, and wash skin with soap and plenty of water. If irritation develops, send for a physician.

EPA Reg. No. 19713-97  
EPA Est No. 19713-MS-1

WPS DELETIONS/REVISIONS 10/93

Manufactured by  
DREXEL CHEMICAL COMPANY  
P O Box 9306  
Memphis, TN 38109

ACCEPTED  
with COMMENTS  
by EPA Letter Dated  
MAY 17 1994

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
19713-97

**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION!** Harmful if Swallowed. May irritate eyes, nose, throat and skin. Avoid breathing spray mist. Avoid contact with skin, eyes, and clothing.

**PERSONAL PROTECTIVE EQUIPMENT**

Applicators and other handlers must wear:

Coveralls over long-sleeved shirt and long pants

Waterproof gloves

Shoes plus socks

Chemical resistant headgear for overhead exposure

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.

The closed systems or enclosed cabs must be used 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 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**

For terrestrial uses, do not apply directly or 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 wastes.

~~Required-clothing-and-equipment-for-mixing/loading-and-applying linuron:-One-piece-overalls-which-have-long-sleeves-and-long pants-constructed-of-finely-woven-fabric-as-specified-in-the USDA/EPA-Guide-for-Commercial-Applicators-~~

~~Wide-brimmed-hat--Mid-forearm-to-elbow-length-Chemical-Resistant gloves-~~

~~Any-article-worn-while-applying-linuron-must-be-cleaned-before reusing--Clothing-which-has-been-drenched-or-has-otherwise absorbed-concentrated-pesticide-must-be-disposed-in-a-sanitary~~

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landfill, or incinerated, or if allowed by state and local authorities, by burning. Instead of clothing and equipment specified above, the applicator can use an enclosed cab which provides a filtered air supply (as described by Paschenberg and Bourke, 1975).

Non-aquatic-Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes. Rotational Crop Restrictions-Do not rotate crops used for food or feed, which are not registered for use with linuron onto areas previously treated with this chemical.

Re-entry-Restriction-Do not re-enter treated areas for 24 hours following application unless protective clothing is worn.

Farm Worker Safety Statements

Do not enter treated areas without protective clothing until sprays have dried.

Because certain states may require more restrictive re-entry intervals for various crops treated with this product, consult your State Department of Agriculture for further information. Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Oral warnings must inform workers of areas or fields that may not be entered for 24 hours without specific protective clothing and appropriate actions to take in case of accidental exposure, as described under Precautionary Statements on this label. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. CAUTION: Area treated with Linuron on (date of application). Do not enter without appropriate protective clothing for 24 hours. In case of accidental exposure, flush eyes or skin with plenty of water. Call physician if irritation persists. Remove and wash contaminated clothing before reuse.

IMPORTANT--Injury to or loss of desirable trees or other plants may result from failure to observe the following: Do not apply (except as recommended for crop use), or drain or flush equipment on or 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. Do not use on home plantings or trees, shrubs or herbaceous plants, nor on lawns, walks, driveways, tennis courts, or similar areas.

Prevent drift of spray to desirable plants. Do not contaminate any body of water. Keep from contact with fertilizers, insecticides, fungicides, and seeds. Thoroughly clean all traces of LINURON 4L from application equipment immediately after use. Flush tank, pump, hoses, and boom with several changes of water after removing nozzle tips and screens (clean these parts separately).

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**GENERAL INFORMATION**

DO NOT apply with aerial equipment.

LINURON 4L Weed Killer is a liquid suspension 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.

LINURON 4L may be applied to soil prior to emergence of weeds to control susceptible weed seedlings for an extended period of time; the degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other condition. Soils high in clay or organic matter require higher dosages than soil low in clay or organic matter to obtain equivalent herbicide performance. Moisture is required to activate the chemical; best results occur if rainfall (or irrigation) occurs within 2 weeks of application. In the Columbia River Basin, use LINURON 4L only if crop is sprinkler irrigated.

LINURON 4L may also be used to control emerged weeds. Results 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 Drexel Surf Ac 820 to the spray (where recommended) increases contact effects of LINURON 4L.

LINURON 4L is recommend for use in conjunction with certain other herbicides for treatment of field corn, sorghum, soybeans and winter wheat; observe all cautions and limitations on labeling of all products used in mixtures. Since the effect of LINURON 4L varies with soils, crop varieties, uniformity of application, and environmental conditions, it is suggested that growers limit their first use to small areas.

**DIRECTIONS FOR USE**

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

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

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**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 interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) 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 over long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Chemical-resistant headgear for overhead exposure

Do not apply through any type of irrigation system.

LINURON 4L should be used only in accordance with recommendations on this label. Do not use on any crop in Kern County, California. The Seller will not be responsible for losses or damages resulting from use of this product in any manner not specifically recommended by The Seller. User assumes all risk associated with such non-recommended use.

**SELECTIVE USE IN CROPS**

Pre-emergence Use (Germinating Weeds): LINURON 4L at recommended rates, controls weeds such as:

Broadleaves	
Florida beggarweed	Mustard
Carpetweed	Nettleleaf goosefoot
Chickweed	Pigweed
Common dayflower	Purslane
Florida purslane	Wild radish
(Florida pursley)	Common ragweed
Galinsoga	Smartweed
Lambsquarters	

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Grasses
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Barnyardgrass (watergrass)	Foxtail (including giant)
Canarygrass	Goosegrass
Crabgrass	Fall panicum

Partial Control

Cocklebur	Sicklepod
Annual morningglory	Velvetleaf (buttonweed)
Prickly sida (teaweed)	

Note: Consult "chloramben"<sup>1</sup>, atrazine, "metolachlor"<sup>8E</sup>, "Alachlor"<sup>3</sup>, "Ortho"<sup>4</sup> paraquat CL, propazine, "Prowl", "propachlor" "glyphosate"<sup>3</sup>, "Surflan"<sup>75W,6</sup> "Surflan"<sup>AS,6</sup>, "Tolban"<sup>2</sup>, and "Treflan"<sup>6</sup> labels for additional weeds controlled with LINURON 4L is used in conjunction with these herbicides.

LINURON 4L will not control established perennials such as bermudagrass, Canada thistle, field bindweed, johnsongrass, and purple nutsedge. 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 (1/2" to 1" on moist soils; 1" to 2" 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.

A good seed bed must be prepared before application of LINURON 4L 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 LINURON 4L 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.

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POSTEMERGENCE Use (Emerged Seedling Weeds): LINURON 4L at recommended rates, controls weeds such as:

**Broadleaves**

- |                    |                      |
|--------------------|----------------------|
| Florida beggarweed | Mustard              |
| Wild buckwheat     | Annual morningglory  |
| Carpetweed         | Nettleleaf goosefoot |
| Cocklebur          | Pigweed              |
| Common dayflower   | Prickly sida         |
| Dog fennel         | (teaweed)            |
| Fiddleneck         | Purshlane            |
| (amsinckia)        | Common ragweed       |
| Florida purslane   | Sesbania             |
| (Florida pursley)  | Sicklepod            |
| Groundsel          | Smartweed            |
| Knawel             | Velvetleaf           |
| Lambsquarters      | (buttonweed)         |

**Grasses**

- |                   |                 |
|-------------------|-----------------|
| Barnyardgrass     | Goosegrass      |
| (watergrass)      | Fall panicum    |
| Canarygrass       | Texas panicum   |
| Crabgrass         | Annual ryegrass |
| Foxtail           | Rattail fescue  |
| (including giant) |                 |

Note: Consult bromoxynil, "Butoxone"7, "Butyrac"200 and "Dynamyte 3"8 labels for additional weeds controlled when LINURON 4L is used in conjunction with these herbicides.

Best results are obtained under conditions of high humidity and temperatures of 70 F. Control of emerged weeds under drought stress is usually impractical.

**Equipment-Spray Volumes and Pressures:** Use a tractor-mounted fixed-boom sprayer properly calibrated to a constant speed and rate of delivery. Openings in screens should be equal to or larger than 50 mesh. Continuous agitation in the spray tank is required to keep the material in suspension. Agitate by mechanical or hydraulic means; if bypass or return line is used, it should terminate at bottom of tank to minimize foaming. Avoid overlapping, and shut off spray booms while starting, turning, slowing or stopping, or injury to the crop may result. For pre-emergence application, use 25 to 40 gals. per acre and spray pressure of 30 to 40 psi (for mixtures containing paraquat CL or "glyphosate", use 20 to 60 gals. per acre). For post-emergence application, use sufficient volume (min. 25 gals. per acre) for thorough coverage of weed foliage; use spray pressure of 20 to 25 psi to keep spray drift to a minimum.

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**Spray Preparation: LINURON 4L and Tank Mixtures** - Mix proper amount of LINURON 4L alone or with wettable powder herbicide, in spray tank with agitator running. For tank mixture with a liquid herbicide, dilute liquid product with 2 parts of water and add slowly as last ingredient to spray tank; for tank mix combinations with paraquat CL or "glyphosate", follow mixing instructions under Minimum or No-Tillage Soybeans. Where use of a surfactant is recommended, dilute with 10 parts of water and add as last ingredient to nearly full tank.

**Fertilizer Spray Mixtures** - For pre-emergence application, nonpressure 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. Put 1 pint of fertilizer solution in a quart jar.
2. Mix 2 teaspoons LINURON 4L with 2 tablespoons of water, mix thoroughly and add to fertilizer solution.
3. Close jar and shake well.
4. If other herbicides are to be used in the mixture, premix 2 teaspoons of wettable powders or 1 teaspoon of liquid with 2 tablespoons of water, add to LINURON 4L/fertilizer mixture.
5. Close jar and shake well.
6. Watch mixture for several seconds, check again in 30 minutes.
7. If mixture does not separate, foam, gel, or become lumpy, it may be used.
8. Mixing ability may be improved by adding compatibility agents such as Kalo Laboratories "Complex" or Witco Chemicals "Sponto" 168D. Follow directions on container.

If the mixture is compatible, prepare spray by adding the fertilizer solution to the spray tank first; then dilute LINURON 4L with 2 parts of water, thoroughly mix, and add slowly to spray tank with agitator running. For tank mixtures with other herbicides, follow directions above.

**Use Rates:** All rates of LINURON 4L (and tank mixtures) are expressed as broadcast rates; for band treatment, use proportionately less. For example, use 1/3 of the broadcast rate when treating a 14" band where row spacing is 42". Where a range of dosage 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.

**Soil Limitations:** Unless otherwise directed, do not use on sand, loamy sand, gravelly soils or exposed subsoils nor on soils containing less than 1% organic matter as injury to the treatment or subsequent crops may result.

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**Replanting:** If initial seeding fails to produce a stand, the same crop may be replanted in soil treated pre-emergence with LINURON 4L (or with recommended tank mixtures). Thoroughly rework soil before replanting; do not re-treat field with a second application as injury to the crop may result. West of Rocky Mountains - carrots or celery may be planted 4 months after last application; unless otherwise directed, do not plant any other crop until 1 year after the last application.

**Asparagus - California (Includes control of dudain melon and nightshade):** Direct Seeded or Newly Planted Crowns - Do not exceed 4 pints total per acre per season; do not use surfactant or fertilizer solution in spray mixture.

**Preemergence Application:** Make a single application of 2 to 4 pints per acre after planting seed 1 1/2" deep in coarse soil and 1" deep in fine soils. During planting operation, spray activate charcoal ("Aqua Nu-Char"9 or "Gro-Safe"10) as a 1" band on soil surface directly over seed rows at the rate of 300 lbs. per acre (equivalent to 15 lbs. per acre of crop with 20" row spacing).

**Postemergence Application:** Make 1 or 2 applications of 1 to 2 pints per acre when ferns are in 6" to 18" stage and weeds are not over 4" tall.

**Established Beds -** Do not apply within 1 day of harvest; do not exceed 8 pints total per acre per season; do not use surfactant or fertilizer solution in spray mixture.

**Preemergence Application:** Make a single application of 2 to 4 pints per acre.

**Postemergence Application:** Make 1 to 4 applications of 1 to 2 pints per acre before weeds exceed 4" in height. Apply before cutting season or immediately after cutting.

**Directed Post-emergence Application (Fern Stage):** Make a single application of 4 to 8 pints per acre as a directed spray to base of plants for control of dudain melon.

**Note:** If more than 4 pints LINURON 4L per acre is applied per season, do not plant any other crop until 1 year after last application.

#### **CARROTS**

**Preemergence Application - Florida, Ohio, Michigan and Wisconsin**  
Make a single application of 1 to 2 pints per acre in Florida and 1 to 3 pints per acre in Michigan, Ohio and Wisconsin after planting but before carrots emerge; plant seed at least 1/2" deep. Use the lower rate on lighter soils (low in clay or organic matter) and the higher rate on heavier soils (high in clay or organic matter). Subsequent post-emergence application may be made provided the total does not exceed 4 pints LINURON 4L per acre per season.

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Postemergence Application - U.S.: Apply 1.5 to 3 pints per acre as a non-directed spray after carrots are at least 3" tall. Apply before annual grasses exceed 2" in height and before broadleaf weeds exceed 6" in height. Repeat application may be made but do not exceed 4 pints LINURON 4L per acre (West of Rocky Mountains, do not exceed 3 pints LINURON 4L per acre). Do not exceed 40 psi spray nozzle as crop injury may result.

LINURON 4L may be applied following an application of Stoddard solvent provided treatments are at least one day apart. Stoddard solvent may be applied following an application of LINURON 4L provided treatments are at least 2 weeks apart. Shorter time intervals between applications may result in injury to the crop. Do not apply LINURON 4L as a tank mixture with Stoddard solvent, surfactants, nitrogen or fertilizer solution, other pesticides, nor when temperature exceeds 85 F. as crop injury may result.

**Note:** Because carrot varieties vary in their resistance, determine tolerance to LINURON 4L prior to adoption as a field practice to prevent possible crop injury; do not treat susceptible varieties which show an initial burning of foliage following post-emergence treatment with LINURON 4L. Do not apply within 14 days of harvest.

#### CELERY

East of the Rocky Mountains - Post-transplant Application: Make a single application of 1.5 to 3 pints per acre. Apply as a non-directed spray after celery is transplanted and established, but before celery is 8" tall. Apply before annual grasses exceed 2" in height and before broadleaf weeds exceed 6" in height. In the Northeast, use only on celery grown on muck soils.

Do not exceed 40 psi spray nozzle pressure, and do not apply when temperature exceeds 85 F. nor as a tank mixture with surfactants, nitrogen or fertilizer solution, or other pesticides as injury to the crop may result. Do not replant to crops other than celery or carrots within 4 months after application as injury to subsequent crops may result.

#### CORN (FIELD)

East of Rocky Mountains - Preemergence Application: Select one of the following herbicide treatments for application as a tank mixture. Make a single application after planting but before crop emerges. Plant seed at least 1.75 deep on flat or raised seedbeds only or injury to the crop may result. Do not spray over top of emerged corn.

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LINURON 4L + "alachlor" (Tank Mixture)

Soil Texture	Product Per Acre	
	1 to 3% Organic Matter LINURON 4L (Pts.) + "alachlor" (Qts.)	3 to 6% Organic Matter LINURON 4L (Pts.) + "alachlor" (Qts.)
Sandy loam	2/3 to 1 1/4 + 3/4 to 1	1 1/4 to 2 + 1 to 1 1/2
Silt loam	1 to 1 2/3 + 1 to 1 1/2	1 2/3 to 2 1/2 + 1 1/2 to 2
Clay loam	1 1/4 to 2 + 1 1/2 to 2	2 to 3 + 2 to 2 1/2

Replanting: Corn or soybeans may be replanted within 4 months; after 4 months, any crop may be replanted.

LINURON 4L + "propachlor" (Tank Mixture)

Soil Texture	Product Per Acre	
	1 to 3% Organic Matter LINURON 4L (Pts.) + "propachlor" 65 (Lts.)	3 to 6% Organic Matter LINURON 4L (Pts.) + "propachlor" 65 (Lts.)
Sandy loam	2/3 to 1 1/3 + 1 to 2	1 1/3 to 2 + 2 to 3
Silt loam	1 to 1 2/3 + 1 1/2 to 2 1/2	1 2/3 to 2 1/2 + 2 1/2 to 4
Clay loam	1 1/4 to 2 + 2 to 3	2 to 3 + 3 to 4 3/4

Replanting: Corn any be replanted within 4 months; after 4 months, any crop may be planted.

LINURON 4L + Atrazine (Tank Mixture)

Soil Texture	Product Per Acre	
	1 to 2% Organic Matter LINURON 4L (Pts.) + Atrazine 80% (Lbs.)	2 to 5% Organic Matter LINURON 4L (Pts.) + Atrazine 80% (Lbs.)
Sandy loam	2/3 to 1 + 1/2 to 2/3	1 to 2 + 2/3 to 1 1/4
Silt loam	1 to 1 1/2 + 2/3 to 1	1 1/2 to 2 1/2 + 1 to 1 1/2
Clay loam	1 1/3 to 1 2/3 + 3/4 to 1	1 2/3 to 3 + 1 to 2

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Replanting: Corn may be replanted within 6 months. After 6 months, any crop may be planted except do not follow treated corn with sugar beets, tobacco, or vegetables in rotation.

**CORN (FIELD AND SWEET)**

Direct Postemergence Application: Make a single application as a directed spray after corn is at least 15" 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 3 pints per acre; add 1 pint Surf-Ac 820 for each 25 gals. spray mixture. For field corn, 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" in height; use the higher rate on heavier soils (high in clay or organic matter) for weeds up to 5" in height.

**COTTON**

East-of-Rocky-Mountains---Directed-Post-emergence-Application: Apply-as-a-directed-spray,-adjust-nozzles-to-minimize-contact-to-cotton-leaves-with-spray-or-drift-or-crop-injury-may-result.-Do not-spray-over-top-of-cotton.-Apply-1-to-1.5-pints-per-acre-when-cotton-is-at-least-8"-tall-and-emerged-weeds-do-not-exceed-2"-in-height,-add-1-pint-Surf-Ac-820-for-each-25-gals.-spray-mixture.-If-needed,-a-second-application-at-same-rate-may-be-made-one-week-or-later-after-initial-treatment.-Alternatively,-after-cotton-is-20"-tall,-make-a-single-application-of-2-to-3-pints-per-acre-following-last-cultivation,-if-emerged-weeds-are-present,-add SurfAc-820-as-directed-above.-Note:-Do-not-use-on-Pima-varieties-of-cotton.-Do-not-graze-treated-fields-or-feed-forage-from treated-areas-to-livestock.-Do-not-feed-gin-trash-to-livestock.

**PARSNIPS**

Preemergence Application: Make a single application of 1.5 to 3 pints per acre. Apply after planting but before crop emerges. Plant seed at least .5" deep.

**POTATOES**

East of Rocky Mountains: Apply 1.5 to 2.5 pints per acre on the coarser soils (sandy loams, silt loams; 1 to 2% organic matter and 2.5 to 4 pints per acre on finer soils (silts, clay loams; 2 to 5% organic matter), on soils over 5% organic matter, use 4 pints per acre and apply to emerged weeds (before potatoes emerge).

Wisconsin - Central Sands Area: Apply 1 pint per acre on sands and 2 pints per acre on loamy sands.

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Preemergence Application: Make a single application as a broadcast spray after planting but before crop emerges. Plant seed at least 2" deep. Do not spray over top of emerged potatoes. If beds are to be "dragged" and/or "hilled", apply after the final "dragging" or "hilling" operation. Apply before grasses are 2" tall and before broadleaf weeds are 6" tall, preferably just before or when weed seedlings emerge. If emerged weeds are present, add 1 pint Surf Ac 820 for each 25 gals. spray mixture. In irrigated areas, best results are obtained when application is made to moist soil, followed within 2 weeks by 1" to 2" of sprinkler irrigation (or rainfall). On powder dry soils, irrigate prior to herbicide application and follow with sprinkler irrigation to activate the herbicide.

**SORGHUM**

Preemergence Application: Select one of the following herbicide treatments for application as a tank mixture. Make a single application after planting but before crop emerges. Plant seed at least 1" deep on flat or raised seedbeds only or injury to the crop may result. Do not spray over top of emerged sorghum.

**LINURON 4L + Propazine - Southwest (Tank Mixture)**

Soil Texture	Product Per Acre	
	1 to 2% Organic Matter LINURON 4L (Pts.) + Propazine 80% (Lbs.)	2 to 4% Organic Matter LINURON 4L (Pts.) + Propazine 80% (Lbs.)
Sandy loam	5/8 to 1 + 3/8 to 5/8	1 to 1 1/2 + 5/8 to 1
Silt loam, clay loam	1 to 1 1/2 + 5/8 to 1	1 to 2 + 5/8 to 1 1/4

Replanting: Do not follow treated sorghum with any fall crop, nor with sugar beets, tobacco, vegetables or potatoes in rotation. Prior to replanting, thorough seedbed preparation including fall or spring plowing is recommended.

**LINURON 4L + "propachlor" - Great Plains (Tank Mixture)**

Soil Texture	Product Per Acre	
	1 to 3% Organic Matter LINURON 4L (Pts.) + Propachlor 65 (Lbs.)	2 to 4% Organic Matter LINURON 4L (Pts.) + Propachlor 65 (Lbs.)
Sandy loam	2/3 to 1 1/3 + 1 to 2	1 1/3 to 2 + 2 to 3
Silt loam	1 to 1 2/3 + 1 1/2 to 2 1/2	1 2/3 to 2 1/2 + 2 1/2 to 4
Clay loam	1 1/4 to 2 + 2 to 3	2 to 3 + 5

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Note: Do not graze or feed sorghum forage or silage from treated field to dairy animals. Replanting Sorghum or field corn may be replanted within 4 months; after 4 months, any crop may be planted.

Directed Postemergence Application: Make a single application of LINURON 4L as a directed spray; add 1 pint Surf Ac 820 for each 25 gals. spray mixture. If sprayer is equipped with skids, shoes or shield, apply 1 pint per acre when sorghum is 12" tall (free standing plants) and weeds are up to 2" in height; use 1 to 2 pints per acre when sorghum is 15" tall and weeds are 2" to 4" in height. If boom drops are used, apply 1 to 2 pints per acre when sorghum is at least 18" tall and weeds are 2" to 4" 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 of upper leaves or whorl or sorghum by spray or drift as such contact may cause crop injury. Note: Do not graze or feed plants to livestock within 3 months after postemergence application.

**SOYBEANS**

Preemergence Application: Select one of the following herbicide treatments and make a single application after planting but before crop emergence. LINURON 4L, alone or as a tank mixture with "Alachlor", may be applied in 25 to 40 gals. of water per acre. Plant seed at least 1.75" deep on flat or raised seedbeds only or injury to the crop may result. Injury to soybeans may result if application is made to fields with standing water or fields too wet to cultivate. Do not spray over top of emerged soybeans.

LINURON 4L Alone - if weeds have emerged, add 1 pint Surf Ac 820 for each 25 gals. spray mixture.

Soil Texture	Pints LINURON 4L Per Acre	
	1/2 to 2% Organic Matter	2 to 5% Organic Matter
Sandy loam	1 to 1 2/3	1 2/3 to 3
Silt loam	1 1/4 to 2 1/3	2 1/3 to 4
Clay loam	1 1/3 to 2 2/3	2 2/3 to 5 (Over 5% organic matter, use 6 pints)

Replanting: Soybeans or field corn may be replanted within 4 months; after 4 months, any crop may be planted.

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LINURON 4L Following "Treflan" or "Tolban" Preplant - Where "Treflan" or "Tolban" has been used as a preplant incorporated treatment (according to directions on product label), apply LINURON 4L as a separate operation using rates recommended above for LINURON 4L alone. For rotation crops, follow instructions on "Treflan" or "Tolban" label.

LINURON 4L + "chloramben" (Tank Mixture)

Soil Texture	Product Per Acre	
	1/2 to 3% Organic Matter LINURON 4L (pts.) + "chloramben" (Qts.)	3 to 6% Organic Matter LINURON 4L (pts.) + "chloramben" (qts.)
Sandy loam	2/3 to 1 1/4 + 3	1 1/4 to 2 + 3
Silt loam	1 to 1 2/3 + 3	1 2/3 to 2 1/2 + 4
Clay loam	1 1/4 to 2 + 4	2 to 3 + 5

Replanting: Soybeans or field corn may be replanted within 4 months; after 4 months, any crop may be planted.

LINURON 4L + "metolachlor" 8E (Tank Mixture)

Soil Texture	Product Per Acre	
	1/2 to 3% Organic Matter LINURON 4L (pts.) + "metolachlor" 8E (pts.)	3 to 6% Organic Matter LINURON 4L (pts.) + "metolachlor" 8E (pts.)
Sandy loam	2/3 to 1 1/4 + 1 1/4	1 1/4 to 2 + 1 1/2
Silt loam	1 to 1 2/3 + 1 1/2	1 2/3 to 2 1/2 + 2
Clay loam	1 1/4 to 2 + 2	2 to 3 + 2 to 2 1/2

Note: Do not graze or feed forage from treated areas to livestock. Replanting: Soybeans or field corn may be replanted within 4 months; for rotation crops, follow instructions on "metolachlor" 8E label.

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LINURON 4L + "Alachlor" (Tank Mixture)

Soil Texture	Product Per Acre	
	1/2 to 3% Organic Matter LINURON 4L (Pts.) + "Alachlor" (Qts.)	3 to 6% Organic Matter LINURON 4L (Pts.) + "Alachlor" (Qts.)
Sandy loam	2/3 to 1 1/4 + 3/4 to 1	1 1/4 to 2 + 1 to 1 1/2
Silt loam	1 to 1 2/3 + 1 to 1 1/2	1 2/3 to 2 1/2 + 1 1/2 to 2
Clay loam	1 1/4 to 2 + 1 1/2 to 2	2 to 3 + 2 to 2 1/2

Replanting: Soybeans or field corn may be replanted within 4 months; after 4 months, any crop may be planted.

LINURON 4L + "Prowl" (Tank Mixture) or  
LINURON 4L Following "Prowl"

Preplant - Apply tank mixture as pre-emergence treatment only; for preplant treatment, incorporate "Prowl" and then follow with LINURON 4L as a separate operation.

Soil Texture	Product Per Acre	
	1 to 3% Organic Matter LINURON 4L (Pts.) + "Prowl" (Pts.)	3 to 6% Organic Matter LINURON 4L (Pts.) + "Prowl" (Pts.)
Sandy loam	2/3 to 1 1/4 + 1 to 1 1/2	1 1/4 to 2 + 1 1/2
Silt loam	1 to 1 2/3 + 1 1/2 to 2	1 2/3 to 2 1/2 + 1 1/2 to 2
Clay loam	1 1/4 to 2 + 1 1/2 to 2	2 to 3 + 2 to 2 1/2

Replanting: Soybeans or field corn may be replanted within 4 months; other crops may be planted the following year.

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**LINURON 4L + "propachlor" - Seed Crop Only (Tank Mixture)**

Soil Texture	Product Per Acre	
	1 to 3% Organic Matter LINURON 4L (Pts.) + "propachlor" 65 (Lbs.)	3 to 6% Organic Matter LINURON 4L (Pts.) + "propachlor" 65 (Lbs.)
Sandy loam	2/3 to 1 1/4 + 1 to 2	1 1/4 to 2 + 2 to 3
Silt loam	1 to 1 2/3 + 1 1/2 to 2 1/2	1 2/3 to 2 1/2 + 2 1/2 to 4
Clay loam	1 1/4 to 2 + 2 to 3	2 to 3 + 3 to 4 3/4

**Note:** Do not graze or feed forage from treated areas to livestock; do use seed for food, feed, or oil purposes. Replanting: Soybeans, sorghum or field corn may be replanted within 4 months, after 4 months any crop may be planted.

**LINURON 4L + "Surflan" 75W or "Surflan" AS (Tank Mixture)**

oil Texture 1/2 to 3% Organic Matter	Product Per Acre		
	LINURON 4L (Pts.)	"SURFLAN" 75W OR (Lbs.)	"SURFLAN" AS (Qts.)
Sandy loam	2/3 to 1 1/4 +	2/3 to 1	or 1/2 to 3/4
Silt loam	1 to 1 2/3 +	1 to 1 1/3	or 3/4 to 1
Clay loam	1 1/4 to 2 +	1 1/3 to 1 2/3	or 1 to 1 1/4

**Note:** Do not use treated vines for feed or forage. Replant: Soybeans may be replanted within 4 months; after 4 months, any crop may be planted except do not plant root crops within 12 months.

**SOYBEANS - Minimum or No-Tillage:** LINURON 4L may be used with "Ortho" paraquat CL or "glyphosate" in tank mix combinations for pre-emergence and post-emergence control of many broadleaf weeds and grasses and for top kill or suppression of some perennials where soybeans will be planted directly into a preformed bed (stale seed bed), cover crop, or in previous crop residues such as corn or small grain stubble. Addition of "Surflan" 75W, "Surflan" AS, "metolachlor" 8E or "Alachlor" to the tank mixture improves control of grasses and volunteer small grains. Apply with ground equipment immediately before, during, or after planting but before crop emerges. Use 20 to 60 gals. of water per acre. Use the higher gallonage for dense stubble or vegetation. Maintain constant agitation.

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LINURON 4L + paraquat CL - Select the rate from the table for pre-emergence use of LINURON 4L alone and thoroughly mix in spray tank first; then add paraquat CL as directed under "paraquat Combinations" below.

LINURON + "Surflan" 75W (or AS) + paraquat CL - Select the rate from the table from pre-emergence use of LINURON 4L + "Surflan" 75W or Surflan AS tank mixture and thoroughly mix in spray tank first, then add paraquat CL as directed under "paraquat Combinations" below. Do not use treated vines for feed or forage.

LINURON 4L + "metolachlor" 8E + paraquat CL or "glyphosate" - Thoroughly mix LINURON 4L and "metolachlor" 8E in spray tank first according to directions; then add paraquat CL or "glyphosate" as directed under paraquat Combination below. Do not graze or feed forage from treated areas to livestock.

Soil Texture	Product Per Acre	
	1/2 to 3% Organic Matter LINURON 4L (Pts.) + "metolachlor" 8E (Pts.)	3 to 6% Organic Matter LINURON 4L (Pts.) + "metolachlor" 8E (Pts.)
Sandy loam	2/3 to 1 1/4 + 1 1/2	1 1/4 to 2 + 1 1/2
Silt loam	1 to 1 2/3 + 2	1 2/3 to 2 1/2 + 2
Clay loam	1 1/4 to 2 + 2 to 2 1/2	2 to 3 + 2 to 2 1/2

Linuron 4L + "Alachlor" + paraquat CL or "glyphosate" - Thoroughly mix LINURON 4L and "Alachlor" in spray tank first according to directions; then add paraquat CL or "glyphosate" as directed under paraquat Combinations or "glyphosate" Combinations below.

Soil Texture	Product Per Acre	
	1/2 to 3% Organic Matter LINURON 4L (Pts.) + "Alachlor" (Qts.)	3 to 6% Organic Matter LINURON 4L (Pts.) + "Alachlor" (Qts.)
Sandy loam	2/3 to 1 1/4 + 2	1 1/4 to 2 + 2 1/2
Silt loam	1 to 1 2/3 + 2 1/2	1 2/3 to 2 1/2 + 3
Clay loam	1 1/4 to 2 + 2 1/2	2 to 3 + 3

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**Paraquat Combinations** - Select and tank mix one of the above treatments; then add 1 to 2 pints paraquat CL per acre. Use the higher rate for weeds 4" to 6" tall. As the last ingredient, add 1/2 pint Surf Ac 820 per 100 gals. of spray mixture. Maintain constant agitation.

**"Glyphosate" Combinations** - Select and tank mix one of the above treatments. As last ingredient, add 1 1/2 quarts of "glyphosate" per acre for control of emerged annual weeds or 2 to 4 quarts per acre for control of emerged perennial and annual weeds.

**SOYBEANS - Directed Post-emergence Application:** Apply LINURON 4L alone or as a tank mixture with 24-DB or "Dynamyte3, as a directed spray to cover weed foliage with minimum contact of the soybean plant. Do not spray higher than 3" on the soybean stem or crop injury may result. Do not spray over top of soybean plants.

For broadcast application, use a single flood-type spray nozzle ("K" series or equivalent) per middle mounted on an oiling shoe or gauge wheel. For band treatment, use two nozzles per row mounted on oiling shoes or gauge wheels, one on each side of row. To avoid spray drift, which may cause crop injury, do not exceed nozzle pressure of 25 psi nor use nozzle tips smaller than 8002 T-jet (or equivalent) and do not spray under windy conditions. For best results, use a pre-emergence treatment (such as LINURON 4L) or cultivation to control early weed growth and to increase the differential between height of soybeans and weeds. NOTE: Do not use on soils with less than 1/2% organic matter. Do not apply within 60 days of harvest.

Do not feed soybean forage or hay to livestock from fields treated post-emergence. Harvested soybeans may be used for food, feed, or oil purposes.

**LINURON 4L Alone:** For soybeans at least 8" high and when weeds do not exceed 2" in height, apply 1/2 to 1 pint per acre. Make a second application at same rate if new flush of weeds occurs.

For soybeans at least 12" high and when weeds do not exceed 4" in height, make a single application of 1 to 2 pints per acre. Alternatively, make a split application of 1 pint per acre followed by a second application at the same rate after 1 week or later.

Add 1 pint Surf Ac 820 for each 25 gals. spray mixture. Do not apply more than 2 pints LINURON 4L per acre per season for post-emergence treatment.

**LINURON 4L + 2,4-DB (Tank Mixture):** For soybeans at least 8" high and when weeds do not exceed 4" in height, apply 1 pint LINURON 4L plus 1/5 lb. 2,4-DB (13 fl. oz. "Butyrac" 200 or 1 pt. "Butoxone") per acre. A second application may be made if needed, but do not make more than 2 applications per season.

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**LINURON 4L + "Dynamyte" 3 (Tank Mixture):** For soybeans at least 8" high and when weeds do not exceed 3" in height apply 1 pint LINURON 4L plus 2 quarts of "Dynamyte 3" per acre. Add 1 pint Surf Ac 820 for each 25 gals. spray mixture. A second application may be made if needed, but do not make more than 2 applications per season. Do not apply after soybeans begin to bloom.

#### **WHEAT (WINTER)**

(Drill Planted) - Idaho, Oregon, Washington: Plant seed at least 1" deep; when seed is planted during abnormally dry weather, treat after soil has been settled by rainfall or irrigation. Apply as a broadcast spray prior to emergence of wheat or to semi-dormant wheat plants. Application to actively growing plants may result in temporary yellowing (chlorosis) of wheat. Winter sensitive varieties such as McDermid and Hyslop may be less tolerant of "LINURON 4L than winter hardy varieties such as Gaines and Nugaines.

Crop injury may result where severe winter stress, disease or insect damage follows application, and also from failure to observe the following: Do not use on sand or loamy sand soils, nor on gravelly or sandy loams low in organic matter (less than 1%), nor on thinly covered or exposed sub-soil areas (clay knobs); do not treat wheat planted less than 1" deep; do not treat wheat where winter climatic conditions have caused "heaving" of plants; do not treat wheat plants lacking in vigor due to poor emergence, insect damage, disease, high alkalinity or other causes; do not apply after wheat has reached the "boot" stage of maturity nor when maximum daily temperature exceeds 60 F; do not use LINURON 4L with surfactants nor nitrogen fertilizer or solution after wheat has emerged.

Do not graze or feed immature plants to livestock. Do not replant treated areas to any rotation crop within 6 months after last application as injury to subsequent crops may result.

**West of Cascade Range:** Make a single application of 2 to 3 1/2 pints per acre as soon as possible after planting. If wheat and weeds have emerged, apply before weeds are 3" to 4" tall.

**East of Cascade Range:** Make a single application of LINURON 4L alone or, where recommended below, as a tank mixture with bromoxynil. If fall-planted wheat fails to grow due to winter kill or adverse growing conditions after fall treatment, allow 4 months before planting spring wheat. Do not re-treat field with a second application during the same crop year as injury to the crop may result.

#### **Where Average Annual Rainfall Exceeds 16 Inches:**

**Fall Treatment:** For early fall-planted wheat (seeded before September 10) apply 1 to 1 1/2 pints LINURON 4L per acre either before or after wheat has emerged but before weeds are 2" tall. Treatment after October 1 generally gives best results. Do not apply after soil freezes in the fall.

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**Spring Treatment:** Apply 1 to 1 1/4 pints LINURON 4L per acre as soon as wheat starts to grow in the spring. Application after weeds have reached a height of 2" may give poor results.

**Where Average annual Rainfall is 10 to 16 Inches:**

**Fall or Winter Treatment:** After wheat is planted in the fall, apply 1 to 1 1/2 pints LINURON 4L per acre when sufficient moisture is available to germinate wheat seed. Apply either before or after wheat has emerged, but before weeds are 2" tall and before the soil freezes. Application later than March 1 may give poor results.

**Where Average Annual Rainfall is 10 to 20 Inches:**

**Fall or Spring Treatment:** Apply 1/2 pint LINURON 4L plus 1/4 lb. bromoxynil per acre as a tank mixture, either in the fall after wheat has emerged but before soil freezes or in the spring as soon as soil thaws; apply before weeds are 2" tall or across.

#### **NON-CROP WEED CONTROL**

For short-term control of annual weeds on non-cropland areas such as roadsides and fence rows - apply 2 to 6 pints LINURON 4L per acre in 40 to 100 gals. of water. For best results, apply shortly before weed growth begins or at early seedlings stage of growth. For control of established annual weeds, add Surf Ac 820 at rate of 2 qts. per 100 gals. of spray mixture and apply as a thorough coverage spray during periods when daily temperatures exceed 70 F, and before weed growth exceeds 8" in height.

#### **STORAGE AND DISPOSAL**

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

#### **STORAGE INSTRUCTIONS**

Storage should be under lock and key and secure from access by unauthorized persons and children. Storage should be in a cool dry area away from any heat or ignition source. Avoid storage at high temperatures. Do not stack over 2 pallets high. Move containers by handles or cases. Do not move containers from one area to another unless they are securely sealed. Keep container tightly sealed when not in use. Keep away from any puncture source. Avoid storage near water supplies, food, feed and fertilizer to avoid contamination. Avoid contamination with acids or alkalis. Store in original containers only. If the contents are leaking or material is spilled follow these steps:

1. Contain spill, absorb with a material such as saw dust, clay granules or dirt.
2. Collect and place in suitable containers for disposal.
3. Wash area with water and soap to remove remaining pesticide.
4. Follow washing with clean water rinse.
5. Place a leaking container in a plastic tub and transfer contents as soon as possible to an empty original container.
6. Do not allow run off to enter sewer or contaminate water supplies.
7. Dispose of waste as indicated below.

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**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:**

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**WARRANTY - CONDITION OF SALE:**

OUR RECOMMENDATIONS 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. Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

In no case shall 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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