

5905-90

07/28/2008

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U.S. ENVIRONMENTAL PROTECTION
AGENCYOffice of Pesticide Programs
Registration Division (7505P)
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

EPA Reg. Number:

5905-90

Date of Issuance:

JUL 28 2008

NOTICE OF PESTICIDE:

☐ Registration☒ Reregistration

(under FIFRA, as amended)

Term of Issuance:

Name of Pesticide Product:

2,4-D LV Ester 4

Name and Address of Registrant (include ZIP Code):

Helena Chemical Company
225 Schilling Boulevard, Suite 300
Collierville, Tennessee 38017

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is reregistered in accordance with FIFRA sec. 4(g)(2)(C) provided that you:

1) Submit and/or cite all data required for registration/reregistration review of your product when the Agency requires all registrants of similar products to submit data.

2) To the label add "Use of this product in certain portions of California, Oregon, and Washington is subject to the January 22, 2004 Order for injunctive relief in Washington Toxics Coalition, et. al. v. EP, C01-0132C, (W.D. WA) For further information, please refer to <http://www.epa.gov/espp/wtc/>."

Signature of Approving Official:

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

Date:

JUL 28 2008

3) Based on toxicity ranking per the acute toxicity review, the First Aid statements should be placed on the label in the following order:

“IF SWALLOWED:...
IF ON SKIN OR CLOTHING:...
IF IN EYES:...
IF INHALED:...”

4) Per the acute toxicity review, the Hazards to Humans and Domestic Animals must be revised to read:

“CAUTION

Harmful if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin, or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.”

5) Per the acute toxicity review and the RED, the PPE section must be revised to read:

“Some materials that are chemical-resistant to this product are made of barrier laminate, butyl rubber, nitrile rubber, or viton. If you want more options, follow the instructions for category F on an EPA chemical-resistance category selection chart.

All mixers, loaders, applicators, flaggers, and other handlers must wear:

- long sleeved shirt and long pants,
- shoes and socks, plus
- chemical-resistant gloves (except for pilots), and
- chemical-resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.

See engineering controls for additional requirements.”

6) The text “except as noted on appropriate labels” must be deleted from the second sentence in the Environmental Hazards section of the label.

7) The text “Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours” appearing under the Directions for Use heading must be moved to the Agricultural Use Requirements box and replace the text “Do not enter or allow people or pets to enter the treated area until sprays have dried” that incorrectly appears in the Agricultural Use Requirements box.

The duplicate early entry PPE text appearing at the bottom of the second page of the label must be deleted.

8) Per the product chemistry review, the following revisions are needed to the storage and disposal section of the label:

- Add the subheading “Pesticide Storage” after the text “Do not contaminate water, food, or feed

by storage or disposal.”

-The text “Protect from freezing. If stored below 32°F and crystals form, warm to 72°F for 24 hours, periodically rolling drum to reconstitute” should be moved to the Pesticide Storage paragraph.

-Text should be added to identify container as refillable or nonrefillable.

-The heading “Container Disposal” should be revised to read “Container Handling.”

9) Reference to chemigation must be deleted from the first sentence of the Spray Drift Management section because the label prohibits application through any type of irrigation system.

10) The following revisions are needed to the directions for use:

Cereal Grain:

The directions for use to control wild garlic and wild onion in wheat and barley should be clarified to state that this use is only allowed as a postemergence treatment. Alternatively, the application rate could be revised to 0.5 lbs ae per acre as allowed for preharvest use. Currently the labeled rate of up to 2 pints (.94 lbs ae) per acre exceeds that allowable rate for preharvest use.

The rate of up to 3 quarts (2.82 lbs ae) per acre appearing in the directions to control wild garlic in stubble grain exceeds the allowable rate of 2.0 lbs ae per acre per application for crop stubble on idle land. The label must be revised.

Corn (field, pop and sweet):

The rate of up to 3 quarts (2.82 lbs ae) per acre appearing in the postharvest use directions exceeds the allowable rate of 2.0 lbs ae per acre per application for crop stubble on idle land. The label must be revised.

Sorghum:

Per Appendix A and the label table, 2,4-D is only registered for postemergence use. The label only contains directions for preplant or preemergent use. The label must be revised.

Soybeans:

Per the RED, the text “The maximum rate per crop cycle is 1.0 lb ae per acre” must be added to the label.

Grasses in Conservation Reserve Program Areas:

Per the RED, the following restrictions must be added to the CRP section of the label and any conflicting text must be removed:

“For susceptible annual and biennial broadleaf weeds: Do not apply more than 1.0 lb ae per acre per application.

For moderately susceptible biennial and perennial broadleaf weeds and difficult to control weeds and woody plants: Do not apply more than 2.0 lbs ae per acre per application.

Maximum of two applications per year.

Do not apply more than 4.0 lbs ae per acre per year.

The minimum retreatment interval is 30 days.”

Fallowland:

Change "Plant only labeled crops within 29 days after application" be revised to read "Only labeled crops can be planted within 30 days of treatment."

Non-Cropland:

Rates up to 8 pints of product (3.76 lbs ae) per acre per application for control of difficult to control broadleaf weeds must be revised to 2.0 lbs ae per acre per Page 141 of the RED. The 4.0 lb ae per acre per application use rate is only allowed for treatment of woody plants in noncropland sites.

11) Delete "Other Non-Crop Areas" from the Non-Cropland section and "other grass areas" from the ornamental turf areas section.

12) To the Warranty section add "to the extent consistent with applicable law" in front of "The Company makes no other" and "the exclusive remedy".

13) Move the Agricultural Use Requirements and Non-Agricultural Use Requirements boxes from the Precautionary Statements section to the Directions for Use section.

14) Move the following text directly below the heading 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 maybe the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation."

15) When final printed labels are prepared assure that the Signal Word CAUTION and Keep out of the Reach of Children meet the type size required by 40 CFR 156.60(b)(1).

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Submit 1 copy of the final printed label for the record.

If you have any questions please call Erik Kraft at 703-308-9358 or email at Kraft.Erik@epa.gov.

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SPECIMEN LABEL

2,4-D LV ESTER 4

ACTIVE INGREDIENTS: (BY WT.)

*2-Ethylhexyl Ester of 2,4-Dichlorophenoxyacetic Acid 65.5%

INERT INGREDIENTS: 34.5%

TOTAL 100.0%

*2,4-Dichlorophenoxyacetic Acid equivalent 43.5% - 3.76 lbs. per gallon.

Isomer specific by AOAC method.

Contains Petroleum Distillates.

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS

CAUTION

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful if swallowed. Avoid breathing spray mist. Avoid contact with skin, eyes and clothing. May produce skin sensitization reaction in certain individuals.

FIRST AID

IF SWALLOWED: • Call a poison control center or doctor immediately for treatment advice.
• Do not induce vomiting unless told to do so by a poison control center or doctor.
• Do not give any liquid to the person.
• Do not give anything to an unconscious or convulsing person.

IF ON SKIN OR CLOTHING: • Take off contaminated clothing.
• Rinse skin immediately with plenty of water for 15-20 minutes.
• Call a poison control center or doctor immediately for treatment advice.

IF INHALED: • Move victim to fresh air.
• If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

IF IN EYES: • Hold eyelid open and rinse slowly and gently with water for 15-20 minutes.
• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
• Call a poison control center or doctor immediately for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of emergency, call ChemTrec at 1-800-424-9300.

NOTE TO PHYSICIAN

Contains petroleum distillate - vomiting may cause aspiration pneumonia.

See Inside Panel for Additional Precautionary Statements.

EPA REG. NO. 5905-90

EPA EST. NO.

NET CONTENTS:

MANUFACTURED FOR
HELENA CHEMICAL COMPANY
225 SCHILLING BOULEVARD, SUITE 300
COLLIERVILLE, TENNESSEE 38017

PERSONAL PROTECTIVE EQUIPMENT (PPE)

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

All mixers, loaders, applicators, flaggers, and other handlers must wear:

- long-sleeved shirt and long pants,
- shoes and socks, plus
- chemical resistant gloves, such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber, or Viton when applying postharvest dips or sprays to citrus, applying with any handheld nozzle or equipment, mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.
- Chemical resistant apron when applying postharvest dips or sprays to citrus, mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate

See engineering controls for additional requirements.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

ACCEPTED
with COMMENTS
in EPA Letter Dated

JUL 28 2008

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

5905-90

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USER SAFETY REQUIREMENTS

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

ENGINEERING CONTROL STATEMENTS

Pilots must use an enclosed cockpit that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(6)].

USER SAFETY RECOMMENDATIONS

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water.

Users should 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 product may be toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark except as noted on appropriate labels. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

GROUNDWATER CONTAMINATION

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

CHEMIGATION PROHIBITION

Do not apply this product through any type of irrigation system.

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 re-entry interval. 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 people (or pets) to enter the treated area until sprays have dried.

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 water-proof material
- Shoes plus socks

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. Keep children and pets out of treated area until sprays have dried.

DIRECTIONS FOR USE

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls

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- Chemical-resistant gloves made of any water-proof material,
- Shoes plus socks

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

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size

When applying sprays that contain 2,4-D as the sole active ingredient, or when applying sprays that contain 2,4-D mixed with active ingredients that require a Coarse or coarser spray, apply only as a Coarse or coarser spray (ASAE standard 572) or volume mean diameter of 385 microns or greater for spinning atomizer nozzles.

When applying sprays that contain 2,4-D mixed with other active ingredients that require a Medium or more fine spray, apply only as a Medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Wind Speed

Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition and there are not sensitive areas (including, but not limited to, residential areas, bodies of water, known habitat for nontarget species, nontarget crops) within 250 feet downwind. If applying a Medium spray, leave one swath unsprayed at the downwind edge of the treated field.

Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if: a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

Susceptible Plants

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption. Susceptible crops include, but are not limited to, cotton, okra, flowers, grapes (in growing stage), fruit trees (foliage), soybeans (vegetable stage), ornamentals, sunflowers, tomatoes, beans, and other vegetables, or tobacco. Small amounts of spray drift that might not be visible may injure susceptible broadleaf plants.

Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of 2,4-D herbicides. Where states have more stringent regulations, they must be observed.

Equipment

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.

Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety. This requirement does not apply to forestry or rights-of-way applications.

When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this by adjusting the path of the aircraft upwind.

Do not apply with a nozzle height greater than 4 feet above the crop canopy.

2,4-D esters may volatilize during conditions of low humidity and high temperatures. Do not apply during conditions of low humidity and high temperatures.

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.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal. Protect from freezing. If stored below 32°F and crystals form, warm to 72°F for 24 hours, periodically rolling drum to reconstitute.

Do not use, pour, spill, or store near heat or open flame.

PESTICIDE DISPOSAL:

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL:

Metal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Plastic: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. This product can reach groundwater as a result of mixing and loading. To minimize groundwater contamination from spills during mixing, loading, and cleaning of equipment, take the following steps:

MIXING AND LOADING:

The mixing and loading of spray mixtures into the spray equipment must be carried out on an impervious pad (i.e., concrete slab, plastic sheeting) large enough to catch any spilled material. If spills occur, contain the spill by using an absorbent material (e.g., sand, earth, or synthetic absorbent). Dispose of the contaminated absorbent material by placing in a plastic bag and following disposal instructions on this label.

Triple rinse empty containers and add the rinsate to the mixing tank.

Cleaning of Equipment: When cleaning equipment, do not pour the washwater on the ground; spray or drain over a large area away from wells and other water sources.

OBSERVE THESE PRECAUTIONS

Avoid application of spray or drift of spray to desirable plants, as this product may injure cotton, tomatoes, beans, peas, most vegetables, ornamentals, grapes, or others. Even minute quantities of the spray may cause severe injury. Accordingly application by airplanes should be made only when there is no hazard from drift. All sprays are likely to drift under certain conditions. The finer the spray, the greater the likelihood of drift effect. Coarse sprays are less likely to drift.

Use only amount needed. **DO NOT OVERDOSE.**

Since vapors of the ester in this product may injure susceptible plants in the vicinity, use only where there is no danger from such vaporization.

Be sure that airplane spraying equipment has a quick-acting, effective cutoff valve, and is used from the lowest possible altitude by an aircraft operator experienced in the application of herbicides.

Do not use same equipment for other purposes. If necessary to use sprayer for any other spraying, be sure to thoroughly clean all equipment with a suitable chemical cleaner. (1 qt. household ammonia in 20 to 25 gals. water - let stand overnight, then rinse thoroughly with water).

Do not store or place near fertilizers, seeds, plant insecticides, or fungicides.

Excessive amounts of 2,4-D LV Ester 4 in the soil may temporarily inhibit seed germination or plant growth.

A SELECTIVE, EMULSIFIABLE OR OIL-MISCIBLE HERBICIDE**FOLLOW DIRECTIONS CAREFULLY**

Always mix with water or oil (heater oil or diesel fuel recommended) so as to apply the recommended amount of 2,4-D LV Ester 4 per acre in the amount of material necessary to cover an acre with the spraying equipment used.

Apply 2,4-D sprays at low pressures of approximately 30 to 50 pounds with nozzles adjusted to give a coarse, wetting, fan-shaped spray. For airplane application, adjust nozzles to produce a coarse, wetting spray of large droplets.

For best results, apply 2,4-D sprays when soil and climatic conditions are conducive to rapid growth. This product may be applied when temperatures range from 50°F to 95°F; results may be unsatisfactory below 65°F and above 95°F. Sprays applied under adverse conditions (abnormally cool or hot and dry weather or when weeds are near maturity) should contain maximum recommended dosage. Under such conditions, control results may not always be entirely satisfactory.

Recommendations given are general. Because of varietal and local conditions, consult Agricultural Experiment Station or Extension Service weed specialists.

AMOUNTS OF SPRAY MIXTURE TO APPLY

AIRPLANE APPLICATION - Water - Dilute recommended amount of 2,4-D LV Ester 4 in 1-5 gallons of water and apply per acre. **Oil -** Dilute recommended amount in 1 gallon of heater oil or diesel fuel and apply per acre.

GROUND SPRAYERS - Dilute recommended amount in 8 to 20 or more gallons of water and apply per acre. The amount of water required will depend upon the crop and type of equipment used. Thorough agitation of spray mixture is necessary for best results.

CONVERSION TABLE

2,4-D Acid

Required 1 lb. 3/4 lb. 1/2 lb. 3/8 lb. 1/4 lb. 1/8 lb.

Amount 2,4-D LV

Ester 4 to use 2 pts. 1 1/2 pts. 1 pt. 3/4 pt. 1/2 pt. 1/4 pt.

TO CONTROL WEEDS IN RESISTANT CROPS

The following dosages are suggested on growing crops for the control of susceptible weeds such as mustard, sunflower, lambsquarters, pigweed, ragweed, docks, cocklebur, sow thistle, marsh elder, and many other species. Perennial weeds are best killed when in bud or in early bloom stage of growth.

SPECIFIC USE DIRECTIONS

CEREAL GRAINS (Not Underseeded with a Legume)

Barley, Rye, Wheat

WEEDS IN CROPS	AMOUNT OF 2,4-D LV ESTER 4 PER ACRE* (Average Conditions)	AMOUNT OF 2,4-D LV ESTER 4 PER ACRE (Dry Conditions as in Western States**)	DIRECTIONS FOR USE
Annual and biennial broadleaf weeds	1/2 to 1 pint	1 to 2 pints	Do not apply 2,4-D LV ESTER 4 to grain in the seedling stage. Spray when weeds are small after grain begins tillering but before boot stage (usually 4 to 8 inches tall). Do not apply before the tiller stage nor from early boot through milk stage. To control large weeds that will interfere with harvest or to suppress perennial weeds, preharvest treatment can be applied when the grain is in the dough stage. Best results will be obtained when soil moisture is adequate for plant growth and weeds are growing well.
Perennial broadleaf Weeds	1 pint	1-1/4 to 2 pints	
Preharvest	1 pint		
For Control of Wild Garlic and Wild Onion in Wheat and Barley	1 to 2 pints		Since these rates may injure the crop, do not use unless possible crop damage is acceptable. For the higher rates on spring wheat and barley, consult your local State Agricultural Experiment Station or Extension Service weed specialist for recommendations or suggestions to fit local conditions.
For Control of Wild Garlic in Stubble Grain	2 to 3 quarts		Following the harvest of small grains, wild garlic often produces new fall growth. Apply in 20 to 40 gallons of water per acre. This is a useful practice as one part of wild garlic control program. Do not plant any crop for three months after treatment. Do not forage for 14 days following applications.

* If band treatment is used, base the dosage rate on the actual area sprayed.

** Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming

RESTRICTIONS AND LIMITATIONS FOR USE ON CEREAL GRAINS (Not Underseeded with a Legume) (Barley, Rye, Wheat)

- The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the grain damage risk.
- Apply 2,4-D LV ESTER 4 in sufficient water for adequate coverage.
- Do not permit dairy animals or meat animals being finished for slaughter to forage treated grain fields within 2 weeks after treatment.
- Do not feed treated straw to livestock
- **Postemergence:**
 - Limited to one application per crop cycle.
 - Maximum of 32 ounces per acre per application.
- **Preharvest:**
 - Limited to one application to crop cycle.
 - Maximum of 17 ounces per acre per application
- Preharvest interval (PHI) is 14 days.
- Limited to 60 ounces per acre per crop cycle

CEREAL GRAINS (Not Underseeded with a Legume)

Oats

WEEDS IN CROPS	AMOUNT OF 2,4-D LV ESTER 4 PER ACRE* (Average Conditions)	DIRECTIONS FOR USE
Spring Planted Oats	½ pints	Apply in sufficient water to give good coverage. Apply after the fully tillered stage, except during the boot to dough stage. Note: Oats are less tolerant to 2,4-D than wheat or barley and more likely to be injured.
Fall Planted Oats	½ to 1-1/4 pints	Apply after full tillering but before early boot stage. Some difficult weeds may require higher rates of ¾ to 1-1/4 pints per acre for maximum control, but injury may result. Do not spray during or immediately following cold weather. Note: Oats are less tolerant to 2,4-D than wheat or barley and more likely to be injured.
Pre-Harvest	1 pint	Apply with recommended amount of water per acre when grains are in the hard dough stage to control large weeds that may interfere with harvest. Best results will be obtained when soil moisture is sufficient to cause succulent weed growth.

* If band treatment is used, base the dosage rate on the actual area sprayed.

RESTRICTIONS AND LIMITATIONS FOR USE ON CEREAL GRAINS (Not Underseeded with a Legume) (Oats)

- The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the grain damage risk.
- Apply 2,4-D LV ESTER 4 in sufficient water for adequate coverage.
- Do not permit dairy animals or meat animals being finished for slaughter to forage treated grain fields within 2 weeks after treatment.
- Do not feed treated straw to livestock.
- **Postemergence:**
 - Limited to one application per crop cycle.
 - Maximum of 31 ounces per acre per application.
- **Preharvest:**
 - Limited to one application to crop cycle.
 - Maximum of 17 ounces per acre per application
- Preharvest interval (PHI) is 14 days.
- Limited to 60 ounces per acre per crop cycle

CORN (Field and Pop)

WEEDS IN CROPS	AMOUNT OF 2,4-D LV ESTER 4 PER ACRE	DIRECTIONS FOR USE
Preplant or Preemergence	1 to 2 pints	Apply product from 3 to 5 days after planting but before corn emerges. Do not

		use on very light, sandy soils. Use the higher rates on heavy soils. Plant corn as deep as practical.
Postemergence	<p>½ pints</p> <p>In Dry Conditions (as in Western States*) Use ½ to ¾ pints</p>	<p>Best results are usually obtained when weeds are small and corn is 4 to 18 inches tall. When corn is over 8 inches tall, use drop nozzles. Do not apply from tasseling to dough stage. If corn is growing rapidly and temperature and soil moisture content is high, use ½ pint per acre rate to reduce possibility of crop damage. Delay cultivation for 8 to 10 days to prevent stalk breakage due to temporary brittleness caused by 2,4-D. Application rates of up to 1 pint per acre may be used to control some hard to control weeds. However, the possibility of injury to the corn is increased.</p> <p>If corn is over 8 inches tall, use drop nozzles to keep spray off corn foliage as much as possible. Do not use with oil, atrazine, or other adjuvants. Since the tolerance to 2,4-D of individual hybrids varies, consult your local Extension Service, Agricultural Experiment Station, or University Weed Specialist for information.</p>
Preharvest	1 to 2 pints	After the hard dough or denting stage, apply 1 to 2 pints per acre by air or ground equipment to suppress perennial weeds, decrease weed seed production, and control tall weeds such as bindweed, cocklebur, dogbane, jimsonweed, ragweed, sunflower, velvetleaf, and vines that interfere with harvesting.
Postharvest	2 to 3 quarts	Following the harvest of corn, wild garlic often produces new fall growth. This should be sprayed with 2 to 3 quarts of product per acre. This is a useful practice as one part of a wild garlic control program. Do not plant any crop for three months after treatment.

* Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming

RESTRICTIONS AND LIMITATIONS FOR USE ON CORN (Field and Pop)

- Preharvest Interval (PHI) is 7 days.
- Do not use treated crop as fodder for 7 days following application.
- Maximum Use rate per acre per crop cycle is 100 ounces.
- Preplant or Preemergence:
 - Limited to one application per crop cycle.
 - Maximum of 34 ounces per acre per application.
- Postemergence:
 - Limited to one application per crop cycle.
 - Maximum of 17 ounces per acre per application.
- Preharvest:
 - Limited to one application per crop cycle.
 - Maximum of 51 ounces per acre per application.

CORN (Sweet)

WEEDS IN CROPS	AMOUNT OF 2,4-D LV ESTER 4	DIRECTIONS FOR USE
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	PER ACRE	
Preplant or Preemergence	1 to 2 pints	Apply product from 3 to 5 days after planting but before corn emerges. Do not use on very light, sandy soils. Use the higher rates on heavy soils. Plant corn as deep as practical.
Postemergence	<p>½ pints</p> <p>In Dry Conditions (as in Western States*) Use ½ to ¾ pints</p>	<p>Best results are usually obtained when weeds are small and corn is 4 to 18 inches tall. When corn is over 8 inches tall, use drop nozzles. Do not apply from tasseling to dough stage. If corn is growing rapidly and temperature and soil moisture content is high, use ½ pint per acre rate to reduce possibility of crop damage. Delay cultivation for 8 to 10 days to prevent stalk breakage due to temporary brittleness caused by 2,4-D. Application rates of up to 1 pint per acre may be used to control some hard to control weeds. However, the possibility of injury to the corn is increased.</p> <p>If corn is over 8 inches tall, use drop nozzles to keep spray off corn foliage as much as possible. Do not use with oil, atrazine, or other adjuvants. Since the tolerance to 2,4-D of individual hybrids varies, consult your local Extension Service, Agricultural Experiment Station, or University Weed Specialist for information.</p>
Postharvest	2 to 3 quarts	Following the harvest of corn, wild garlic often produces new fall growth. This should be sprayed with 2 to 3 quarts of product per acre. This is a useful practice as one part of a wild garlic control program. Do not plant any crop for three months after treatment.

* Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming

RESTRICTIONS AND LIMITATIONS FOR USE ON CORN (Sweet)

- Preharvest Interval (PHI) is 45 days.
- Do not use treated crop as fodder for 7 days following application.
- Minimum of 21 days between applications.
- Maximum Use rate per acre per crop cycle is 51 ounces.
- Preplant or Preemergence:
 - Limited to one pre-plant or preemergence application per crop cycle.
 - Maximum of 34 ounces per acre per application.
- Postemergence:
 - Limited to one postemergence application per crop cycle.
 - Maximum of 17 ounces per acre per application.

SORGHUM (Milo)

WEEDS IN CROPS	AMOUNT OF 2,4-D LV ESTER 4 PER ACRE	DIRECTIONS FOR USE
Preplant or Preemergence	<p>½ pint</p> <p>In Dry Conditions (as in Western States*) Use ½ to ¾ pints</p>	Apply to sorghum when crop is 4 to 12 inches high with secondary roots well established. Use drop nozzles when crop is over 10 inches high. Do not apply from flowering to dough stage. Rates of up to 1 pint per acre may be used to control some

hard to control weeds. However, the chance of crop injury is increased with the higher rates. Do not use with oil. Use lower rate if conditions of high temperature and high soil moisture exist. Varieties vary in tolerance to 2,4-D and some hybrids are quite sensitive. Spray only varieties known to be tolerant to 2,4-D. Contact seed company or your Agricultural Experiment Station or Extension Service weed specialists for this information.

* Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming

RESTRICTIONS AND LIMITATIONS FOR USE ON SORGHUM (Milo)

- Preharvest Interval (PHI) is 30 days.
- Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.
- Limited to one application per crop cycle.
- Maximum of 17 ounces per acre per application.

SOYBEANS (Preplant Only)

Weeds in Crop	Amount of 2,4-D LV ESTER 4 per acre	Directions for Use
Pre-plant burndown (Before 7 days of planting)	¾ to 1 pint	For use in crop residue management systems: For best weed control, apply to postemergent weeds when small, actively growing, and free of stress caused by extremes in climatic conditions, diseases, or insect damage. The response of individual weed species is variable. Consult your local county agent or state Agricultural Extension Service or crop consultant for advice. Use the higher rate on larger weeds when perennials are present.
Pre-plant burndown (Before 15 days of planting)	1 to 2 pints	<p>Apply in 2 or more gallons of water per acre in aerial equipment and 10 or more gallons of water per acre in ground equipment.</p> <p>After applying, plant soybean seed as deep as practical or at least 1-1/2 to 2 inches deep. Adjust the planter press wheel, if necessary, to ensure that planted seed is completely covered.</p> <p>If desired, this product may be applied preplant to soybeans in tank mixtures with other herbicides such as Poast®, Poast® Plus, Roundup®, Roundup® D-Pak, Honcho®, Gramoxone® Extra, Prowl®, Pursuit® Plus, Scepter® 70DG, Squadron®, and others that are registered for preplant soybean use.</p> <p>Compatible crop oil concentrates, nonionic surfactants, and fluid fertilizers approved for use on growing crops may increase the herbicidal effectiveness of 2,4-D on certain weeds and may be added to the spray tank. Read and follow all directions and precautions on this label and on all labels of adjuvants or fertilizers mixed with this product.</p>

		NOTE: Unacceptable injury to soybeans planted in treated fields may occur. Whether or not soybean injury occurs and the extent of the injury will depend on weather (temperature and rainfall) from herbicide application until soybean emergence and agronomic factors such as the amount of weed vegetation and previous crop residue present. Injury is more likely under cool, rainy conditions and where there is less weed vegetation and crop residue present.
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RESTRICTIONS AND LIMITATIONS FOR USE IN SOYBEANS (PREPLANT)

- Preplant:
 - Preplant for Two (2) applications per crop cycle
 - Limited to 2 preplant applications per crop cycle.
 - Maximum of 17 ounces per acre per preplant application.
 - Apply not less than 7 days prior to planting soybeans.
 - Preplant for Single (1) application per crop cycle
 - Limited to 1 preplant application per crop cycle.
 - Maximum of 34 ounces per acre per preplant application.
 - Apply not less than 15 days prior to planting soybeans
- Do not apply 2,4-D LV ESTER 4 when weather conditions such as temperature, air inversions, or wind favor drift from treated areas to susceptible plants.
- Do not apply 2,4-D LV ESTER 4 prior to planting soybeans if you are not prepared to accept the results of soybean injury including possible loss of stand and yield.
- Do not replant fields treated with 2,4-D LV ESTER 4 in the same growing season with crops other than those labeled for 2, 4-D pre-plant use.
- Do not mow or cultivate weeds prior to treating with 2,4-D LV ESTER 4 as poor control may result.
- Do not cut for feed treated hay, forage, or fodder or graze treated soybeans to livestock.
- Do not apply 2,4-D LV ESTER 4 pre-plant to soybeans in fields having a coarse-textured soil where the percent organic matter is <1.0%.
- Only one application of 2,4-D LV ESTER 4 may be made prior to planting soybeans per growing season.
- Do not feed treated hay, forage or fodder. Livestock should be restricted from feeding/grazing of treated cover crops.
- Not currently registered for use In California.

RED POTATOES (Grown for Fresh Market)

USE IN CROPS	AMOUNT OF 2,4-D LV ESTER 4 PER ACRE	DIRECTIONS FOR USE
Properly timed applications of this product generally enhance red color, aid in storage retention of red color, improve skin appearance, increase tuber set, and improve tuber size uniformity (fewer jumbos). Crop response may vary depending on variety, stress factors, and local conditions. Consult with Agricultural Extension Service and other qualified crop advisors for local treatment.	Apply 2.4 ounces of this product per acre	Apply in 5 to 25 gallons of water using ground or aerial equipment. The specific spray volume selected should be sufficient for good coverage of plants. Make first application when potatoes are in the pre-bud stage (about 7 to 10 inches high) and make a second application about 10 to 14 days later. Do not exceed two applications per crop. Do not harvest within 45 days of application. Uneven application or mixture with other pesticides and additives may increase the risk of crop injury.

RESTRICTIONS AND LIMITATIONS FOR USE ON RED POTATOES (Grown for Fresh Market):

- Only for use on potatoes intended for fresh market.
- The preharvest interval (PHI) is 45 days.

- Postemergence:
 - Limited to 2 applications per crop cycle.
 - Maximum of 2.4 ounces per acre per application.
 - Minimum of 10 days between applications.

GRASSES IN CONSERVATION RESERVE PROGRAM AREAS

Weeds in Crop	Amount of 2,4-D LV ESTER 4 per acre	Directions for Use
Annual broadleaf weeds.	½ to 1 pint	Apply when weeds are small and actively growing. Use higher rates on older weeds. Excessive injury may result if applied to young grasses with fewer than 6 leaves or prior to grasses being well established
Biennial and perennial broadleaf weeds in established grasses	2 to 4 pints	Apply to actively growing weeds. Treat when biennial weeds are in the seedling to rosette stage and before flower stalks become apparent. Treat perennial weeds in the bud to bloom stage.

RESTRICTIONS AND LIMITATIONS FOR USE ON GRASSES IN CONSERVATION RESERVE PROGRAM AREAS

- Use at least 2 gallons of water per acre by air and 5 gallons of water per acre by ground.
- Do not harvest or graze treated Conservation Reserve Program areas.
- Do not apply to grasses in the boot to dough stage if grass seed production is desired

ESTABLISHED GRASS PASTURES , RANGELAND

Weeds in Crop	Amount of 2,4-D LV ESTER 4 per acre	Directions for Use
For susceptible annual and biennial broadleaf weeds	1 to 4 pints	Apply in sufficient water to give good coverage to one acre depending on type of weeds and stage of growth. Use only on established stands of perennial grasses.

RESTRICTIONS AND LIMITATIONS FOR USE IN PASTURES AND RANGELANDS

- Do not graze (dairy) cattle in treated areas for 7 days after application.
- Do not cut forage for hay within 7 days of application.
- Postemergence:
 - Limited to 2 applications per year.
 - Maximum of 68 ounces per acre per application.
 - Minimum of 30 days between applications.
 - If grass is to be cut for hay, agricultural use requirements for the worker protection standards are applicable.
 - For program lands, such as the Conservation Reserve Program, consult the program rules to determine whether grass or hay may be used. The more restrictive requirements of the program rules or this label must be followed.

FALLOWLAND (CROP STUBBLE ON IDLE LAND OR POST-HARVEST TO CROPS OR BETWEEN CROPS)

Weeds in Crop	Amount of 2,4-D LV ESTER 4 per acre	Directions for Use
Annual broadleaf weeds	2 to 4 pints	Apply in sufficient carrier volume to insure adequate coverage.
Perennial broadleaf weeds	Up to 4 pints	On established perennial species such as Canada thistle and field bindweed, apply higher rates.

RESTRICTIONS AND LIMITATIONS FOR USE IN FALLOWLAND (CROP STUBBLE ON IDLE LAND OR POST-HARVEST TO CROPS OR BETWEEN CROPS)

- Plant only labeled crops within 29 days after application.
- Do not plant any non-labeled crop for 3 months after treatment or until 2,4-D has disappeared from the soil.
- Limited to 2 applications per year.
- Maximum of 68 ounces per acre per application.
- Minimum of 30 days between applications.

TURF GROWN FOR SEED OR SOD

Weeds in Crop	Amount of 2,4-D LV ESTER 4 per acre	Directions for Use
Annual and perennial broadleaf weeds	1 to 4 pints	Do not apply from early boot to milk stage. Spray seedling grass only after the five leaf stage, using $\frac{3}{4}$ to 1 pint per acre to control small seedling weeds. After the grass is well established, higher rates of up to 4 pints per acre can be used to control hard to kill annual or perennial weeds. For best results, apply when soil moisture is adequate for good growth. Do not use on bent grass unless injury can be tolerated.

RESTRICTIONS AND LIMITATIONS FOR USE ON TURF GROWN FOR SEED OR SOD

- Do not graze dairy animals or cut forage for hay within 7 days of application.
- Limited to 2 applications per year.
- Maximum of 68 ounces per application.
- Minimum of 21 days between applications.

NON-CROPLAND

Such as Fencerows, Hedgerows, Roadsides, Drainage Ditches, Rights-of-Way, Utility Power Lines, Railroads and Other Non-Crop Areas

Weeds in Crop	Amount of 2,4-D LV ESTER 4 per acre	Directions for Use
Annual broadleaf weeds	2 to 4 pints	Apply when most annual broadleaf weeds are still young and growing vigorously
Perennial and biennial weeds	2 to 4 pints	Apply when perennial and biennial weeds are actively growing and near the bud stage, but before flowering.
For difficult to control broadleaf weeds	4 to 8 pints	For best results on tansy ragwort and musk thistle, treat in rosette stage, before bolting. A second application is usually needed for best results on thistle, nettle, and bindweed. Treat wild onion or garlic in early spring and in fall when they are young and growing

		<p>actively. Mix 4 to 8 pints of this product in 2 quarts kerosene or diesel oil, then add this mixture to 100 gallons of water. Apply 300 to 500 gallons of spray per acre, depending on the stand. The addition of a wetting agent (spray adjuvant) is suggested. Usually 4 pints per acre will give adequate control. Do not use on herbaceous ground covers or creeping grass such as bent. Legumes will usually be damaged or killed. Deep-rooted perennials may require repeat applications. Do not use on freshly seeded turf until grass is well established. Delay reseeding for 30 days or until 2,4-D has disappeared from soil.</p>
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RESTRICTIONS AND LIMITATIONS FOR USE ON NON-CROPLAND

- Postemergence (annual and perennial weeds):
 - Limited to 2 applications per year
 - Maximum of 68 ounces per acre per application
 - Minimum of 30 days between applications.
- Postemergence (woody plants):
 - Limited to 1 application per year
 - Maximum of 135 ounces per acre per year
- Do not graze dairy animals for 7 days following application.
- Use sufficient spray volume for thorough and uniform coverage.
- Applications to non-cropland areas are not applicable to treatment of commercial timber or other plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

SPOT TREATMENT IN NON-CROP AREAS

Mix 4 ounces of 2,4-D LV ESTER 4 per gallon of water. Wet all weeds and stems thoroughly. For best results, treat when weeds are actively growing.

ORNAMENTAL TURF AREAS

Golf Courses, Cemeteries, Parks, Sports fields, Turfgrass, lawns, and Other Grass Areas

Weeds in Crop	Amount of 2,4-D LV ESTER 4 per acre	Directions for Use
Broadleaf weeds	1 to 3 pints	<p>Apply in 40 to 180 gallons or enough water to give good coverage to one acre on established stands of perennial grasses, depending on type of weeds and stage of growth. Usually 4 pints per acre provides good weed control under average conditions. On turf, apply a maximum of 3 pints of this product per acre per application per site. Treat when weeds are young and actively growing. Do not apply to newly seeded grasses until well established. Use higher rate for hard-to-kill weeds. Use higher rate when using higher volume of water per acre. Do not exceed specified application dosages for any area. Deep-rooted perennial weeds may require repeated treatments in the same season or in subsequent years. Spray when air temperature is between 50° and 85° F. Avoid applying during excessively dry or hot periods unless irrigation (watering) is used</p>

		<p>before treatment. Do not apply if rainfall is expected within 48 hours, nor should lawns be irrigated for 48 hours following application. For optimum results, turf should not be mowed for 1 to 2 days before and after application. Reseed no sooner than 3 to 4 weeks after application of this product. Adding oil, wetting agent, or other surfactant to the spray may be used to increase effectiveness on weeds, but doing so may reduce selectivity to turf resulting in turf damage. Maximum kill of weeds will be obtained by applying in spring and early fall when weeds are actively growing. Do not use on golf greens nor on dichondra or other broadleaf herbaceous ground covers. Do not use on creeping grasses such as bent grass and St. Augustine except for spot spraying. Newly seeded turf should not be treated until after the second mowing and the lower dosage rate should be used.</p>
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RESTRICTIONS AND LIMITATIONS: ORNAMENTAL TURF AREAS

Golf Courses, Cemeteries, Parks, Sports fields, Turfgrass, lawns, and Other Grass Areas

- Postemergence (annual and perennial weeds):
 - Limited to 2 applications per year
 - Maximum of 3 pints per acre per application
 - Maximum seasonal rate is 100 ounces per acre, excluding spot treatments.
- Use sufficient spray volume for thorough and uniform coverage.
- Do not allow people (other than the applicator) or pets on treatment area during application.
- Do not enter treatment areas until sprays have dried.

FORESTRY (Tree Injection, Pine Release)

Weeds in Crop	Amount of 2,4-D LV ESTER 4	Directions for Use
Tree Injection (To control hardwoods, such as Oaks, Hickory, Maple, Pecan, Elm, Sumac, Sweetgum and Hawthorn)	<p>Apply undiluted product in a concentrate tree injector calibrated to apply 1 ml. per injection.</p> <p>For dilute injections, mix 1 gallon of product in 19 gallons of water</p>	Space injections 2" apart, edge to edge, completely around the tree and close to the base. The injector bit must penetrate the inner bark.
Hard-to-kill species, such as Hickory, Dogwood, Red maple, Blue beech and Ash.	<p>Apply undiluted product in a concentrate tree injector calibrated to apply 1 ml. per injection.</p> <p>For dilute injections, mix 1 gallon of product in 19 gallons of water</p>	Make injections 1 to 1-1/2 inches apart, edge to edge. Treatment may be made at any time of the year. For best results, injections should be made during growing season, May 15-October 15.

RESTRICTIONS AND LIMITATIONS: FORESTRY (Tree Injection, Pine Release)

- Injection:
 - Limit to one (1) injection application per year
 - Maximum 2.1 mls of 2,4-D LV ESTER 4 per injection site.

FORESTRY (Conifer Release)

Weeds in Crop	Amount of 2,4-D LV ESTER 4	Directions for Use
Conifer Release: For control of alder, apply of product per acre per	1 to 3 quarts	Apply in 8 to 25 gallons of water as a foliage spray. Treat when 3/4 of the brush foliage has attained full size leaves and before new conifer growth

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		reaches 2" in length. This is usually between early May and mid-June. Adjust treatment date depending on stage of growth and brush species. This may cause leader deformation on exposed firs, but they should overcome this during the second year after spraying.
For control of susceptible brush species such as Ceanothus spp, Chinquapin, madrone, manzanita, oak, tanoak, and similar species to release hemlock, spruce, and firs	3 quarts	Apply in 8 to 25 gallons of water, just prior to or during budbreak of Douglas fir. To control Manzanita and Ceanothus in Ponderosa Pine, apply up to 4 quarts per acre before pine growth begins in spring. To increase performance, add 2 to 4 quarts of diesel, fuel oil, kerosene, or a suitable approved nonionic surfactant at recommended label rate.
To control hardwood species such as alder, aspen, birch, hazel, and willow.	1-1/2 to 3 quarts	After northern conifers, jack pine, red pine, black spruce, and white spruce cease growth and "harden off" in late summer, a spray of 1-1/2 to 3 quarts of product in 8 to 25 gallons of water per acre per site may be applied by air to control certain competing Since this treatment may cause occasional conifer injury, do not use if such injury cannot be tolerated. Consult your regional or extension forester or state herbicide specialist for recommendations to fit local conditions.

RESTRICTIONS AND LIMITATIONS: FORESTRY (Conifer Release)

- Broadcast applications
 - Limited to one broadcast application per year
 - Maximum of 135 ounces per acre per year

WOODY PLANT CONTROL

Weeds in Crop	Directions for Use
To control woody plants susceptible to 2,4-D, such as alder, buckbrush, elderberry, sumac, and willow on non-crop areas,	Use 2 to 4 quarts of product in 100 gallons of water. Wet all parts of the plants thoroughly, including stem and foliage, to the point of runoff. Higher volumes of up to 400 gallons per acre are necessary where the brush is very dense and over 6 to 8 feet high. Applications are more effective when made on actively growing plants. Treatment should not be made during time of severe drought or in early fall when leaves lose their green color. Hard to control species may require re-treatment next season. In general it is better to cut tall wood plants and spray sucker growth when 2 to 4 feet tall.
Sand Shinnery Oak and Sand Sagebrush	On the oak, use 2-1/4 pints of this product in 5 gallons of oil or in 4 gallons of water plus 1 gallon of oil per acre. Apply by aircraft between May 15 and June 15. On the sagebrush, use 2-1/4 pints in 3 gallons of oil per acre and apply by aircraft when foliage is fully expanded and the brush is actively growing
Big Sagebrush and Rabbitbrush (for pastures and rangelands, see note below)	Use 2-1/4 to 6 pints per acre in 2 to 3 gallons of oil or in 3 to 5 gallons of oil-water emulsion spray. For rabbitbrush, the 6 pints per acre rate is usually required. Brush should be leafed out and growing actively when treated. Retreatment may be necessary.
Chamise, manzanita, buckbrush, coastal sage, coyotebrush and certain other chaparral species	Use 2-1/4 to 6 pints per acre in 5 to 10 gallons of water. One gallon of fuel oil may be included in the spray mixture for added effectiveness. Make applications by aircraft or ground equipment to obtain uniform spray coverage.

	For effective control, the brush must be fully leaved out and growing actively when sprayed. Retreatment may be needed. Consult state of local brush control specialists for most effective rate, volume and timing of spray application.
Dormant Application (other than Pine): For the control of susceptible deciduous brush species, such as alder, cascara, cherry, poplar, and serviceberry.	Apply up to 3 quarts of product per acre in sufficient diesel, fuel oil or kerosene for good coverage. Application may be made by ground or air and should be made before conifer bud break
Pine Only: Make application while pine buds are still dormant.	Apply 2 quarts of product per acre in sufficient water for good coverage by air or ground equipment. Do not use this application unless some pine injury is acceptable. Use of diesel, kerosene, or other oil, or addition of surfactants to spray mix may cause unacceptable pine injury.
Site Preparation: (As Dormant Spray)	For control of alder prior to planting seedlings, apply 2 to 4 quarts of product per acre in 8 to 25 gallons of water, after alder budbreak but before foliage is 1/4 full size.
(As Foliage Spray)	For control of alder prior to planting seedlings, apply 2 to 4 quarts of product per acre in 8 to 25 gallons of water, after most alder leaves are full size. To increase penetration, 2 to 4 quarts per acre of diesel, fuel oil, kerosene, or a suitable approved nonionic surfactant at recommended label rates may be added to the spray mixture.

RESTRICTIONS AND LIMITATIONS: WOODY PLANT CONTROL

- Broadcast applications
 - Limited to one broadcast application per year
 - Maximum of 135 ounces per acre per year

CHRISTMAS TREE PLANTATIONS

Weeds in Crop	Directions for Use
For control of labeled broadleaf weeds in Douglas fir Christmas trees.	Use 1 to 2 pints of this product per acre. Apply over the top of Douglas fir by ground or aerial application, e.g., only when the trees are dormant, prior to bud break. Do not spray over the top of pine or true firs (<i>Abies</i> spp.) Directed sprays may be made to weeds in Christmas tree plantations of all conifer species, but the spray must not contact tree foliage as injury may occur. Do not apply to weakened, diseased, or stressed seedlings, since unacceptable injury may occur. This product may be mixed with Atrazine for Christmas tree application (see Tank Mix section.)
Herbaceous Weed Control: To control over-wintering susceptible weeds, such as false dandelion, klamathweed, plantain, and tansyragwort,	Apply 1 to 3 quarts of product per acre in sufficient water for good coverage. Make application at rates and timing indicated above if pines are present. For control of hazel brush and similar species in the Lake States area, apply 2 quarts of product per acre per site in 8 to 25 gallons of water, when new shoot growth of hazel is complete.

RESTRICTIONS AND LIMITATIONS: CHRISTMAS TREE PLANTATIONS

- Broadcast applications
 - Limited to one broadcast application per year
 - Maximum of 135 ounces per acre per year

**CONDITIONS OF SALE - LIMITED WARRANTY
AND LIMITATIONS OF LIABILITY AND REMEDIES**

Read the Conditions of Sale - Warranty and Limitations of Liability and Remedies before using this product. If the terms are not acceptable, return the product, unopened, and the full purchase price will be refunded.

The directions on this label are believed to be reliable and should be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions or the failure to follow the label directions or good application practices, all of which are beyond the control of Helena Chemical Company (the "Company") or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. The Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the factors noted above which are beyond the control of the Company. The Company makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose, and no such warranty shall be implied by law.

The exclusive remedy against the Company for any cause of action relating to the handling or use of this product shall be limited to, at Helena Chemical Company's election, one of the following:

1. Refund of the purchase price paid by buyer or user for product bought, or
2. Replacement of the product used

To the extent allowed by law, the Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income. The Company and the seller offer this product and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

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