



005905-00505-060799

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Systems Integration Group, Inc.

PM23

5905-505

6/7/99

1-814

JUN 7 1999

Ms. Judy Smith  
Helena Chemical Company  
6075 Poplar Avenue, Suite 500  
Memphis, TN 38119

Dear Ms. Smith:

Subject: Label Amendment Extending 2,4-D Use in Reduced or No-Tillage Soybeans  
(Pre-plant Only)  
Weed Rhap LV-4D 2,4-D Low Volatile Herbicide  
EPA Reg. No. 5905-505  
Your Application Dated April 16, 1999

The Agency is conditionally approving an amendment to the registration of the above-referenced product under the authority of section 3(c)(7)(B) of the Federal Insecticide, Fungicide Act (FIFRA). This amendment allows use of the subject product on reduced or no-tillage soybeans (pre-plant only) with a maximum permissible level for residues of the herbicide in or on soybeans of 0.1 ppm. This amendment will expire automatically on December 31, 2001. In addition, during the period that this amendment is effective, it will be subject to the conditions listed below:

- 1) This acceptance is based on your certification that the submitted labeling on preplant soybean use is an exact copy of the labeling accepted by the Agency on December 16, 1997. Please note that the acceptance of this labeling pertains to the previously approved preplant soybean use only and does not signify the acceptance of any other labeling revisions. No other label revisions are being reviewed or considered with this action. You should also note that if you fail to satisfy the conditions imposed in this certification, EPA may issue a notice to cancel this amendment under FIFRA section 6(e).
- 2) This conditional registration will expire automatically on December 31, 2001. Sale or distribution of the subject product bearing labeling for this use on reduced or no-tillage soybeans (pre-plant only) after December 31, 2001 will be illegal. The tolerance authorizing residues of the subject product will also expire on December 31, 2001. After that date, sale or distribution of food in interstate commerce containing any residue of the subject product will be a violation of the Federal Food, Drug, and Cosmetic Act.

CONCURRENCES

SYMBOL ▶	7505C							
SURNAME ▶	Malyan							
DATE	6/7/99							

- 3) Finally, if and when a permanent tolerance is established, EPA will entertain an application to amend the registration of the subject product without any special limitations on the duration of the amendment.

A stamped copy of the labeling is enclosed for your records. Please submit one copy of your final printed labeling before you release the product for shipment.

Sincerely yours,

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

Enclosure

OFFICIAL FILE COPY

# WEED RHAP LV-4D

## 2,4-D LOW VOLATILE HERBICIDE

**ACTIVE INGREDIENT:**

2-Ethylhexyl Ester of 2,4-Dichlorophenoxyacetic acid..... 65.4%

**INERT INGREDIENTS:** ..... 34.6%

TOTAL ..... 100.0%

Equivalent to 43.4% of 2,4-Dichlorophenoxyacetic acid or 3.8 lb./gal.  
Isomer specific by AOAC Method 6.275, 13th Ed., 1980.  
Contains Petroleum Distillates

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

See Side Panel For Additional Precautionary Statements.

EPA REG. NO. 5905-505  
EPA EST. NO.

NET CONTENTS:

**MANUFACTURED BY  
HELENA CHEMICAL COMPANY  
MEMPHIS, TN 38119**

**ACCEPTED**  
*with Comments*  
JUN 7 1999

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 5905-505

**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION**

Avoid contact with skin, eyes, or clothing. Harmful if swallowed. Avoid inhaling vapor or spray mist.

**STATEMENT OF PRACTICAL TREATMENT**

**IF ON SKIN:** Wash with plenty of soap and water. Get medical attention if irritation persists.

**IF SWALLOWED:** Call a physician or poison control center. Dilute by giving 1 or 2 glasses of water to drink. Do not induce vomiting.

**IF IN EYES:** Flush with plenty of water. Get medical attention if irritation persists.

**IF INHALED:** Move victim to fresh air. Give artificial respiration if needed. Get medical attention.

**PERSONAL PROTECTIVE EQUIPMENT**

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.

**Applicators and other handlers must wear:**

- Long-Sleeved shirt and long pants
- Chemical-resistant gloves, such as Barrier Laminate, Butyl Rubber, Nitrile Rubber or Viton.
- Shoes plus socks
- Protective Eyewear
- Chemical-resistant apron when cleaning equipment, mixing or loading

If this container contains over 1 gallon and less than 5 gallons, mixers and loaders who do not use a mechanical system (probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

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. After each day of use, clothing or PPE must not be reused until it has been cleaned.

**Engineering Controls Statements**

If this container contains 5 gallons or more in capacity, do not open pour. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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

**USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove 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 to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.. Do not apply when weather conditions favor drift from target area. Spray equipment used in applying this product should be thoroughly cleaned before using for any other purpose. Use repeated flushing with soap and warm water or suitable chemical cleaner. It is best to use a separate sprayer for application of insecticides and fungicides. Do not contaminate water by cleaning of equipment or disposal of washwaters. This product will kill or seriously injure many desirable forms of vegetation. Do not apply directly to flowers, fruits, vegetables, grapes, ornamentals, cotton, or other desirable plants. Do not use when there is a hazard from drifting mists. (Coarse sprays are less likely to drift.) Vapors from this product may injure susceptible plants in the immediate vicinity. Avoid contamination of water used for domestic purposes and irrigation purposes. Excessive amounts of this product in the soil may temporarily inhibit seed germination and plant growth.

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget plants. Do not apply directly to water except as specified on this label. Do not contaminate water when disposing of equipment washwaters.

**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.

**DIRECTIONS FOR USE**

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

**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 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
- Chemical-resistant gloves such as Barrier Laminate, Butyl Rubber, Nitrile Rubber or Viton.
- Shoes plus socks
- Protective Eyewear

**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.

**STORAGE AND DISPOSAL**

**PROHIBITIONS:** Do not contaminate water, food, or feed by storage or disposal. Do not store under conditions which might adversely affect the container or its ability to function properly.

**STORAGE:** Do not store below temperature of 0°F. If frozen, warm to 40°F and redissolve before using by rolling or shaking the container. This product can be stored in an unheated building. Store in a safe manner. Store in original container only. Keep container tightly closed when not in use. Reduce stacking height where local conditions can affect package strength. Personnel should use clothing and equipment consistent with good pesticide handling.

**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.

**RETURNABLE - REFILLABLE CONTAINER (Drum):**

After use, return the container to the point of purchase or designated locations. This container must only be filled with **WEED RHAP LV-4D**. **DO NOT RE-USE THIS CONTAINER FOR ANY OTHER PURPOSE.** Prior to refilling, inspect thoroughly for damage such as cracks, punctures, abrasions, and damaged or worn out threads on closure devices. Do not refill or transport damaged or leaking containers. Check for leaks after refilling and before transportation. If the container is not being refilled, return to the point of purchase.

**General Information:** Performance of this product may be affected by local conditions, crop varieties, and application method. User should consult local extension service, agricultural experiment station, or university weed specialists, and state regulatory agencies for recommendations in your area.

Best results are obtained when product is applied to young succulent weeds that are actively growing. Application rates lower than recommended will be satisfactory on susceptible annual weeds. For perennial weeds and conditions such as the very dry area of the western states, where control is difficult, the higher recommended rates should be used.

When product is used for weed control in crops, the growth stage of the crop must be considered.

Some plants and weeds, especially woody varieties, are difficult to control and may require repeat applications. Application rates should be 1 to 5 gallons of total spray by air or 5 to 25 gallons by ground equipment unless otherwise directed. In either case, use the same amount of 2,4-D recommended per acre. For crop uses, do not mix with oil, surfactants, or other herbicides selectivity and could result in crop damage.

Aerial application should be used only when there is no danger of drift to susceptible crops. Many states have regulations concerning aerial application of 2,4-D formulations. Consult local regulatory authorities before making applications. Although this product is a low volatile formulation, at temperatures above 95°F vapors may damage susceptible crops growing nearby.

Because coarse sprays are less likely to drift than fine, do not use equipment (such as hollow cone small orifice nozzles) or conditions (such as high pressure) that produce such sprays.

Product should not be allowed to come into contact with desirable, susceptible plants such as beans, cotton, fruit trees, grapes, legumes, ornamentals, peas, tomatoes, and other vegetables. Product should not be used in greenhouses. Excessive amounts of this product in the soil may temporarily inhibit seed germination and all plant growth.

Users should note that herbicide treatment of public water requires a permit from appropriate state agencies in most states. Your state Conservation Department, or Game and Fish Commission will aid you in securing a permit in your state.



If stored below freezing, it may be necessary to warm product to 40°F and agitate before using. This does not affect the efficiency of the product.

Spray equipment used to apply 2,4-D should not be used for any other purpose until thoroughly cleaned with a suitable chemical cleaner.

**Spray Preparation:** Add the recommended amount of product to approximately one-half the volume of water to be used for spraying. Agitate well, then add the remainder of the water. Continue agitation during application until spray tank is empty.

**Use in Liquid Nitrogen Fertilizer:** Product may be combined with liquid nitrogen fertilizer suitable for foliage application on corn, grass, pastures, or small grains in one operation. Use product according to directions on this label for those crops. Use liquid fertilizer at rates recommended by supplier or extension service specialist. Mix the product and fertilizer according to the following instructions:

Fill the spray tank approximately 1/2 full with the liquid fertilizer. Add the product while agitating the tank. Add the remainder of the liquid fertilizer while continuing to agitate. Apply immediately maintaining agitation during application until tank is empty. **DO NOT APPLY DURING COLD (NEAR FREEZING) WEATHER.** Spray mixture must be used immediately and may not be stored.

**WHERE TO USE**

This product is used to control broad-leaved weeds in cereal crops, corn, sorghum, weeds, and brush in rangeland, pastures, rights-of-way, and similar noncrop uses.

**PLANTS CONTROLLED**

Product will kill or control the following in addition to many other noxious plants susceptible to 2,4-D:

- |                    |                |                        |
|--------------------|----------------|------------------------|
| alligatorweed      | hemp           | sneezeweed, bitter     |
| arrowhead          | hoary cress    | sowthistle             |
| artichoke          | honeysuckle    | spanishneedles, annual |
| beggarticks        | indigo         | stinkweed              |
| bindweed, hedge    | ironweed       | sumac                  |
| bindweed, field    | jewelweed      | sunflower              |
| bindweed, European | jimsonweed     | sweet clover           |
| bitterweed         | ladysthumb     | tansyragwort           |
| bitter wintercress | lambquarters   | thistle, musk          |
| blueweed, Texas    | loco weed      | tumbleweed             |
| boxelder           | loco, big bend | velvetweed             |
| broomweed          | mallow, venice | vervains               |
| buckbrush          | manzanita      | vetch                  |
| buckhorn           | marshelder     | virginia creeper       |
| buckwheat, wild    | mexican weed   | waterhyacinth          |
| bull thistle       | milkvetch      | waterlily              |
| bulrush            | morningglory   | waterplantain          |
| burdock            | mustard        | waterprimrose          |
| burhead            | nettles        | wild garlic            |

bur ragweed	parrotfeather	wild lettuce
buttercup	pennycress (fanweed)	wild mustard
carpetweed	pennywort	wild onion
catnip	pepperweed	wild radish
chamise	pigweed	willow
chickweed	plantains	witchweed
chickory	poison ivy	wormwood
cocklebur	pokeweed	yellow rocket
coffeebean	poorjo	yellow starthistle
coffeeweed	povertyweed	
cornflower	puncturevine	
coyotebrush	purslane	
creeping jenny	rabbitbrush	
croton	ragweed	
curly indigo	rape, wild	
dandelion	redstem sage	
doeks	rush	
dogfennel	russian thistle	
duckweed	sagebrush, big coast	
elderberry	sagebrush, sand	
galinsoga	satisfy	
goatsbeard	sand shinnery oak	
goldenrod	shepherdspurse	
ground ivy	sicklepod	
halogeton	smartweed, annual	

**CROPS:****Small Grains Not Underseeded With a Legume (Barley, Oats, Wheat, Rye):**

See table for recommended use rates.

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.

**Spring Planted Oats:** Use 1/2 pint per acre in sufficient water to give good coverage. Apply after the fully tillered stage, except during the boot to dough stage.

**Fall Planted Oats:** Apply 1/4 to 1-1/4 pints per acre after full tillering but before early boot stage. Some difficult weeds may require higher rates of 3/4 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. Do not forage or graze treated grain fields within 2 weeks after treatment with 2,4-D. Do not feed treated straw to livestock.

**Corn:** See table for recommended use rates.

**Preemergence:** 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.

**Post Emergence:** 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 1/2 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.

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.

**Pre-Harvest:** After the hard dough or denting stage, apply 1 to 2 pints of product 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. Do not forage or feed corn fodder to livestock for 7 days following application.

**Sorghum (Milo):** See table for recommended rate. 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.

**Recommended Rates of Weed Rhap LV-4D Per Acre\*\***

<u>Crop (See Detailed Instructions Above)</u>	<u>Rate, Average Conditions</u>	<u>Rate, Dry Conditions as in Western States*</u>
<b>Small Gains (Wheat Barley, Rye***):</b>		
Annual Weeds	1/2 to 1 pint	1 to 2 pints
Perennial Weeds	1 pint	1-1/4 to 2 pints
Preharvest	1 to 2 pints	
<b>Oats:</b>		
Spring	1/2 pint	
Fall	1/2 to 3/4 pint	

**Corn:**

Preemergence	1 to 2 quarts	
Postemergence	1/2 pint	1/2 to 3/4 pint
Preharvest	1 to 2 pints	

**Sorghum (Milo):**

Postemergence	1/2 pint	1/2 to 3/4 pint
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\*Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming.

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

\*\*\*Not for use on rye in California.

**SOYBEANS (PREPLANT ONLY):** For use in crop residue management systems: Apply 3/4 to 1 pint not less than 7 days prior to planting soybeans or 1 to 2 pints not less than 30 days prior to planting. 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.

**WEEDS CONTROLLED**

alfalfa*	horseweed or marestail	ragweed, giant
bindweed*	ironweed	shepherdspurse
bullnettle	lambsquarters, common	smartweed, Pennsylvania*
bittercress, smallflowered	lettuce, prickly	sowthistle, annual
buttercup, smallflowered	morningglory, annual	speedwell
Carolina geranium	mousetail	thistle, Canada*
cinquefoil, common & rough	mustard, wild	thistle, bull
clover, red*	onion, wild*	velvetleaf
cocklebur, common	pennycress, field	vetch, hairy*
dandelion*	peppergrass*	Virginia copperleaf
dock, curly	plantains	
evening primrose, cutleaf	purslane, common	
garlic, wild	ragweed, common	

\*Partially controlled

Apply using air or ground equipment in sufficient gallonage to obtain adequate coverage of weeds. Use 2 or more gallons of water per acre in aerial equipment and 10 or more gallons of water per acre in ground equipment.

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.

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.

Compatible crop oil concentrates, agricultural 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.

**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.

) Not registered for use in California.

#### USE RESTRICTIONS AND LIMITATIONS

Do not apply this product prior to planting soybeans if you are not prepared to accept the results of soybeans injury, including possible loss of stand and yield.

Do not use on low organic sandy soils (less than 1.0%).

Do not apply this product when weather conditions such as temperature, air inversions, or wind favor drift from treated areas to susceptible plants.

Do not mow or cultivate weeds prior to meeting with this product as poor control may result.

Do not use any tillage operations between application and planting.

) Do not feed treated hay, forage, or fodder. Restrict livestock from grazing treated fields. Do not feed or graze treated cover crops to livestock.

Only one application may be made prior to planting soybeans per growing season.

Do not replant fields treated with this product in the same growing season with crops other than those labeled for 2,4-D use.

#### **Ornamental Turf:**

Use 1 to 3 pints of product for each application in enough water to give good coverage to one acre on established stands of perennial grasses, depending on type of weeds and stage of growth. Do not use on creeping grasses such as bent grass except for spot spraying. Newly seeded turf should not be treated until after the second mowing and the lower dosage rate should be used.

#### **NOTES FOR ALL TURF SITES:** (excluding sod farms)

The maximum number of broadcast applications per treatment site is 2 per year.

**Grass Seed Crops:**

Apply 1 to 4 pints of product per acre in the Spring or Fall to control broadleaf weeds in grass being grown for seed. Do not apply from early boot to milk stage. Spray seedling grass only after the five leaf stage, using 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. Keep dairy animals off treated areas for 7 days. Do not cut grass for hay for 30 days after treatment. Do not slaughter for meat animals for 3 days after treatment.

**Fallow Land:**

On established perennial species such as Canada thistle and field bindweed, apply up to 3 quarts per acre of product. For annual broadleaf weeds, apply 1 to 2 quarts per acre. Do not plant any crop for 3 months after treatment or until 2,4-D has disappeared from soil.

**Established Pastures and Rangelands:**

For each application, use 1 to 4 pints per acre per site 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. Keep dairy animals off treated areas for 7 days. Do not cut grass for hay for 30 days after treatment. Do not slaughter for meat animals for 3 days after treatment.

**General Weed Control (Airfields, Roadsides, Vacant Lots, Fence Rows, Industrial Sites, and similar areas):**

Use 1 to 3 quarts of product per acre per site. Usually 2 quarts per acre will give adequate control. Do not use on herbaceous ground covers or creeping grass such as bent grass. 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. (See NOTES FOR ALL TURF SITES above).

**Woody Plant Control:**

To control woody plants susceptible to 2,4-D, such as alder, buckbrush, elderberry, sumac, and willow on non-crop areas, use 2 to 3 quarts of product per acre 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.

**USES IN FOREST MANAGEMENT**

**Conifer Release:**

For control of alder, for each application apply 1-1/2 to 2 quarts of product per acre per site in 8 to 25 gallons of water, and apply as a foliage spray between mid-May and mid-June.

For control of madrone, manzanita, oak, tanoak, and similar species to release hemlock, spruce, and firs, for each application apply 3 quarts of product per acre per site in 8 to 25 gallons of water, just prior to or during budbreak of Douglas fir.

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 for each application in 8 to 25 gallons of water per acre per site may be applied by air to control certain competing hardwood species such as alder, aspen, birch, hazel, and willow. 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.

For control of hazel brush and similar species in the Lake States area, for each application apply 2 quarts of product per acre per site in 8 to 25 gallons of water, when new shoot growth of hazel is complete.

**Site Preparation:**

(As Budbreak Spray) - For control of alder prior to planting seedlings, for each application apply 2 to 4 quarts of product per acre per site 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 quarts of product per acre in 8 to 25 gallons of water, after most alder leaves are full size.

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

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, 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 is a claim for damage and in no event shall damages or any other recovery of any kind against the Company exceed the price of the product which causes the alleged loss, damage, injury, or other claim. 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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