

51036-358

01/10/2001

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U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division 17505C
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg.
Number:51036-
358

Date of Issuance:

JAN 10 2001

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration
(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

2,4-D Ester LV4

Name and Address of Registrant (include ZIP Code):

Micro-Flo Company
P.O. Box 772099
Memphis, TN 38117-2099

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 conditionally registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

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

2. Make the following label changes listed below before you release the product for shipment:

a. Add the phrase, "EPA Reg. No. 51036-358".

b. When printed labels are prepared, assure that the Signal Word DANGER and Keep Out Of The Reach Of Children meet the enclosed type size requirements.

Signature of Approving Official:

Joanne J. Miller

Date:

JAN 10 2001

**ACCEPTED
with COMMENTS
In EPA Letter Dated:**

JAN 10 2001

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
51036-358

2,4-D ESTER LV4

Broadleaf Herbicide

SOLVENTLESS ESTER FORMULATION FOR AGRICULTURAL WEED CONTROL, CONIFER
RELEASE, SITE PREPARATION, TURF AND NON-CROPLAND WEED CONTROL.

ACTIVE INGREDIENT:

2,4-Dichlorophenoxyacetic acid, isooctyl
(2-ethylhexyl) ester. 62.6%*
INERT INGREDIENTS: 37.4%
TOTAL: 100.0%

*2,4-Dichlorophenoxyacetic acid equivalent 41.5% by weight or 3.8 pounds per gallon.
Isomer specific by AOAC method No. 978.05

KEEP OUT OF REACH OF CHILDREN

CAUTION

STATEMENT OF PRACTICAL TREATMENT

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

IF ON SKIN: Wash skin with plenty of soap and water if available. Get medical attention.

IF IN EYES: Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Get medical attention if irritation persists.

IF INHALED: Remove victim to fresh air. If not breathing, administer artificial respiration. Administer oxygen if necessary. Get medical attention.

NOTE TO PHYSICIANS: No specific antidote is available. All treatments should be based on observed signs and symptoms of distress in the patient. Overexposure to materials other than this product may have occurred.

See Inside for Additional Precautionary Statements.

EPA Reg. No. 51036-GLI/358

EPA Est. No. XXXX-XX-XXX

Manufactured For:
MICRO FLO COMPANY
P.O. BOX 772099
MEMPHIS, TN 38117

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed, absorbed, through the skin or inhaled. Avoid breathing vapors or spray mist. Do not get in eyes, on skin or on clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

1. Long-sleeved shirt and long pants
2. Waterproof gloves
3. Shoes plus socks and
4. Protective eye wear

For containers over 1 gallon but 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 CONTROL STATEMENTS

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

For containers of 5 gallons or more, a mechanical system (probe and pump) must be used for transferring the contents of the container. If the contents of non-refillable pesticide containers 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 FR 170-240(d)(4)] the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

1. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
2. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
3. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not apply when weather conditions favor drift from treated areas. Do not use the same spray equipment for other purposes unless thoroughly cleaned. Do not contaminate water used for irrigation or domestic purposes.

MIXING AND LOADING

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 ground water 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 ground water contamination.

Do not apply 2,4-D ESTER LV4 directly to, or permit spray mist to drift onto cotton, okra, grapes, tomatoes, fruit trees, vegetables, flowers or other desirable crop or ornamental plants which are susceptible to 2,4-D herbicide. Do not apply near susceptible plants since very small quantities of the 2,4-D will cause severe injury during the growing or dormant periods. Crops contacted by sprays or spray drift may be killed or suffer significant stand loss with extensive quality and yield reduction.

Do not apply when a temperature air inversion exists. Such a condition is characterized by little or no air movement and an increase in air temperature with an increase in height. In humid regions a fog or mist may form. An inversion may be detected by producing a smoke column and checking for a layering effect. If questions exist pertaining to the existence of an inversion, consult with local weather services before making an application.

Use coarse sprays to minimize drift. Do not apply with hollow cone type insecticide or other nozzles that produce fine spray droplets.

Drift from aerial or ground application may be reduced by: (1) applying as near to the target as possible in order to obtain coverage; (2) by increasing the volume of spray mix per acre; (3) by decreasing the pounds of pressure at the nozzle tips; (4) by using nozzles which produce a coarse spray pattern; (5) by not applying when wind is blowing toward susceptible valuable plants.

At high air or ground surface temperatures, vapors from this product may injure susceptible plants.

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 specified 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 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:

1. Coveralls,
2. Waterproof gloves
3. Shoes plus socks and
4. Protective eye wear

Read entire label before using this product.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Workers Protection Standard (WPS) 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.

Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment areas until sprays have dried.

STORAGE AND DISPOSAL

STORAGE: Do not contaminate water, food or feed by storage or disposal. Store in original container in a dry, secured storage area. Keep container tightly closed when not in use.

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: Triple rinse or equivalent. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL INFORMATION

2,4-D ESTER LV4 contains the isooctyl (2-ethylhexyl) ESTER of 2,4-D, the original and one of the best low volatile esters. In cropland, this herbicide is more effective than amines for controlling hard-to-kill weeds such as bindweed, thistles, smartweed, wild garlic, curled dock, tansy ragwort and wild onions.

INJURY TO CROPS FROM THIS HERBICIDE MAY OCCUR. IF YOU ARE NOT PREPARED TO ACCEPT SOME DEGREE OF CROP INJURY DO NOT USE THIS PRODUCT.

Crop varieties vary in response to 2,4-D and some are easily injured.

Apply this product only to varieties known to be tolerant to 2,4-D. If you are uncertain concerning tolerant varieties or local use situations that may affect crop tolerance to 2,4-D consult your seed company, state Agricultural Extension Service or qualified crop consultant for advice.

GENERAL PRECAUTIONS AND RESTRICTIONS

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

Do not use in or near a greenhouse.

MIXING INSTRUCTIONS

Add one-half the required amount of water to the spray tank, then add the 2,4-D ESTER LV4 with agitation, and finally, the balance of the water with continued agitation. This material forms an emulsion in water, not a solution. This tends to separate on standing. Provide agitation to prevent such separation and insure uniform spray mixtures.

COMPATIBILITY

If this product is to be tank mixed with fertilizers or with other pesticides, compatibility should be tested prior to mixing. To test for compatibility, use a small container and mix a small amount (0.5 to 1 qt) of spray, combining all ingredients in the same ratio as the anticipated use. If any indications of physical incompatibility develop, do not use this mixture for spraying. Indications of incompatibility usually will appear within 5 to 15 minutes after mixing. Read and follow the label of each tank-mix product used for precautionary statements, directions for use, geographic and other restrictions.

COMBINATION WITH LIQUID NITROGEN FERTILIZER

Use $\frac{1}{2}$ to $\frac{3}{4}$ pint 2,4-D ESTER LV4 per acre for weeding and feeding corn, cereal grains, grasses for seed production or grass pastures as directed on this label. Use the fertilizer at rates recommended by supplier or Extension Service Specialist. Fill the spray tank about half full with the liquid fertilizer, then add the 2,4-D ESTER LV4 with vigorous agitation, and complete filling the tank with fertilizer. Apply immediately and continue agitation in the spray tank during application. Application during very cold weather (near freezing) is not advisable. Do not allow mixture to stand over night. Incompatibility may be encountered with some fertilizer brands or under some environmental conditions. If in doubt, test a small sample in the dilution ration planned for application.

NOTE: Fertilizers can increase foliage contact burn of herbicides. Reducing the fertilizer rate and concentration will reduce the hazard of leaf burn.

GENERAL WEED LIST

Annual and Biennial Weeds

Annual yellow sweetclover	Pepperweeds (except perennial)
Beggarticks*	Pigweeds** (Amaranthus spp.)
Bull thistle	Prickly* lettuce
Coffeeweed	Ragweed (common giant)
Common evening primrose	Rough fleabane
Common broomweed*	Russian thistle*
Common burdock	Salsify (western or common)
Common cocklebur	smartweed* (annual species)
Common lambsquarters	Sowthistle (annual or spiny)
Croton (Texas or woolly)	Sunflower
Hairy galinsoga	Velvetleaf
Jimsonweed	Vervains*
Knotweed*	Vetches
Mallow* (venice, dwarf, little)	Wild Carrot*
Marshelder	Wild lettuce
Morningglory (common, ivory, woolly)	Wild parsnips
Mustards (except blue mustard)	Wild radish

Perennial Weeds

Alfalfa*	Healall
Bindweed* (hedge, field & European)	Hoary cress*
Blue lettuce	Jerusalem - artichoke
Canada thistle*	Many-flowered aster*
Catnip	Nettles* (including stinging)
Chicory	Plantains
Dandelion	Sowthistle (perennial)
Docks*	Tansy ragwort*
Dogbanes*	Vervains*
Goldenrod*	Western ironweed*
Ground ivy*	Wild Garlic*
Hawkweed* (orange)	Wild Onion*

*These species may require repeat applications and/or use of the higher rate recommended on this product label even under ideal conditions for application.

**Control of pigweeds in the High Plains area of Texas and Oklahoma may not be satisfactory with this product.

SPECIFIC USE DIRECTIONS

CEREAL GRAINS

WEEDS IN CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
WHEAT, BARLEY and RYE (not underseeded with legumes) Postemergence - Annual and biennial weeds - Perennial broadleaf weeds	$\frac{1}{2}$ to 2 pints* 1 to 2 pints*	Apply after grain is fully tillered (usually about 4 to 8 inches high) but not forming joints in the stem. Do not spray grain in boot to dough stage.
Wild onion or garlic	1 $\frac{1}{2}$ to 2 pints*	Apply 1 $\frac{1}{2}$ pints when grain is fully tillered and wild garlic or onion plants are small. Apply 2 pints after harvest in the crop stubble. For control of new fall growth of wild onion or garlic refer to FALLOWLAND use directions.
Preharvest	1 to 2 pints*	Apply when grains are in the hard dough stage to suppress large weeds that may interfere with harvest. Best results will be obtained when soil moisture is sufficient to induce succulent weed growth.

*Use the lower rate if small annual and biennial weeds are the major problem. Use the higher rate if perennial weeds or annual and biennial weeds are present which are in the hard-to-kill categories as determined by local experience. The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the risk of grain damage. Do not apply to grain in the seedling stage.

RESTRICTIONS AND LIMITATIONS FOR USE ON CEREAL GRAINS

For, aerial application on grain, apply this product in 2 or more gallons of water per acre.

For ground application, a minimum of 10 to 15 gallons of water per acre is recommended for proper spray coverage.

Do not mix with oil for crop uses.

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 if a preharvest treatment as described above is applied.

TANK MIXTURES FOR CEREAL GRAINS

2,4-D ESTER LV4 and Bromoxynil 2E Tank Mixture on Wheat, Barley and Rye

WEEDS IN CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Cereal Areas except Washington, Oregon, Idaho, Colorado, Wyoming and Montana	$\frac{1}{2}$ to 1 pint plus 1 to 1 $\frac{1}{2}$ pints Bromoxynil 2E	Bromoxynil 2E will control some annual weeds that are resistant to 2,4-D ESTER LV4 and may be tank mixed for broader spectrum weed control on cereal grains.
Washington, Oregon, Idaho, Colorado, Wyoming and Montana	$\frac{1}{2}$ to 1 pints plus 1 $\frac{1}{2}$ pints Bromoxynil 2E	TO PREPARE THE SPRAY: First mix 2,4-D ESTER LV4 in water then add the Bromoxynil 2E. Use the higher rates for larger weeds or where weed growth is slow due to dry or cold weather. Apply before weeds are 6 inches high. Use 10 to 20 gallons total spray volume per acre with ground equipment or use 5 to 10 gallons total spray volume with air application. Use higher volume on larger weeds.

FIELD CORN

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Preplant	1 to 2 pints	To control emerged broadleaf weed seedlings or existing cover crops prior to planting corn. Apply 7 to 14 days before planting. Do not use on light, sandy soil, or where soil moisture is inadequate for normal weed growth. Use high rate for control of less susceptible weeds or cover crops such as alfalfa.
Preemergence	2 to 4 pints	To control broadleaf weeds and suppress annual grasses, apply 3 to 5 days after planting, but before corn emerges. Use high rate on soil high in organic matter. Do not use on light, sandy soil or where soil moisture is inadequate for normal weed growth.
Postemergence Annual broadleaf weeds	$\frac{1}{2}$ pint	Avoid spraying just after corn leaves unfold, as injury may occur. Apply when weeds are small and corn is less than 8 inches tall. If corn more than 8 inches tall must be sprayed, use drop pipes.
Perennial broadleaf weeds	$\frac{1}{2}$ pints	Spray when weeds are in the bud to bloom stage. If corn is more than 8 inches tall, use drop pipes to keep spray off corn leaves. Do not spray when corn is in tassel to dough stage. 2,4-D may make corn brittle. Winds or cultivation may cause stalk breakage while brittle.
Preharvest	1 to 2 pints	After the hard dough (denting) stage, to suppress weeds that interfere with harvest such as bindweed, cocklebur, dogbane, jimsonweed, ragweed, sunflower and velvetleaf, and to decrease production of weed seeds, spray with air or ground equipment. The high rate will be needed for tough weeds under stress.

POPCORN*

WEEDS IN CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Preharvest	1 to 2 pints	After the dent stage to suppress weeds that interfere with harvest, such as bindweed, cocklebur, dogbane, jimsonweed, ragweed, sunflower and velvetleaf, and to decrease production of weed seeds, spray with air or ground equipment. The high rate will be needed for weeds under stress. DO NOT USE IN CALIFORNIA.

RESTRICTIONS AND LIMITATIONS FOR USE ON FIELD CORN AND POPCORN


Do not forage or feed corn fodder for 7 days following application.

A minimum application volume of 3 to 5 gallons per acre by air or 10 gallons per acre by ground is recommended.

Note: Hybrids vary in response to 2,4-D and some are easily injured. Contact the seed company or your Agricultural Experiment Station or Extensional weed specialists for this information.

*Not currently registered in California.

SOYBEANS (Preplant Only)*

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Postemergence	¾ to 1 pint	Apply not less than 7 days prior to planting soybeans, when weeds are small and actively growing. Use the higher rate on larger weeds and when perennials are present. Some weeds may require repeat treatment for adequate control (see GENERAL WEED LIST and below).
	 > 1 to 2 pints	<p>Apply not less than 30 days prior to planting soybeans, when weeds are actively growing. Some weeds may require repeat treatment for adequate control (see GENERAL WEED LIST and below).</p> <p>Apply no more than 2 pints of 2,4-D ESTER LV4 in one season prior to planting soybeans. 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>

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
		<p>In addition to those weeds found on the GENERAL WEED LIST, this product will suppress or control the following broadleaf weeds frequently encountered in reduced tillage soybean production systems: bullnettle, smallflowered bittercress, Carolina geranium, smallflowered buttercup, common and rough cinquefoil, red clover*, horseweed or maretail, mousetail, wild mustard, field pennycress, cutleaf evening primrose, common purslane, speedwell, and Virginia copperleaf.</p> <p>* These weeds are only partially controlled.</p> <p>Apply no more than 2.0 pints of 2,4-D ESTER LV4 in one season prior to planting soybeans. 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, 2,4-D ESTER LV4 may be applied pre-plant to soybeans in tank mixtures with other herbicides such as Poast®, Poast Plus®, Roundup®, Roundup D-PA®, Honcho®, Gramoxone Extra®, Prowl®, Pursuit Plus®, Scepter®, Scepter 70 DG, Squadron® and others that are registered for pre-plant soybean use.</p> <p>NOTE: Unacceptable injury to soybeans planted in fields previously treated with 2,4-D ESTER LV4 may occur. Whether or not soybean injury occurs and the extent of the injury will depend on weather and agronomic factors such as the amount of weed vegetation and previous crop residue present that may be in effect between the time of 2,4-D ESTER LV4 application and the emergence of the soybean plant.</p>

RESTRICTIONS AND LIMITATIONS FOR USE IN SOYBEANS (PREPLANT)

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

Apply no more than 2 pints of this product per acre in one season prior to planting soybeans.

Do not apply this herbicide 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 this herbicide in the same growing season with crops other than those labeled for 2,4-D preplant use.

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

Do not cut for feed treated hay, forage, or fodder or graze treated soybeans to livestock.

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

Do not cut for feed or graze treated cover crops to livestock.

*Not currently registered in California.

GRAIN SORGHUM (milo)

WEEDS IN CROPS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Annual broadleaf weeds	$\frac{1}{2}$ pint	Treat when sorghum is 5 to 15 inches tall (to top of canopy). If sorghum is taller than 8 inches to top of canopy, use drop nozzles to keep spray off crop foliage. Do not treat during the boot, flowering or early dough stages.
Perennial broadleaf weeds	$\frac{1}{2}$ to 1 pint	

RESTRICTIONS AND LIMITATIONS FOR USE ON SORGHUM

Do not forage or feed fodder for 7 days following application.

A minimum application volume of 5 gallons per acre by air or 10 gallons per acre by ground is recommended.

GRASSES FOR SEED PRODUCTION

CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Annual broadleaf weeds	1 to 1 ½ pints	Apply to established stands in spring from tiller to early boot stage. Do not spray in boot stage. New spring seedlings may be treated with the lower rate after grass seedlings have at least 5 leaves. Perennial weed regrowth may be treated in the fall. DO NOT USE IN CALIFORNIA
Perennial broadleaf weeds	2 to 3 pints	

SUGARCANE

CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Preemergence	2 pints	Apply before canes appear for control of emerged broadleaf weeds.
Postemergence	2 to 4 pints	Apply after cane emerges and through layby. NOT FOR USE IN CALIFORNIA.

WEEDS AND BRUSH IN PASTURES, RANGELANDS, AND FALLOWLAND

CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Established grasses and rangeland	2 pints	Apply when weeds are small and actively growing and prior to bud stage. Do not apply to newly seeded areas until grass is well established. Do not apply when grass is in the boot to milk stage if grass seed production is desired. Bent grass and legumes may be injured by this treatment.
Annual broadleaf weeds		
Perennial and biennial broadleaf weeds	3 to 4 pints	

CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Sand sage, sagebrush, shinnery oak and other 2,4-D susceptible woody species	4 pints	Apply aerially to brush in 2 or more gallons of water per acre. One gallon of fuel oil may be included in the mixture. Consult state or local brush control specialists for more effective rate, volume and timing of spray applications.
FALLOWLAND AND CROP STUBBLE		
- Annual broadleaf weeds	1 to 2 pints	Use the lower rate when weeds are small (2 to 3 inches tall) and growing actively. Use the higher rate on older and drought-stressed plants.
- Biennial broadleaf weeds	2 to 4 pints	Spray while musk thistles or other biennial species are in the seedling to rosette stage, and before flower stalks are initiated. The lower rate can be used in spring during rosette stage. In fall or after flower stalks have developed, use the highest rate.
- Perennial broadleaf weeds	2 to 6 pints	Spray weeds in bud to bloom stage, or in good vegetative growth. Do not disturb treated area for at least 2 weeks after treatment, or until weed tops are dead.
- Wild garlic and onion in crop stubble	4 to 6 pints	Apply to new regrowth of wild onion or garlic which occurs in the fall following harvest of cereal grains, soybeans, corn or grain sorghum.

RESTRICTIONS AND LIMITATIONS FOR USE ON PASTURES, RANGELAND, AND FALLOWLAND:

For ground application, a minimum of 10 to 15 gallons of water per acre is recommended for proper spray coverage.

For aerial application, use a minimum of 2 gallons of water per acre.

Do not graze animals on treated areas within 7 days after treatment.

Do not plant treated fallow land until 3 months after treatment or until chemical has disappeared from soil.

Do not cut grass for hay within 30 days after applications.

Do not permit dairy animals or meat animals being finished for slaughter to forage treated fields within 3 days of slaughter.

WEEDS IN ORNAMENTAL TURF AREAS

Golf Courses, Cemeteries, Parks, and other Turf Areas

WEEDS IN CROP	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Annual Broadleaf Weeds	2 pints	Apply any time weeds are growing vigorously. Cool-season weeds such as common chickweed, henbit and pepperweeds should be sprayed when they appear in fall or early spring. Warm-season weeds such as knotweed respond best when they are small. If there is additional germination, repeat treatment. Also controls cocklebur, galinsoga, lambsquarters, pigweed, ragweed and sunflower.
Perennial and biennial broadleaf weeds	3 to 4 pints	To control dandelion, plantain and most other common broadleaf weeds in turf, apply in spring or fall when these weeds are growing actively. Treat wild garlic or onion in three successive seasons (Example: spring, fall, spring). Do not apply to newly seeded areas until sod is formed and grass has been cut at least twice. Do not use 2,4-D ESTER LV4 for susceptible southern grasses such as St. Augustine. Bentgrass and clover may be injured by this treatment. Also controls bindweed, chicory, docks, ground ivy, hawkweed, this-ties (Canada, musk, bull and Scotch), smartweed, tansy ragwort, wild onion and wild garlic.

RESTRICTIONS AND LIMITATIONS FOR USE IN TURF AREAS

Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment areas until spray has dried or dust has settled.

The maximum number of broadcast applications per treatment site is 2 per year. This does not exclude spot treatment.

For ground application in turf areas, use enough water for good coverage (minimum 10 gallons per acre).

Do not graze animals on treated areas within 7 days after treatment.

If needed, irrigate ornamental turf thoroughly before application. Spray when air is calm to avoid drift. Avoid treatment when temperatures exceed 85°F or are expected to do so within 24 hours after application.

WEEDS AND BRUSH IN NON-CROP AREAS

Fencerows, Roadsides, Vacant Lots, Airfields, Railroad, Highway and Utility Rights-Of-Way, and other Non-Crop Areas

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Annual broadleaf weeds	2 to 4 pints	Apply when most weeds are still young and growing vigorously.
Perennial and biennial broadleaf weeds	3 to 6 pints	Apply when weeds are actively growing and near the bud stage, but before flowering. 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 actively.
Cattails and tulcs	4 pints	Mix 2 quarts 2,4-D ESTER LV4 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 is suggested.

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Woody plants	6 to 8 pints	Apply in 30 to 100 gallons of spray per acre, preferably through low-volume equipment such as DIRECTA-SPRA™, WOBBLER™, MINI-WOBBLER™ or SPIROMETER™. Treat when 2,4-D susceptible species are in full leaf and growing actively. Repeated applications, oil or wetting agent, and/or high volume spraying (300 to 500 gallons of spray per acre) may be needed for acceptable control of some species or if brush growth is dense.

RESTRICTIONS AND LIMITATIONS FOR USE IN NON-CROP AREAS

For aerial application to solid stands of susceptible brush, use 2 to 4 quarts in 3 to 12 gallons volume per acre. Two to 4 quarts of fuel oil may be included in this mixture.

Applications will be less effective when conditions such as deficient soil moisture reduce brush growth.

TANK MIXTURES FOR NON-CROP AREAS

2,4-D ESTER LV4 and GARLON® 4 or GARLON 3A Tank Mixtures for Non-Crop Areas

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Broadleaf weed control	2 to 4 pints 2,4-D ESTER LV4 Plus 2 to 6 pints Garlon-4 Or 3 to 8 pints Garlon-3A	For wider spectrum control of broadleaf weeds and woody plants: Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing.

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Woody plant control Broadcast foliar spray	1 to 2 gallons 2,4-D ESTER LV4 Plus 1 ½ to 3 quarts Garlon-4 Or 2 to 4 quarts Garlon-3A	Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray acre. Apply when woody plants are actively growing.
Woody plant Control High volume leaf-stem treatment with ground equipment	1 to 8 quarts 2,4-D ESTER LV4 Plus 1 ½ to 12 pints Garlon-4 Or 2 to 16 pints GARLON-3A	Mix 1 to 2 quarts 2,4-D ESTER LV4 plus 1 ½ to 3 pints Garlon- 4 or 2 to 4 pints Garlon-3A in enough water to make 100 gallons of spray. Apply at a volume of 100 to 400 gallons of total spray per acre depending on size and density of woody plants. Thoroughly wet all leaves, stems and root collars of plants to be controlled.
Woody plant control Aerial application (helicopter only)	1 to 2 gallons 2,4-D ESTER LV4 Plus 3 to 4 quarts Garlon-4 Or 4 to 6 quarts Garlon-3A	Apply in a total spray volume of 10 to 30 gallons per acre using drift control equipment such as the MICRO-FOIL® boom or an effective drift control agent. Use the higher rates and volumes when plants are dense or under drought conditions.

2,4-D ESTER LV4 and BANVEL® Herbicide Tank Mixtures for Non-Crop Areas

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
Annual broadleaf weeds	2 to 4 pints 2,4-D ESTER LV4 Plus ½ to 1 ½ pints Banvel	For wider spectrum control of broadleaf weeds and woody plants: Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing. Use the higher rates when treating dense or tall vegetative

WEEDS	AMOUNT OF 2,4-D ESTER LV4 PER ACRE	DIRECTIONS
		growth.
Perennial and biennial broadleaf weeds	3 to 6 pints 2,4-D ESTER LV4 Plus $\frac{1}{2}$ to 6 pints Banvel	Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing but prior to flowering. Use the lower rates for biennials less than 3 inches rosette diameter. Use the higher rates for perennial weeds or for biennial weeds past the 3-inch rosette stage.
Woody plant control Broadcast, high volume, stem foliage or aerial application	1 to 2 gallons 2,4-D ESTER LV4 Plus 2 to 8 quarts Banvel	Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre or apply as a high volume, stem foliage spray in enough volume to thoroughly wet leaves, stems and root collars (100 to 400 gallons per acre) or apply aerially in enough water to deliver total spray volume of 10 to 30 gallons per acre using drift control agent. Use the higher rates and volumes when plants are dense or under drought conditions.

SMALL AREA APPLICATIONS FOR NON-CROP USE

For control of broadleaf weeds in small non-crop areas with hand held or backpack sprayers mix 4 fluid ounces 2,4-D ESTER LV4 per gallon of water. Thoroughly wet all weed foliage. Maintain agitation of mixture to prevent separation.

FOREST MANAGEMENT*

CONIFER RELEASE

To control alder, apply 1 1/2, to 2 quarts 2,4-D ESTER LV4 in 9 $\frac{1}{2}$ to 15 gallons water per acre as a foliage spray. Treat when $\frac{1}{4}$ of the brush foliage has attained full size leaves and before new conifer growth reaches 2" in length. This is usually between early May and mid-June. Adjust treatment date depending on stage of growth of conifers and brush species. This may cause leader deformation on

exposed firs, but they should overcome this during the second year after spraying.

To control tanoak, madrone, Ceanothus, canyon live oak, and Manzanita, and to release Douglas fir, hemlock, Sitka spruce or grand fir, apply 3 quarts 2,4-D ESTER LV4 plus 3 quarts fuel oil in 8 ½ to 15 gallons water per acre before new growth on Douglas fir is 2" long. To control Manzanita and Ceanothus in ponderosa pine, apply 3 quarts 2,4-D ESTER LV4 before pine growth begins in spring.

To control hazel brush in the Lake states, apply 2 quarts 2,4-D ESTER LV4 in 6 to 25 gallons of water per acre when new shoot growth of hazel is complete (usually mid-July).

In northern areas, if possible conifer injury can be tolerated, 1 ½ to 3 quarts of 2,4-D ESTER LV4 applied aerially in 8 to 25 gallons of water per acre after conifers such as jack pine, red pine, black spruce, and white spruce have hardened off (usually mid-July) will provide control of competing hardwoods including alder, aspen, birch, hazel, and willow.

SITE PREPARATION

Budbreak Spray: To control alder and other susceptible species before planting forest seedlings, apply 2 to 4 quarts 2,4-D ESTER LV4 in 9 to 15 gallons fuel oil per acre after alder buds break, but before foliage is 1/4 full size.

Foliage Spray: To control alder before planting forest tree seedlings, apply 2 quarts 2,4-D ESTER LV4 plus 2 quarts fuel oil in 9 to 15 gallons of water per acre after most alder leaves are full size.

Consult your regional or extension forester or state herbicide specialist for recommendations to fit local conditions.

*Not currently registered in California.

LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants that this product conforms to the chemical description on the label; that this product is reasonably fit for the purposes set forth in the directions for use when it is used in accordance with such directions; and that the directions, warnings and other statements on this label are based upon responsible experts' evaluation of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants, and of residues on food crops and upon reports of field experience. Tests have not been made on all varieties or in all states or under all conditions. THE MANUFACTURER NEITHER MAKES NOR INTENDS, NOR DOES IT AUTHORIZE ANY AGENT OR

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