

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

23 MAR 1992

Nik Ramswick
Universal Cooperatives, Inc.
7801 Metro Parkway
P.O. Box 460
Minneapolis, MN 55440

Dear Ms. Ramswick:

Subject: Revised Label Text - Add Preplant Application to Corn
2,4-D Lo-V Ester Weed Killer
EPA Registration No. 1386-60
Your Submission Dated March 4, 1992

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable with the following provision:

Due to new EPA policy, part of the Environmental Hazards section has been changed. To comply, change the sentence "Do not apply to water or wetlands (swamps, bogs, marshes and potholes)" under Nonaquatic Uses to read "Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark."

A stamped copy is enclosed for your records. Please submit five (5) final printed copies for the referenced label, incorporating the above change.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Fungicide-Herbicide Branch
Registration Division (H7505C)

Enclosure

CONCURRENCES

SYMBOL	H7505C						
SURNAME	D. KENNY						
DATE	3/18/92						

BEST AVAILABLE COPY

2,4-D Lo-V Ester Weed Killer

**KEEP OUT OF REACH OF CHILDREN
CAUTION**
See Side Panel For Additional Precautionary Statements

ACTIVE INGREDIENT:		
2-Ethylhexyl ester of 2,4-dichlorophenoxyacetic acid*	65.1%
INERT INGREDIENTS	34.9%
Total	100.0%
*Isomer Specific Acid Equivalent (43.20% or 3.76 lbs./gal.) by AOAC Method No. 6.D01-5.		

Net Contents: 2½ Gallons

EPA Reg. No. 1386-60
EPA Est. No. 1386-01-1



UNIVERSAL COOPERATIVES, INC., MINNEAPOLIS, MN 55448

23 MAR 1992

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

BEST AVAILABLE COPY

CAUTION

Harmful if swallowed. Avoid breathing spray mist. Avoid contact with skin, eyes, and clothing. When handling this product, wear chemical resistant gloves. Wash thoroughly before eating or smoking. Keep out of the reach of children.

STATEMENT OF PRACTICAL TREATMENT

If Swallowed: Call a physician or Poison Control Center immediately. Do not induce vomiting unless directed by a physician since aspiration hazard exists with this product.

If on Skin: Remove contaminated clothing and wash affected areas with soap and water. Do not reuse contaminated clothing until washed. Get medical attention if irritation persists.

If In Eyes: Flush with water for at least 15 minutes. Call a physician immediately.

If Inhaled: Remove victim to fresh air. Apply respiration if indicated.

ENVIRONMENTAL HAZARDS

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.

NONAQUATIC USES

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget plants. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not contaminate water intended for irrigation or domestic purposes. Do not contaminate water when disposing of equipment washwaters. Do not apply when weather conditions favor drift from target areas.

AQUATIC USES

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.

PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

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 THROUGH ANY TYPE OF IRRIGATION SYSTEM.

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Do not enter treated areas without protective clothing until sprays have dried. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information. Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Read the above reentry statement and the precautionary statements to workers. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: "CAUTION: Area treated with 2,4-D Lo-V Ester Weed Killer (contains 2,4-D) on (date of application). Do not enter without appropriate protective clothing until sprays have dried. (Insert here Statement of Practical Treatment from label.)"

2,4-D Lo-V Ester Weed Killer will kill or control the following as well as many other noxious plants susceptible to 2,4-D:

Alligatorweed	Colliebean	Mexicanweed	Smartweed *
Arrowhead	Creeping jenny	Morningglory	Sowthistle
Artichoke	Curly indigo	Mustard	Stinkweed
Bindweed (hedge, field, European)	Dandelion	Parrotfeather	Sumac
Bitter wintercress	Dock *	Pennywort	Sunflower
Boxelder	Duckweed	Pigweed	Velvetleaf
Buckhorn	Elderberry	Plantain	Virginia creeper
Bull thistle	Goldenrod*	Poison Ivy	Waterhyacinth
Bulrush	Ground Ivy *	Pokeweed	Waterlily
Burdock	Hemp	Povertyweed	Waterprimrose
Bur ragweed	Hoary cress *	Puncturevine	Wild garlic *
Buttercup	Honeysuckle	Purslane	Wild lettuce
Catnip	Indigo	Ragweed	Wild onion *
Chickweed	Ironweed	Rush	Wild radish
Chicory	Jimsonweed	Russian thistle *	Willow
Cocklebur	Lambsquarters	Sagebrush	
	Locoweed	Shepherdspurse	

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

2,4-D Lo-V Ester Weed Killer should be used as a water diluted spray, or may be applied in liquid nitrogen fertilizer (see below), for selective control of susceptible weeds growing in small grain crops, corn, grass seed crops and ornamental turf, and for non-selective control of certain weeds not in growing crops, such as roadside, fence rows, and drainage ditch banks.

Do not use in or near a greenhouse. Crops contacted by 2,4-D Lo-V Ester Weed Killer sprays or spray drift may be killed or suffer significant stand loss with extensive quality and yield reduction.

Apply when the weeds are young and in a succulent, rapidly growing condition, since best results are obtained when soil moisture and temperature conditions are favorable for rapid growth of weed plants. Sprays applied when weeds have stopped growing rapidly, or when they are affected by a lack of moisture in the soil, are often not effective against many kinds of weeds. Spray perennial weeds after they are completely emerged, but before the bloom stage. Kill of weeds may not be evident for 2 to 3 weeks after spraying. Retreatment of areas infested with perennial weeds may be necessary.

Considerable caution must be exercised in using 2,4-D sprays to avoid injury to crops and desirable plants. Do not apply directly to vegetables, grapes, fruit trees, ornamentals, cotton, soybeans, tomatoes or other desirable plants which are sensitive to 2,4-D and do not permit spray mist to drift onto them since even minute quantities may cause severe injury during the growing or dormant periods. Excessive amounts of this product in the soil may temporarily inhibit seed germination and all plant growth. Coarse sprays are less likely to drift. At high air or ground surface temperatures, vapor from this product may injure susceptible plants in the immediate vicinity. Do not use on creeping grasses, such as Bent. Most legumes, including white clover, are usually damaged and under some conditions, killed.

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. 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. Consult local regulatory authorities before making applications.

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.

PREPARATION OF SPRAY AND APPLICATION: Recommended quantities of 2,4-D Lo-V Ester Weed Killer should be added to water in the spray tank at time of application. Agitate or stir to assure a good mixture and continue some agitation during application. The quantity of spray solution to make up will depend upon the equipment to be used. When using a low volume sprayer, the proper dosage should be applied in at least 15 gallons of water per acre, although as little as 5 to 10 gallons per acre have been used successfully in certain instances. When using a high pressure sprayer, apply in 150 to 200 gallons of water per acre. For aerial application, apply in 1 to 5 gallons of water per acre. Always use the proper amount of this 2,4-D weed killer per unit of area regardless of the quantity of water.

Do not use the spray equipment for other purposes unless thoroughly cleaned.

BEST AVAILABLE COPY

USE IN LIQUID NITROGEN FERTILIZER: 2,4-D Lo-V Ester Weed Killer may be combined with some liquid nitrogen fertilizers. However, the compatibility of 2,4-D Lo-V Ester with the fertilizer must be tested before combining in the spray tank.

JAR TEST

Amount of 2,4-D Lo-V Ester to add to one pint of liquid nitrogen fertilizer.

2,4-D Lo-V Ester Rate/Acre	Level Teaspoons of 2,4-D Lo-V Ester	
	Volume of 25 Gal./Acre	Volume of 100 Gal./Acre
1/2 pint	1/4 teaspoon	1/16 teaspoon
1 pint	1/2 teaspoon	1/8 teaspoon
2 pints	1 teaspoon	1/4 teaspoon
4 pints	2 teaspoons	1/2 teaspoon

The amount of herbicide to be tested, as indicated in the above table, is based on either 25 gallons or 100 gallons of finished spray per acre. When using lower or higher spray volumes make appropriate changes in the ingredients of the compatibility test.

In a quart jar add the appropriate amount of 2,4-D Lo-V Ester, as determined from the above chart, to one pint of liquid nitrogen fertilizer. Cover the jar and shake it well. Observe the mixture after 5 minutes and again after 30 minutes.

If the mixture does not ball up or form flakes, sludge, gels, oily films or layers or other precipitates, then the tested combination is compatible. If precipitates form but the mixture can be resuspended with agitation, the combination may be used, provided good agitation is maintained throughout the mixing and application operations.

If incompatibility occurs, the use of a suitable compatibility agent may solve the problem. Rerun the above compatibility test, but add 1/4 teaspoon of a compatibility agent prior to adding the 2,4-D Lo-V Ester. (The 1/4 teaspoon is equivalent to 2 pints per 100 gallons of liquid nitrogen fertilizer.) If the mixture is still incompatible, DO NOT USE.

TANK MIXING SEQUENCE

If the 2,4-D Lo-V Ester/fertilizer mixture is compatible without the use of a compatibility agent, fill the spray tank with half the amount of fertilizer to be used. Add the 2,4-D Lo-V Ester, with agitation, and complete filling the tank with the fertilizer. Apply immediately and continue agitation in the spray tank during application.

If a compatibility agent must be used, add it to the spray tank prior to adding the 2,4-D Lo-V Ester.

Follow applicable recommendations and field application rates on the fertilizer and compatibility agent labeling, as well as the 2,4-D Lo-V Ester labeling.

CROPS

SMALL GRAIN CROPS (Wheat, Barley, Rye, Oats): See table for recommended use rates.

Spray when weeds are small after grains are well tillered (usually 4 to 8 inches tall), but before the boot stage. Do not apply during the seedling stage, late jointing stage or after heading begins. 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.

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 the early boot stage. Some difficult weeds may require higher rates (3/4 to 1 1/4 pints per acre) for maximum control, but crop injury may result. Do not spray during or immediately following cold weather.

NOTE: Do not use on grain interplanted with legumes. Do not forage or graze treated grain fields within 14 days after treatment. Do not feed treated straw to livestock.

BEST AVAILABLE COPY

CORN: See table for recommended use rates.

Preplant (Field Corn): 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 moisture is inadequate for normal weed growth. Use high rate for control of less susceptible weeds or cover crops.

Preemergence: Apply to soil after planting but before corn emerges. Do not use on very light, sandy soils or where soil moisture is inadequate for normal weed growth. Use lower rate of application on loam soils and higher rate on clay soils.

Use high rate on soil high in organic matter. 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 to keep spray off corn foliage as much as possible. 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 the possibility of crop damage. Delay cultivation for 8 to 10 days after application to reduce possibility of stalk breakage from temporary brittleness caused by 2,4-D. Hybrid corn should be sprayed only if the cross or line is known to be tolerant to 2,4-D at the recommended dosage, or after experience has shown the particular crosses or lines being grown to be tolerant to 2,4-D treatment.

Pre-harvest: 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. Do not forage or feed corn fodder to livestock for 7 days following application.

SORGHUM (MILO): See table for recommended use rates.

Apply when sorghum is 4 to 12 inches high with secondary roots well established. When crop is over 10 inches tall, use drop nozzles to keep spray off foliage as much as possible. Do not apply from flowering to dough stage. Do not use with oil. Temporary crop injury may occur under conditions of high soil moisture and high air temperature. Hybrids should be sprayed only if the cross or line is known to be tolerant to 2,4-D at the recommended dosage or after experience has shown the particular crosses or lines being grown to be tolerant to 2,4-D treatment.

RECOMMENDED RATES OF 2,4-D LO-V ESTER WEED KILLER

Crop (See Detailed Instructions Above)	Dosage Per Acre**	
	Normal Rates (Usually Safe To Crop)	Higher Rates for Special Situations* (More Likely To Injure Crop)
SMALL GRAINS (Wheat, Barley, Rye):		
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	
OATS		
Spring	1/2 Pint	
Fall	1/4 to 3/4 Pint	3/4 to 1 1/4 Pints
Preharvest	1 to 2 Pints	
CORN		
Preplant (Field Corn)	1 to 2 Pints	
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

BEST AVAILABLE COPY

*The higher rates as recommended above may be necessary to control difficult weed problems such as under dry conditions in the Western states. They should not be used, however, unless possible crop injury is acceptable. Consult State Agricultural Experiment Station or Extension Service Weed Specialists for recommendations or suggestions to fit local conditions.

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

SUGARCANE: Use 2 pints per acre as a preemergence application before cane appears or 2 quarts per acre as a blanket spray after cane emerges and through laying, to aid in the control of Johnsongrass seedlings and susceptible broadleaf weeds.

LAWN AND ORNAMENTAL TURF: Use 1 to 3 pints of 2,4-D Lo-V Ester Weed Killer in enough water to give good coverage to one acre on established stands of perennial grasses. Do not apply to creeping grasses such as bent except for spot spraying. Newly seeded turf

BEST AVAILABLE COPY

should not be treated until after the second mowing and the lower dosage rate should be used. Reseeding of treated areas should be delayed following treatment. With spring application, reseed in the fall; with fall application, reseed in the spring. Legumes are usually damaged or killed, therefore, do not treat areas where the legumes are desired. Deep-rooted perennial weeds may require repeated treatments in the same season or in subsequent years.

GRASS SEED CROPS: Apply 1 to 4 pints of 2,4-D Lo-V Ester Weed Killer 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 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 unless injury can be tolerated. Do not graze dairy animals nor cut forage for hay within 7 days of application.

FALLOW LAND: On established perennial species such as Canada thistle and Field bindweed, apply up to 3 quarts per acre of 2,4-D Lo-V Ester Weed Killer. 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 the soil.

PASTURE AND RANGELAND: NOTE. Do not graze dairy animals on treated areas within 7 days after application. Do not harvest grass for hay within 30 days of application. Do not graze meat animals on treated areas within 3 days of slaughter. Do not use on bent grass, alfalfa, clover, or other legumes or on newly seeded pastures. Do not apply after heading begins or when grass is in the boot to milk stage where grass seed production is desired.

Bitterweed, Broomweed, Croton, Docks, Kochia, Marshelder, Muskthistle, and Other Broadleaf Weeds: Use 4 pints of 2,4-D Lo-V Ester Weed Killer per acre in the amount of water needed for uniform application. If the weeds are young and growing actively, 2 pints per acre will provide control of some species. Deep-rooted perennial weeds may require repeated treatments in the same year or in subsequent years.

Wild Garlic and Wild Onion: Apply 4 to 6 pints per acre, making three applications (fall-spring-fall or spring-fall-spring) starting in late fall or early spring.

Weed Control in Newly Sprigged Coastal Bermudagrass: Apply 2 to 4 pints per acre preemergence and/or postemergence.

Sand Shinnery Oak and Sand Sagebrush: On the oak, use 2 pints 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 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: Use 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 pint rate is usually required. Brush should be leaved out and growing actively when treated. Retreatment may be needed.

Chamise, Manzanita, Buckbrush, Coastal Sage, Coyotebrush, and Certain Other Chaparral Species: Use 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.

General Weed Control (Airfields, Roadsides, Vacant Lots, Drainage Ditch Banks, Fence Rows, Industrial Sites, and Similar Areas): Use 1 to 3 quarts per acre. Usually 2 quarts 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.

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 in 100 gallons of water. Wet all parts of the plants thoroughly including stem and foliage, to the point of run off. 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 retreatment next season.

USES IN FOREST MANAGEMENT

Conifer Release: For control of alder, apply 1 1/2 to 2 quarts of product per acre 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, apply 3 quarts of product per acre 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 in 8 to 25 gallons of water per acre 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, apply 2 quarts of product per acre 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 seedling, 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 seedling, apply 2 quarts of product per acre in 8 to 25 gallons of water after most alder leaves are full size.

Aquatic Applications

For Aquatic Weeds in Lakes, Ponds, Drainage Ditches, and Marshes, use 2 to 4 quarts of product per acre in 8 to 25 gallons of water per acre by spray to wet foliage. Do not apply to water in which fish are present.

fully developed above waterline and plants are actively growing. Your State Conservation Department or Game and Fish Commission will assist you in determining the best time and rate for application under local conditions.

DO NOT APPLY to more than 1/3 to 1/2 of a lake or pond in any one month because excessive decaying vegetation may deplete oxygen content of water and kill fish.

Perennial and other hard to control weeds may require a repeat application to give adequate control.

STORAGE AND DISPOSAL

STORAGE: Do not contaminate water, food, or feed by storage or disposal. Do not store near fertilizers, seeds, insecticides, or fungicides. Do not use 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: 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.

WARRANTY AND LIMITATION OF DAMAGES

Seller warrants that this material conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use and Buyer assumes the risk of any use contrary to such directions. Seller makes no other express or implied warranty, including any other express or implied warranty of Fitness or of Merchantability, and no agent of Seller is authorized to do so except in writing with a specific reference to this warranty. In no event shall Seller's liability for any breach of warranty exceed the purchase price of the material as to which a claim is made.

CO-OP IS A REGISTERED TRADEMARK OF UNIVERSAL COOPERATIVES, INC

BEST AVAILABLE COPY