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PM 23
1386-43

2,4-D Amine
Weed Killer

ACCEPTED
with comment
JUL 15 1985
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 1386-43

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

ACTIVE INGREDIENT:

Dimethylamine salt of 2,4-dichlorophenoxyacetic acid*.....	47.2%
INERT INGREDIENTS.....	52.8%
Total	100.0%

*Equivalent to 39.2% 2,4-dichlorophenoxyacetic acid.
Contains 3.8 pounds 2,4-D Acid equivalent per gallon.
*Isomer specific by AOAC Method No. 6.D01.5.

Net Contents: 1 Gallon
Product 102
901014-6-84

EPA Reg. No. 1386-43
EPA Est. No. 1386-OH-1

CO-OP

UNIVERSAL COOPERATIVES, INC., MINNEAPOLIS, MN 55440

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

Harmful if swallowed. Avoid breathing spray mist. Avoid contact with skin, eyes, and clothing. Wash thoroughly before eating or smoking. Keep out of the reach of children.

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Contact a physician immediately. Give victim one or two glasses of water and induce vomiting by touching the back of throat with a finger. Repeat until vomit fluid is clear. Do not induce vomiting or give anything by mouth to an unconscious person.

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

Do not apply directly to water except as specified on this label for aquatic weed control. Do not contaminate water used for irrigation or domestic purposes [(except as specifically recommended on this label) especially in areas where grapes, cotton, tomatoes, or other susceptible plants are grown. Do not treat irrigation ditches in areas where water will be used to overhead (sprinkler) irrigate susceptible crops especially grapes, tomatoes, tobacco, and cotton.]. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not apply when weather conditions favor drift from target area.

DIRECTIONS FOR USE

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

3 of 14.

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

Arrowhead	Common mullein	Mallow	Shepherdspurse
Artichoke	Creeping jenny	Mexicanweed	Smartweed
Bindweed (hedge, field, European)	Curly indigo	Morningglory	Sow thistle
	Dock	Mustard	Stinkweed
Bitter wintercress	Dogbane	Parrotfeather	Sumac
Boxelder	Duckweed	Pennywort	Sunflower
Buckhorn	Elderberry	Pigweed	Virginia creeper
Bull thistle	Goldenrod	Plantain	Waterhyacinth
Bulrush	Ground ivy	Poison ivy	Waterlily
Burdock	Hemp	Pokeweed	Waterprimrose
Bur ragweed	Henbit	Povertyweed	Wild carrot
Buttercup	Hoary cress	Prickly lettuce	Wild garlic
Canada thistle	Honeysuckle	Puncturevine	Wild lettuce
Catnip	Indigo	Purslane	Wild onion
Chickweed	Ironweed	Rush	Wild radish
Chicory	Jimsonweed	Russian thistle	Willow
Cocklebur	Lambsquarter	Sagebrush	Witchweed
Coffeebean	Locoweed	Sheep sorrel	

This product should be used as a water diluted spray, or may be mixed with liquid nitrogen fertilizer (see below), for selective control of susceptible weeds growing in small grain crops, corn, sorghum, lawns and ornamental turf, and for non-selective control of certain weeds not in growing crops, such as roadsides, fence rows, and drainage ditchbanks.

Apply when the weeds are young and are 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. Spray 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

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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, flowers, grapes, fruit trees, ornamentals, cotton 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. Coarse sprays are less likely to drift. Do not use on creeping grasses, such as bent. Most legumes, including white clover, are usually damaged and, under some conditions, killed. Excessive amount of 2,4-dichlorophenoxyacetic acid in the soil may temporarily inhibit seed germination or plant growth.

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 such 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 for your state.

PREPARATION OF SPRAY AND APPLICATION: Recommended quantities of this product 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 2,4-D Amine Weed Killer per unit area regardless of the quantity of water.

SMALL QUANTITIES: For mixing and applying small quantities, use the following approximate equivalents:

Dosage per Acre	Amount per 1,000 Sq. Ft.	Dosage per Acre	Amount per 1,000 Sq. Ft.
1/2 pint	1 1/8 teaspoons	2 1/2 pints	5 1/2 teaspoons
1 pint	2 1/4 teaspoons	4 pints	3 tablespoons
2 pints	4 1/2 teaspoons	6 pints	4 1/2 tablespoons

The dosage rates applied with low-volume power sprayers in 15 gallons of water per acre may usually be applied by means of hand or knapsack sprayers in 3 to 4 gallons of water per 1,000 square feet.

CLEANING SPRAY EQUIPMENT: It is almost impossible to remove residues of 2,4-D from sprayers and spray equipment, particularly from non-metallic parts (wood, rubber, fibre), and it is advisable NOT to use the same equipment for applying other materials to plants or crops.

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

JAR TEST

Amount of 2,4-D Amine to add to one pint of Liquid Nitrogen Fertilizer.

2,4-D Amine Rate/Acre	Level Teaspoon of 2,4-D Amine	
	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 Amine, 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.

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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 Amine. (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 Amine/fertilizer mixture is compatible without the use of a compatibility agent: Fill the spray tank with half the amount of fertilizer to be used. Make a pre-mix of 1 part of 2,4-D Amine and 4 parts water. Add the pre-mix to the spray tank, 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 Amine/water pre-mix.

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

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 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: Apply in sufficient water to give good coverage. Apply after the fully tillered stage, except during the boot to dough stage.

Fall Planted Oats: Apply after full tillering but before early boot stage. Some difficult weeds may require higher rates of 1 to 1 1/2 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 field 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 to soil anytime after planting but before corn emerges. Do not use on very light, sandy soil.

Emergence: Apply just as corn plants are breaking ground.

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 due to 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 of 2,4-D Amine 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 6 to 15 inches high with secondary roots well established. Use drop nozzles when crop is over 8 inches high. Do not apply from flowering to dough stage. Temporary crop injury can be expected under conditions of high soil moisture and high air temperatures. If it is necessary to apply 2,4-D Amine under these

conditions, use no more than 2/3 pint per acre. 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.

RICE: See table for recommended use rates.

Apply in the late tillering stage of rice development, at the time of first joint development (first to second green ring), usually 6 to 9 weeks after emergence. Do not apply after panicle initiation, after rice internodes exceed 1/2 inch, at early seedling, early panicle, boot, flowering, or early heading growth stages. Some rice varieties under certain conditions can be injured by 2,4-D. Therefore, before spraying consult local Extension Service or University specialists for appropriate rates and timing of 2,4-D sprays.

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SUGARCANE: See table for recommended use rates.

Apply as a pre- or post emergence spray according to State recommendations. Do not apply within 6 weeks of harvest. Up to 4 applications per season may be used in accordance with State recommendations.

apply as a preemergence application before cane appears or as a postemergence application in spring after cane emerges and through layby

677-296

9 of 14

RECOMMENDED RATES OF
2,4-D AMINE 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		
Spring Postemergence		
wheat, barley, rye	2/3 to 1-1/3 pints	2 to 3 pints
oats	1/2 to 1 pint	1 1/2 to 2 pints
Preharvest (dough stage)		
wheat, barley, oats	1 to 2 pints	2 to 3 pints
CORN		
Preemergence	2 to 4 pints	
Emergence	1 pint	1 1/2 pints
Postemergence		
up to 8 inches tall	1/2 to 1 pint	
8 inches to tasseling (use only directed spray)	1 pint	1 1/2 to 2 1/2 pints
Preharvest	1 to 2 pints	
SORGHUM		
Postemergence		
6 to 8 inches tall	2/3 to 1 pint	
8 to 15 inches tall (use only directed spray)	1 pint	1 1/2 to 2 pints
RICE	1 to 2 1/2 pints	2 to 3 pints
SUGARCANE	2 to 4 pints	

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* 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.

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

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LAWN AND ORNAMENTAL TURF: Use 1 to 3 pints of 2,4-D Amine Weed Killer in enough water to give good coverage to one acre on established stands of perennial grasses. Do not use on creeping grasses such as Bent except for spot spraying. Newly seeded turf should not be treated until after the second mowing and the lower dosage rate should be used. Reseeding of lawns 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 such as bindweed and Canada thistle may require repeated application.

Resistant Weeds in Lawn and Ornamental Turf (Spot Treatment): To control certain broadleaf weeds, such as jimsonweed, prickly lettuce, mallow, purslane, shepherd's purse, smartweed, henbit, buttercup, wild carrot, docks, pokeweed, common mullein and sheep sorrel usually require a considerably higher dosage rate. These resistant weeds usually may be controlled in localized areas or spots by applying 1 to 1-1/4 tablespoons per gallon of water when the plants are young and growing vigorously.

THIS HIGH DOSAGE RATE CANNOT BE USED WITHOUT CAUSING SEVERE INJURY, AND CONSEQUENTLY, ITS USE MUST BE EXCLUSIVELY FOR SPOT TREATMENT WHERE SUCH INJURY CAN BE TOLERATED.

Repeated treatments, if new weed growth occurs, may be necessary to maintain control.

GRASS SEED CROPS: Use 1 to 4 pints per acre in 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. NOTE: Do not use on bent grass unless grass injury can be tolerated. Do not graze dairy animals nor cut forage for hay within 7 days after application.

FALLOW LAND: Use 1 to 2 quarts per acre on annual broadleaf weeds

and up to 3 quarts per acre on established perennial species, such as Canada thistle and field bindweed. Apply to weeds actively growing. Do not plant any crop for 3 months after treatment or until 2,4-D has disappeared from the soil.

PASTURES AND RANGELAND: To control many broadleaf weeds in pastures, meadows, and rangelands, use 2 to 4 pints per acre of 2,4-D Amine Weed Killer in sufficient water to provide for uniform application. Treat when weeds are growing actively. Do not use on newly seeded areas until grass is well established. Do not use from early boot to milk stage where grass seed production is desired. Most legumes are usually injured or killed at the rates recommended. Do not graze dairy animals on treated areas within 7 days of application.

CONTROL OF SOUTHERN WILD ROSE: On rangelands, roadsides, and fencerows, use 1 gallon plus 4 to 8 fluid ounces of an agricultural surfactant per 100 gallons of water and spray thoroughly as soon as foliage is well developed. Two or more treatments may be required. On rangeland, apply a maximum of 6 quarts per acre per application. Do not graze dairy animals on treated area within 7 days after application.

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. Treat when weeds are young and actively growing. 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 3 months or until 2,4-D has disappeared from the 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 runoff. Higher volumes of up to 400 gallons 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

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when leaves lose their green color. Hard to control species may require retreatment next season.

TREE INJECTION: For control of unwanted hardwoods such as elm, oak, hickory, and sweetgum in forest and other non-crop areas, apply undiluted by injecting 1 ml through the bark, using one injection per inch of trunk diameter measured at breast height (4 1/2 feet). For harder to control species (ash, maple, dogwood), use 2 ml undiluted per injection. All injections should be as near the root collar as possible and should be evenly spaced around the trunk. Injections may be made at any time of the year but are most effective during the growing season. Maples should not be treated during the spring sap rise.

AQUATIC APPLICATIONS:

Weeds and Brush on Irrigation Canal Ditchbanks: Seventeen Western States: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, New Mexico, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming.

For control of annual and perennial broadleaf weeds, apply 1 to 2 quarts per acre in approximately 20 to 100 gallons per acre of total spray. Treat when weeds are young and actively growing before the bud or early bloom stage. For harder to control weeds, a repeat spray may be needed after 3 to 4 weeks for maximum results, using the same rates. Apply no more than 2 treatments per season. For woody brush and patches of perennial broadleaf weeds, mix one gallon in 150 gallons of water. Wet foliage thoroughly, using approximately 1 gallon of spray solution per square rod.

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Spraying Instructions: Low pressure (10 to 40 psi) power spray equipment should be used and mounted on a truck, tractor, or boat. Apply while traveling upstream to avoid accidental concentration of chemical into water. Spray when the air is calm, 5 mph or less. Do not use on small canals (less than 10 CFS) where water will be used for drinking purposes.

Boom spraying onto water surface must be held to a minimum and no cross-stream spraying to opposite banks should be permitted. When

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spraying shoreline weeds, allow no more than 2-foot overspray onto water with an average of less than one-foot overspray to prevent introduction of greater than negligible amounts of chemical into water.

Do not allow dairy animals to graze on treated areas for at least 7 days after spraying. Water within treated banks should not be fished.

For Aquatic Weeds in Lakes, Ponds, Drainage Ditches, and Marshes: Use 2 1/2 to 4 1/2 pints of product in 50 to 100 gallons of water per acre. Spray to wet foliage thoroughly. Application should be made when leaves are 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.

3951-64

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.

Do not contaminate water used for irrigation or domestic purposes.

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 at temperatures below 40° F. Do not store near fertilizers, seeds, insecticides, or fungicides.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticides 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.

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.