

PM 23

228-139

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RIVERDALE

2,4-D L. V. 4 ESTER

A SELECTIVE WEED KILLER

FOR CONTROL OF MANY BROADLEAF WEEDS AND BRUSH CONTROL IN CORN, SMALL GRAINS, SOYBEAN (PREPLANT ONLY) AND OTHER LISTED CROPS AND IN NON-CROP AREAS SUCH AS LAWNS, DRAINAGE DITCHBANKS, PASTURES, RANGELANDS, FENCE ROWS, RIGHTS-OF-WAY. ALSO FOR AQUATIC WEED CONTROL.

See Label for Tank Mixes in Both Crop and Non-Crop Areas

ACTIVE INGREDIENT:

Isooctyl (2-ethylhexyl) Ester of 2,4-Dichlorophenoxyacetic Acid* . . . . .	67.2%
INERT INGREDIENTS: . . . . .	32.8%
Contains Petroleum Distillates . . . . .	TOTAL . . . . . 100.0%

Isomer Specific AOAC Method, Equivalent to:

\*2,4-Dichlorophenoxyacetic Acid . . . . . 44.6%, 3.84 lbs./gal.

KEEP OUT OF REACH OF CHILDREN

CAUTION - CAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)

SEE INSIDE BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND STATEMENT OF PRACTICAL TREATMENT

EPA REG. NO. 228-139

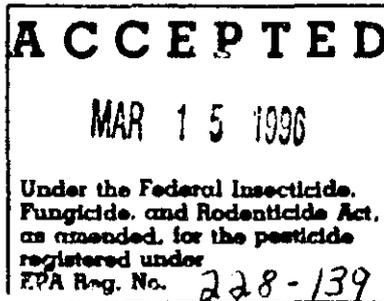
NET CONTENTS GALS.

EPA EST. NO. 228-IL-1

MANUFACTURED BY

RIVERDALE CHEMICAL COMPANY

GLENWOOD, ILLINOIS 60425-1584



NOTE: Spanish Language is optional.

Revised A/O 5/22/95 Spigots Previously Added

PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION - CAUCION

Harmful if swallowed, inhaled or absorbed through skin. Avoid inhalation of vapors or spray mist, and contact with skin, eyes and clothing. Remove saturated clothing as soon as possible and shower. If this container is over one gallon and less than five gallons, then persons engaged in open pouring of this product must also wear coveralls or a chemical resistant apron. If this container is five gallons or more in capacity, do not open pour product from this container. 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.

**NON-WPS TURF USES:** Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard (40 CFR Part 170)--in general, only agricultural-plant uses are covered by the WPS -- must wear: long pants, long-sleeved shirt, socks, shoes and chemical resistant gloves. After using this product, rinse gloves before removing, remove clothing and launder separately before reuse, and promptly and thoroughly wash hands and exposed skin with soap and water. The maximum number of broadcast applications to turf per treatment site is 2 per year.

**NON-WPS INDUSTRIAL/AQUATIC USES:** When mixing, loading or applying this product or repairing or cleaning equipment used with this product, wear face shield, goggles or safety glasses and chemical resistant gloves, long-sleeved shirt, long pants, socks and shoes. It is recommended that safety glasses include front, brow and temple protection. For aerial applicators in an enclosed cockpit and applicators applying this product from a tractor that has a completely enclosed cab, eye protection is not required. Wash hands, face and arms with soap and water as soon as possible after mixing, loading or applying this product. After work, remove all clothing and shower using soap and water. Do not reuse clothing worn during the previous day's mixing and loading or application of this product without cleaning first. Clothing must be kept and washed separately from other household laundry.

**WPS USES:** 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 E on an EPA chemical resistance category selection chart. Applicators and other handlers who handle this pesticide for any use covered by the Worker Protection Standard (40 CFR Part 170) -- in general, agricultural-plant uses are covered -- must wear: long-sleeved shirt and long pants; chemical-resistant gloves such as Barrier Laminate, Nitrile Rubber  $\geq$  14 mils, Neoprene Rubber  $\geq$  14 mils and Viton  $\geq$  14 mils; shoes plus socks; and protective eyewear. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment (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 of PPE must not be reused until it has been cleaned. If this container is over one gallon and less than five gallons, mixers and loaders who do not use a mechanical system (such as a probe and pump or spigot) to transfer contents of this container must wear coveralls or a chemical resistant apron in addition to the other required PPE. Engineering Controls Statements: If this container is five gallons or more in capacity, do not open pour product from this container. 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)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS. 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 requirements may be reduced or modified as specified in the WPS.

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**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.

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**STATEMENT OF PRACTICAL TREATMENT**

IF SWALLOWED: Get medical attention immediately. This product contains petroleum distillates. DO NOT induce vomiting or give anything by mouth to an unconscious person.

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

IF IN EYES: Flush eyes with water for 15 minutes and get medical attention.

**ENVIRONMENTAL HAZARDS**

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. 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. Vapors from this product may injure susceptible plants in the immediate vicinity. Use care to avoid spray contact or drift to 2,4-D susceptible plants such as cotton, tomatoes, flowers, okra, grapes, fruit trees and ornamentals. Do not permit spray mist containing this product to drift onto them. Do not spray when the wind is blowing towards susceptible crops or ornamental plants. Use coarse sprays and/or low spray pressure to minimize drift. Do not apply with hollow cone type insecticide or other nozzles that produce fine spray droplets. Spray drift can be lessened by keeping the spray boom as low as possible by spraying when wind velocity is low, by decreasing the pounds of pressure of the nozzle tips, and by stopping all spraying when wind exceeds 6 to 7 miles per hour. On cropland and along roadsides, do not exceed 20 psi pressure. Do not apply when a temperature air inversion exists. If questions exist pertaining to the existence of an inversion, consult with local weather services before making an application. Do not use the same spray equipment for applying other materials to 2,4-D susceptible crops as injury may result. It is best to use a separate sprayer for application of insecticides and fungicides. Clean and rinse spray equipment using soap or detergent and water or suitable chemical cleaner, and rinse thoroughly before reuse for other spraying. Do not contaminate water when disposing of equipment washwaters. Do not apply this product through any type of irrigation system. Do not contaminate domestic or irrigation waters. However, treated water may be used for watering turf grasses immediately after application. Do not use in or near a greenhouse. Excessive amounts of this product in the soil may temporarily inhibit seed germination and plant growth.

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. When using on Pastures and Rangeland Grasses there is a (1) 7 day pre-grazing interval for dairy cattle; (2) 30 day preharvest interval for grass cut for hay; and (3) 3 day pre-slaughter interval for meat animals.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. READ ENTIRE LABEL BEFORE USING THIS PRODUCT. USE STRICTLY IN ACCORDANCE WITH LABEL PRECAUTIONARY STATEMENTS AND DIRECTIONS.

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 is 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, Nitrile Rubber  $\geq$  14 mils, Neoprene Rubber  $\geq$  14 mils and Viton  $\geq$  14 mils; shoes plus socks, and 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.

For Turf use, do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment areas until spray has dried.

#### GENERAL INFORMATION

This product is a low volatile ester especially prepared for use on crops and weeds where a susceptible crop in the near vicinity may be injured by a more volatile product. It is recommended for control of numerous broadleaf weeds and certain 2,4-D susceptible woody plants without injury to most established grasses. In cropland, 2,4-D is more effective than amines for controlling hard-to-kill weeds such as Bindweed, Thistle, Smartweeds, Wild garlic, Curly dock, Tansy ragwort, and Wild onions. For best results, apply this product as a water or oil spray during warm weather when young succulent weeds or brush are actively growing. Application under drought conditions often will give poor results. The lower recommended rates will be satisfactory on susceptible, annual weeds. For perennial weeds and conditions such as the very dry areas of the Western States where control is difficult, the higher recommended rates should be used. Deep-rooted perennial weeds such as Canada thistle and Field bindweed and many woody plants usually require repeated applications for maximum control.

Unless otherwise recommended, suggested application rates may be 1 to 10 gallons of total spray by air or 5 to 25 gallons by ground application equipment. If band treatment is used, base the dosage rate on the actual area to be sprayed. Although water quantities may vary due to different types of application equipment, sufficient water must be used to provide for complete and uniform coverage. Higher water gallonage may be used if desired to improve spray coverage. In all cases, use the same recommended amount of 2,4-D per acre. When product is used for weed control in crops, the growth stage of the crop must be considered. For crop use, do not mix with oil or other adjuvants unless specifically recommended on label. To do so may reduce herbicide's selectivity and could result in crop damage. 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



stage. Higher rates may be needed to handle difficult weed problems in certain areas such as under dry conditions especially in Western areas. However, do not use unless possible crop injury will be acceptable. For the high rates on Spring wheat and barley as well as Winter wheat and rye, consult State Agricultural Experiment Station or Extension Service weed specialist for recommendations or suggestions to fit local conditions.

**For emergency weed control in wheat:** Perennial broadleaf weeds - apply 3 pints per acre when weeds are approaching bud stage. Do not spray grain in the boot to dough stage. The 3 pint per acre application can produce injury to wheat. Balance the severity of your weed problem against the possibility of crop damage. Where perennial weeds are scattered, spot treatment is suggested to minimize the extent of crop injury. Use 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 grain damage risk. Do not apply this product to grain in the seedling stage. For aerial application on grain, apply this product in 1 to 5 gallons of water per acre. For ground application, use a minimum of 5 gallons of water per acre.

**Spring Seeded Oats:** Use 1/2 pint per acre with recommended amount of water to give good coverage. Apply after the fully tillered stage, except during the boot to dough stage.

**Fall Seeded Oats (Southern):** Apply 1/4 to 1-1/4 pints per acre with recommended amount of water after full tillering but before early boot stage. Some difficult weeds may require the 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.

**Pre-harvest Treatment:** Apply 1 to 2 pints with recommended amount of water per acre when grains are in the hard dough stage to control large weeds that may interfere with harvest. Best results will be obtained when soil moisture is sufficient to cause succulent weed growth.

**Note:** Oats are less tolerant to 2,4-D than wheat or barley and more likely to be injured. **Wheat and Barley:** Control of Wild Garlic and Wild Onion

For improved control of difficult weeds including Wild Garlic and Wild Onion, apply 1 to 2 pints of product per acre. Since these rates may injure the crop do not use unless possible crop damage is acceptable. For the higher rates on Spring wheat and barley, consult your local State Agricultural Experiment Station or Extension Service Weed Specialist for recommendations or suggestions to fit local conditions.

**Control of Wild Garlic in Stubble Grain and Corn Fields:**

Following the harvest of small grains and corn, Wild Garlic often produces new Fall growth. This should be sprayed with 4 to 6 pints of product in 10 to 40 gallons of water per acre. This is a useful practice as one part of Wild Garlic control program. Do not plant any crop for three months after treatment.

**SORGHUM (Milo):** For Post-emergent control in average conditions, use 1/3 pint; dry conditions (Western States), use 1/2 to 3/4 pints with suggested volume of 5 gallons of water by air or 5 to 20 gallons with ground equipment to make per acre applications. Apply to sorghum when crop is 5 to 15 inches high to top of canopy with secondary roots well established. If sorghum is taller than 8 inches, use drop nozzles to keep the spray off the foliage as much as possible. Do not apply during boot, flowering or early 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. Because temporary injury may occur if conditions of high temperature and high soil moisture exist, use lower rate. Varieties vary in tolerance to 2,4-D and some hybrids are quite sensitive. Spray only varieties known to be tolerant to 2,4-D. Contact seed company or your Agricultural Experiment Station or Extension Service weed specialist for this information.

**SUGARCANE:** Use 2 pints per acre as a pre emergent application to control already emerged weeds before canes appear or 4 pints per acre as a blanket spray after cane emerges and through layby. Consult local Agricultural Experiment or Extension Service weed specialist on specific use of this product or in combination with Dalapon to control broadleaved and grass weeds.

**GRASS SEED CROPS:** Apply 1 to 4 pints of product in up to 30 gallons of water per acre by air or ground equipment 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-control 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.

**NO-TILL APPLICATION:** 2,4-D L. V. 4 Ester may be used in the broadcast method with a normal boom or with direct pipes set 12" apart in 36" rows. When using this product, apply at a rate of 13-1/2 oz. in 10 gallons of water per acre. Maintain uniform pressure and speed when applying.

**CROP RESIDUE MANAGEMENT SYSTEMS  
IN SOYBEANS (Preplant only)**

**GENERAL INFORMATION** 2,4-D L. V. 4 Ester is a herbicide that provides control of many emerged susceptible annual and perennial broadleaf weeds. It may be applied prior to planting soybeans to provide foliar burndown control of susceptible annual and perennial broadleaf weeds and certain broadleaf cover crops such as those listed on this label. This product should only be applied preplant to soybeans in situations such as reduced tillage production systems, where emerged weeds are present. Apply only according to the application instructions given below. Do not use any tillage operations between application of Riverdale 2,4-D L. V. 4 Ester and planting soybeans.

**MIXING INSTRUCTIONS:** 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.

**APPLICATION PROCEDURES:** 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.

**APPLICATION TIMING AND USE RATES:**

2,4-D Formulation Used	Maximum Rate (per acre)	When to Apply (Days prior to planting soybeans)
2,4-D L. V. ESTER	1 pint (16.6 fl. oz.) (0.5 lb. a.e./acre)	NOT LESS THAN 7 DAYS
	2 pints (33.3 fl. oz.) (1.0 lb. a.e./acre)	NOT LESS THAN 30 DAYS

**WEEDS CONTROLLED:** Alfalfa\*, Bindweed\*, Bittercress-smallflowered, Bullnettle, Buttercup-smallflowered, Carolina geranium, Cinquefoil-common and rough, Clover-red\*, Cocklebur-common, Dandelion\*, Eveningprimrose-cutleaf, Garlic-wild\*, Horsetweed or marestail, Ironweed, Lambsquarters-common, Lettuce-prickly, Morningglory-annual, Mousetail, Mustard-wild, Onion-wild\* Pennycress-field, Peppergrass\*, Purslane-common, Ragweed-common, Ragweed-giant, Shepherdspurse, Smartweed-Pennsylvania\*, Sowthistle-annual, Speedwell, Thistle-Canada\*, Thistle-bull, Velvetleaf, Vetch-hairy\*, and Virginia copperleaf.  
\*These species are only partially controlled.

For best weed control at time of treatment, weeds should be small, actively growing and free of stress caused by extremes in climatic conditions, diseases, or insect damage. The response of individual weed species to 2,4-D L. V. 4 Ester is variable. Consult your local county or State Agricultural Extension Service or crop consultant for advise.

**APPLICATION RESTRICTIONS AND PRECAUTIONS:** Important Notice - Unacceptable injury to soybeans planted fields treated with 2,4-D L. V. 4 Ester may occur. Whether or not soy bean 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.

Do not use on low organic sandy soil (<1.0%).

Apply a maximum of one application per growing season regardless of the treatment rate.

**Livestock Grazing Restriction:** Do not feed hay, forage or fodder. Restrict livestock from grazing treated fields. Livestock should be restricted from feeding/grazing of treated cover crops.

In fields treated with 2,4-D L. V. 4 Ester, plant soybean seed as deep as practical or at least 1.0 inch deep. Adjust the planter, if necessary, to ensure that planted seed is completely covered.

Do not apply 2,4-D L. V. 4 Ester prior to planting soybeans, if you are not prepared to accept the results of soybean injury, including possible loss of stand and yield.

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

#### SELECTIVE WEEDING IN NON-CROP AREAS

**ORNAMENTAL TURF** such as Lawns, Golf Courses (Fairways, Aprons, Tees and Roughs), Sod Farms, Cemeteries, and Parks:

Use 2 to 4.2 pints of product in 40 to 180 gallons of water to give good coverage to one acre on established stands of perennial grasses. Usually 4 pints per acre provides good weed control under average conditions. On turf, apply a maximum of 4.2 pints of this product per acre per application per site. Treat when weeds are young and actively growing. Do not apply to newly seeded grasses until well established. Use higher rate for hard-to-kill weeds. Use higher rate when using higher volume of water per acre. Do not exceed specified application dosages for any area. Deep-rooted perennial weeds may require re-peated treatments in the same season or in subsequent years. Spray when air temperature is between 50° and 85°F. Avoid applying during excessively dry or hot periods unless irrigation (watering) is used before treatment. For optimum results: (1) Do not apply if rainfall is expected within 48 hours, nor should lawns be irrigated for 48 hours following application. (2) Turf should not be mowed for 1 to 2 days before and after application. Reseed no sooner than 3 to 4 weeks after application of this product. Adding oil, wetting agent, or other surfactant to the spray may be used to increase effectiveness on weeds but doing so may reduce selectivity to turf resulting in turf damage. Maximum kill of weeds will be obtained by applying in Spring and early Fall when weeds are actively growing. Do not use on golf greens nor on dichondra or other broadleaf herbaceous ground covers. Do not use on creeping grasses such as bent and St. Augustine except for spot treating, nor on newly seeded turf until grass is well established.

**FALLOW LAND:** Use 1 to 6 pints of this product in a recommended minimum of 10 gallons of water per acre for ground application and recommended minimum of 2 gallons for aerial application of water per acre on annual broadleaf weeds and up to 6 pints per acre on established perennial species such as Canada thistle and Field bindweed. Use lower rate when annual weeds are small (2" to 3" tall) and growing actively. Use the higher rate on older and drought-stressed plants. Spray musk thistles and other biennial species while in 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 highest rate. Spray perennial weed 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. Do not plant any crop for 3 months after treatment or until chemical has disappeared from soil.

**ESTABLISHED PASTURES AND RANGELANDS:** The rates of application for pastures and rangelands are per acre per application per site. Use 1 to 4 pints of product 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. Do not use on bentgrass, alfalfa, clover, or other legumes. Do not use on newly seeded areas until grass is well established. Do not use from early boot to milk stage when grass seed production is desired.

**Bitterweed, Broomweed, Croton, Docks, Kochia, Marshelder, Musk thistle, and Other:**

**Broadleaf Weeds:** Use 2 to 4.2 pints of this product in 1 to 30 gallons of water per acre. If 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.

**Weed Control in Newly Sprigged Coastal Bermudagrass:** Apply 2 to 4 pints of this product in 20 to 100 gallons of water per acre pre-emergence and/or post-emergence.

**WILD GARLIC AND WILD ONION CONTROL:** Apply 4 to 6 pints of product per acre making three applications, Fall-Spring-Fall or Spring-Fall-Spring, starting in the late Fall or early Spring.

**GENERAL WEED CONTROL (Airfields, Roadsides, Vacant Lots, Drainage Ditchbanks, Fencerows, Industrial Sites, Rights-of-Way, and similar areas):**  
Use 2 to 6 pints of product per acre. Apply when most annual broadleaf weeds are still young and growing vigorously. Apply when perennial and biennial 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. Mix 4 pints of this product in 2 quarts kerosene or diesel oil, then add this mixture to 100 gallons of water. Apply 200 to 500 gallons of spray per acre, depending on the stand. The addition of a wetting agent (spray adjuvant) is suggested. Usually 4 pints per acre will give adequate control. Do not use on herbaceous ground covers or creeping grass such as Bent. Legumes will usually be damaged or killed. Deep-rooted perennials may require repeat applications. Do not use on freshly seeded turf until grass is well established. Delay reseeding for 30 days.

**CONTROL OF SOUTHERN WILD ROSE:** On roadsides and fencerows, use 1 gallon of this product plus 4 to 8 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 4.2 pints of this product per acre per application.

**SPOT TREATMENT IN NON-CROP AREAS:** To control broadleaf weeds in small areas with a hand or back pack sprayer, use 4 fluid ounces of this product per gallon of water and spray to thoroughly wet all foliage.

**GRASSES IN CONSERVATION RESERVE PROGRAM AREAS:** To control annual broadleaf weeds, apply when weeds are actively growing. Use 1/2 to 1 pint per acre when weeds are small; use higher rates on older weeds. Excessive injury may result if applied to young grasses with fewer than 6 leaves or prior to grasses being well established. To control biennial and perennial broadleaf weeds in established grasses, apply at a rate of 2 to 4 pints per acre. Apply to actively growing weeds. Treat when biennial weeds are in the seedling to rosette stage and before flower stalks become apparent. Treat perennial weeds in the bud to bloom stage.

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

#### AQUATIC APPLICATIONS

**FOR AQUATIC WEEDS IN STILL LAKES, PONDS, DRAINAGE DITCHES AND MARSHES:** Aerial Application - Use 2-1/2 pints of this product in 5 to 15 gallons of water to cover one surface acre. Boat Application - Use 4-1/2 pints of this product in 50 to 100 gallons of water per acre. Uniform coverage is essential. Avoid submerging plants after treatment. Application should be made when leaves are fully developed above water line and plants are actively growing. Consult your State Game and Fish Department or Water Control Agency prior to application of this product for aquatic weed control. Treatment of aquatic weeds can result in oxygen loss from decomposition of dead weeds. This loss can cause fish suffocation. Therefore, to minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation and wait at least 10 to 14 days between treatments. Begin treatments along the shore and proceed outwards in bands to allow fish to move into untreated areas.

#### BRUSH CONTROL

The maximum application rate for forestry site preparation is 1 gallon 6 ounces per acre per application per site.

**WOODY PLANT CONTROL:** To control woody plants susceptible to 2,4-D such as Alder, Buck brush, Elderberry, Sumac, Cherokee rose, Japanese honeysuckle, Virginia creeper, Wild grape and Willow on non crop areas such as rights-of way, fence rows, roadsides and along ditchbanks, use 2 to 3 quarts of product per acre in 30 to 100 gallons of water. Lower volume of water can be used unless applying through such equipment as Directa-Spra, Wobbler, Mini Wobbler, Spirometer. Spray brush 5 to 8 feet tall after Spring foliage is

well developed. Wet all parts of the plant thoroughly, including stem and foliage, to the point of runoff. Higher volumes of up to 300 to 500 gallons of spray per acre may be necessary where the brush is very dense and over 6 to 8 feet high.

Spraying can be effective at anytime up to 3 weeks before frost as long as soil moisture is sufficient for active growth of the brush. Control will be less effective in mid-Summer during hot dry weather when soil moisture is deficient and plants are not actively growing. Oil or wetting agent may be added to the spray if needed for increased effectiveness. Hard-to-control species may require re-treatment next season. In general, it is better to cut tall woody plants and spray sucker growth when 2 to 4 feet tall.

**SAND SHINNERY OAK AND SAND SAGEBRUSH:** On the oak, use 2 pints of this product in 5 gallons of oil or in 4 gallons of water plus 1 gallon of oil per acre. Apply by aircraft between May 15 and June 15. On the Sagebrush, use 2 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 2 to 6 pints in 2 to 3 gallons of oil or in 3 to 5 gallons of oil-water emulsion spray. For Rabbitbrush, the 6 pints rate is usually required. Brush should be leafed out and growing actively when treated. Retreatment may be needed.

Chamise, Manzanita, Buckbrush, Coastal Sage, Coyotebrush and Certain other Chaparral Species: Use 2 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 leafed out and growing actively when sprayed. Retreatment may be needed. Consult State or local brush control specialists for most effective rate, volume and timing of spray application.

**CATTAILS, TULE (BULRUSH), AND OTHER RUSHES:** Mix 4 pints of this product and 1 gallon of diesel oil or kerosene, then add this mixture to 100 gallons of water (1-1/2 to 2-1/2 quarts of 2,4-D L.V. 4 Ester in 400 to 800 gallons of spray per acre). Addition of a wetting agent may be advisable. Apply in the Spring during flower head emergence. Spray to wet all foliage. Respray if needed when regrowth is 3 to 5 feet tall.

#### 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. Treat when 3/4 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 and brush species. This may cause leader deformation on exposed firs, but they should overcome this during the second year after spraying. To control susceptible brush species such as Ceanothus spp., Chinquapin, Madrone, Manzanita, Oak and Tanoak and to release Douglas fir, hemlock, Sitka spruce or grand fir, apply 3 quarts of product per acre before new growth on Douglas fir is 2" long. To control Manzanita and Ceanothus in ponderosa pine, apply 3 quarts of this product before pine growth begins in Spring. To increase performance, add 2 to 4 quarts of diesel, fuel oil, kerosene, or a suitable approved agricultural surfactant at recommended label rate.

After Northern conifers, jack pine, red pine, black spruce, and white spruce cease growth and "harden off" (usually in mid-July), a spray of 1-1/2 to 3 quarts of product 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, 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.

**Tree Injections (Pine Release):** To control hardwoods, such as Oaks, Hickory, Maple, Pecan, Elm, Sumac, Sweetgum and Hawthorn in forest and other non-crop areas, apply this product undiluted in a concentrate tree injector calibrated to apply 1 qt. per injection. Space injections 2" apart, edge to edge, completely around the tree and close to the base. The injector bit must penetrate the inner bark. On hard-to-kill species such as Hickory, Dogwood, Red maple, Blue beech and Ash, make injections 1 to 1 1/2" apart, edge to edge. Treatment may be made at any time of the year. For best results, injections should be made during growing season, May 15 to October 15. For dilute injections, mix 1 gallon of this product in 19 gallons of water. No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is directly injected into agricultural plants.

**Dormant Application (other than pine):** For the control of susceptible deciduous brush species such as Alder, Cassara, Cherry poplar and Serviceberry, apply up to 3 quarts of

product per acre in sufficient diesel, fuel oil or kerosene for good coverage. Application may be made by ground or air and should be made before conifer bud break.

**Pine Only:** Make application while pine buds are still dormant. Apply 2 quarts of product per acre in sufficient water for good coverage by air or ground equipment. Do not use this application unless some pine injury is acceptable. Use of diesel, kerosene, or other oil, or addition of surfactants to spray mix may cause unacceptable pine injury.

**Christmas Tree Plantations:** For control of labeled broadleaf weeds in Douglas Fir Christmas trees, use 1 to 2 pints of this product per acre. Apply over the top of Douglas Fir by ground or aerial application equipment only when the trees are dormant, prior to bud break. Do not spray over the top of pine or true firs (*Abies* spp.).

Directed Sprays may be to weeds in Christmas tree plantations of all conifer species, but the spray must not contact tree foliage as injury may occur. Do not apply to weakened, diseased, or stressed seedlings since unacceptable injury can occur. This product may be mixed with Atrazine for Christmas tree application. (See Tank Mix section.)

**Herbaceous Weed Control:** To control over-wintering susceptible weeds such as False dandelion, Klamath weed, Plantain, Tansy ragwort, apply 1 to 3 quarts of product in sufficient water for good coverage. Make application at rates and timing indicated above if pines are present. For control of Hazel brush and similar species in the Lake States area, apply 2 quarts of product per acre in 8 to 25 gallons of water when new shoot growth of Hazel is complete (usually mid-July).

**Site Preparation: (As Budbreak Spray)** For control of Alder prior to planting seedlings, apply 2 to 4 quarts of product per acre in 8 to 25 gallons of water, after Alder budbreak but before foliage is 1/4 full size. Application may be made by air or ground. If desired, diesel, fuel oil or kerosene may be substituted for water as diluent. (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. To increase penetration, 2 to 4 quarts per acre of diesel, fuel oil, kerosene, or a suitable approved agricultural surfactant at recommended label rates may be added to the spray mixture.

#### TANK MIXES

Read and follow the label of each tank mix product used for precautionary statements, directions for use, geographic and other restrictions.

Using Riverdale 2,4-D L. V. 4 Ester and Buctril® ME4 for weed control on cereal grains (wheat, barley and rye): Buctril ME4 Broadleaf Herbicide will control some annual weeds that are resistant to this product and may be tank mixed with this product for broader spectrum weed control on small grains. In cereal areas except Washington, Oregon and Idaho, use 1/2 to 1 pint of this product plus 1/2 to 3/4 pint of Buctril ME4 per acre. In Washington, Oregon and Idaho: use 1/2 to 1 pint of 2,4-D L. V. 4 Ester plus 3/4 to 1 pint Buctril ME4 per acre. First mix this product in water then add the Buctril ME4. 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 5 to 10 gallons total spray volume with air application. Use higher volume on larger weeds.

Using Riverdale 2,4-D L. V. 4 Ester with Banvel (or Banvel SGF) and Ally (or Express) to provide more complete Kochia control: Offers quick burndown. Provides residual activity with Ally to control later weed flushes making harvesting easier and reducing post-harvest weed control needs. Controls broader weed spectrum while offering better control of Russian chistle, Mustards, Flixweed, and Wild buckwheat. Controls large weeds. Allows for early treatment. Apply 8 oz. of this product with 0.1 oz. of Ally plus either 2 to 3 oz. of Banvel or 4 to 6 oz. of Banvel SGF per acre. The tank mix can be applied to Winter wheat and the four-leaf stage (tillering) to prior to joint. It can be applied to Spring wheat from the four-leaf stage through the five-leaf stage. Growers who want to rotate to a sensitive crop following wheat and are concerned about carryover from Ally, can substitute Express in the tank mix which allows crop rotation 60 days after application. The recommended rate of Express is 1/6 oz. per acre.

Using Riverdale 2,4-D L. V. 4 Ester and Sencor as knockdown herbicides for no till: This product with Sencor DF alone or in combination with Dual, Lasso, Surflan or Prowl may be applied as an early preplant surface application for the control of certain broadleaf weeds and grasses in soybeans in minimum or no till products. Application is recommended 30 days prior to planting. Apply at rate of 2 pints of this product (1# A. L.) per acre with labeled rates of Sencor. Where grass herbicide is used in tank mix, apply at the rates specified on that product's label.

Using Riverdale 2,4-D L. V. 4 Ester and Aatrex for weed control in forest and Christmas tree plantings: A tank mix of these two products can be used to control weeds and thus aid in the establishment of young transplants of Douglas fir, Grand fir, Nobel fir, White fir, Austrian pine, Bishop pine, Jeffrey pine, Knobcone pine, Loblolly pine, Lodgepole pine, Monterey pine, Ponderosa pine, Scotch pine, Slash pine, Blue spruce and Sitka spruce.

The mix should be applied between Fall and early Spring, preferably in February or March, while trees are still dormant, or soon after transplanting. Weeds should not be more than 1-1/2" high. It can be applied with either ground or air equipment. Helicopters have been highly effective for reforestation applications or steep terrain. Uniform application is the key to good weed control. Use 20 to 40 gallons of water per acre for ground applications; a minimum of five gallons of water when applying by air. Be sure equipment is properly calibrated. All screens in the spray system -- nozzles, and in-line and suction strainers -- should be 15 mesh or coarser. Use a pump with capacity to maintain a nozzle pressure of 35 to 40 psi, and sufficient agitation to keep the mixture in suspension in the spray tank. If a nurse tank is used, keep the mixture agitated while awaiting transfer to the spray tank. Mix 2 to 4 quarts Aatrex 4 L or 2-1/2 to 5 pounds Aatrex 80W with 1 to 3 quarts of 2,4-D L. V. 4 Ester. The actual rate of Aatrex used should depend on soil type. Soils high in organic matter require higher rates than light to medium soils. Band application to Christmas Trees - Calculate the amount to be applied per acre. The band width in inches, divided by the rows spacing in inches, times the rate per acre for broadcast treatment will equal the amount needed per acre for band treatment. For example, when treating a 4-foot band over trees planted in rows 8 feet apart, apply 1-1/4 to 2-1/2 pounds of Aatrex per acre. Please read Aatrex label(s) for additional instructions.

Using Riverdale 2,4-D L. V. 4 Ester and Turbo 8EC in reduced-tillage or no-till systems: This product may be applied in combination with Turbo 8EC for the control of annual grasses and broadleaf weeds and the suppression of emerged perennial weeds when soybeans are directly seeded into a stale seedbed, cover crop or in previous crop residues. Special precautions: poor weed control and/or crop injury may result if directions are not followed. Do not use a rib-type press wheel on your no-till planter or crop injury may result. Apply at a rate of 2 pints of this product (1# A.I.) per acre with labeled rates of Turbo 8EC. Application is recommended 30 days prior to planting.

Using Riverdale 2,4-D L. V. 4 Ester and Poast as a burndown prior to planting soybeans: for broad spectrum post-emergence weed control, a tank mix application of 2,4-D L. V. 4 Ester with Poast may be made for control of emerged broadleaf and grass weeds before planting soybeans. Apply at a rate of 1 pint of this product (1/2# A.I.) per acre with labeled rates of Poast.

Using Riverdale 2,4-D L. V. 4 Ester with Scepter, Scepter 70 DG or Squadron in preplant applications in no-till soybeans: For broad spectrum post-emergence weed control, a tank mix application of 2,4-D L. V. 4 Ester with Scepter, Scepter 70 DG or Squadron herbicides may be made for the control of emerged broadleaf and grass weeds before planting soybeans. Apply at a rate of 1 pint of this product (1/2# a.e.) per acre up to 7 days prior to planting, or 2 pints (1# a.e.) acre up to 30 days prior to planting, with labeled rates of Scepter, Scepter 70 DG or Squadron herbicides.

Using Riverdale 2,4-D L. V. 4 Ester and Garlon 4 or Garlon 3A tank mixtures for Non-Crop Areas: Broadleaf Weed Control: Use 2 to 4 pints of this product plus 2 to 6 pints Garlon 4 (or 3 to 8 pints Garlon 3A) per acre. 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. Woody Plant Control Broadcast Foliar Spray: Use 1 to 2 gallons of this product plus 1-1/2 to 3 quarts Garlon 4 (or 2 to 4 quarts Garlon 3A) per acre. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when woody plants are actively growing. Woody Plant Control High Volume Leaf-Stem Treatment with Ground Equipment: Use 1 to 8 quarts of this product plus 1 1/2 to 12 pints Garlon 4 (or 2 to 15 pints Garlon 3A) per acre. Mix 2/3 to 2 qts. 2,4-D L. V. 4 Ester plus 1 1/2 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): Use 1 to 2 gallons of this product plus 3 to 4 quarts Garlon 4 (or 4 to 6 quarts Garlon 3A) per acre. Apply in a total spray volume of 10 to 30 gallons per acre using drift control equipment such as Microfoil boom or an effective drift control agent such as Lo-Drift Spray Additive.

Use the higher rates and volumes when plants are dense or under drought conditions.

Using Riverdale 2,4-D L. V. 4 Ester and Banvel Herbicide tank mixtures for Non-Crop Areas: Annual broadleaf weeds: Use 2 to 4 pints of this product plus 1/2 to 1-1/2 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 growth. Perennial and Biennial Broadleaf Weeds: Use 3 to 6 pints of this product plus 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: Use 1 to 2 gallons of this product 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 equipment such as the Micro-foil Boom or an effective drift control agent such as Lo-Drift Spray Additive. Use the higher rates and volumes when plants are dense or under drought conditions.

Using Riverdale 2,4-D L. V. 4 Ester and Escort®, Oust® and Telar®: To improve control of some target species, this product may also be tank mixed with Escort, Oust, and Telar herbicides for post-emergent weed control. Tank mixes have shown improved control where resistant bio-types are present.

NOTE: All intended tank mix combinations should be used only in recommended areas on the same broadleaf weed species found on both labels.

For application methods and other use specifications, use the most restricted limitations from labeling of both products.

**STORAGE AND DISPOSAL**

**STORAGE:** Always use original container to store pesticides in a secured warehouse or storage building. Do not store near seeds, fertilizers, insecticides or fungicides. Containers should be opened in well ventilated areas. Do not contaminate water, food or feed by storage or disposal. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. If container is damaged or if pesticide has leaked, contain all spillage. Absorb and clean up all spilled material with granules or sand. Place in a closed labeled container for proper disposal. Improper disposal of excess pesticide, spray mixtures, 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 other approved State and local procedures. Plastic containers are also disposable by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Local conditions may affect the use of this chemical. Consult State Agricultural Extension or Experiment Station weed specialist for specific recommendations for local weed problems and for information on possible lower damages.

Directa Spray, Wobbler, Mini Wobbler, Spirometer, Lo Drift, and Bustril are registered trademarks of Rhone-Poulenc Ag Company  
Eulon and Sunflan are trademarks of the DowElanco Chemical Co.  
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Riverdale 2,4-D L. V. Ester

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Dual is a trademark of Ciba-Geigy Corp.  
Lasso is a trademark of Monsanto Agri Co.  
Sencor is a trademark of Bayer AG  
Turbo is a trademark of Mobay Corp.  
Prowl is a trademark of American Cyanamid Co.

**WARRANTY**

Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risk of use, storage or handling of this material not in strict accordance with directions given herewith. (ERP 102393)(PR933&11 042194/RV 052295)