

PM 23 228-139  
10/8

SEP 22 1988

Mr. Russell F. Sawyer  
Riverdale Chemical Company  
425 West 194th Street  
Glenwood, IL 60425-1584

Dear Mr. Sawyer:

Subject: Label Revisions  
Riverdale 2,4-D Low Volatile Ester  
EPA Registration No. 228-139  
Your Resubmission Dated August 31, 1988  
EPA Received Date September 14, 1988

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable. A stamped copy is enclosed for your records.

As labels are printed:

1. Under "WEED CONTROL IN CORN," add the statement "Do not use with oil, atrazine or other adjuvants."
2. Delete parrot feather and curly indigo from the weed list. These are aquatic and/or pests in rice which are sites not included on this label.
3. Under Fall Seeded Oats (Southern), revise the statement to read "Some difficult weeds may require the higher rates listed . . . ." As an alternative, you may state "Some difficult weeds may not be controlled at the rates listed."
4. Under WEED CONTROL IN NON-CROP AREAS, delete the reference to spot treating or provide directions for spot use.

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CONCURRENCES

SYMBOL	SURNAME	DATE					

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5. Under "WOODY PLANT CONTROL . . ." revise the phrase to read ". . . spray brush 5 to 8 feet tall . . ."

Sincerely yours,

Richard F. Mountfort *RFM*  
Product Manager (23)  
Fungicide-Herbicide Branch  
Registration Division (TS-767C)

Enclosure

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RIVERDALE  
2,4-D LOW  
VOLATILE ESTER

A SELECTIVE WEED KILLER

For Control of Many Broadleaf Weeds in both Non-Crop Areas and Certain Crop Areas,  
Lawns, Drainage Ditchbanks, Pastures, and Rangelands.

ACTIVE INGREDIENT:

Isooctyl Ester of 2,4-Dichlorophenoxyacetic Acid\* ..... 67.2%

INERT INGREDIENTS: ..... 32.8%

TOTAL ..... 100.0%

\*2,4-Dichlorophenoxyacetic Acid Equivalent: 44.6% 3.84 lb/gal.  
Isomer Specific by AOAC Method

KEEP OUT OF REACH OF CHILDREN  
CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS  
AND STATEMENT OF PRACTICAL TREATMENT

EPA Reg. No. 228-139

EPA Est. No. 228-IL-1

NET CONTENTS GAL.

Manufactured by

RIVERDALE CHEMICAL COMPANY  
Glenwood, Illinois 60425-1584

(Left Side Panel)

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing vapor  
or spray mist. Avoid contact with skin, eyes or clothing. Remove contaminated  
clothing and wash before reuse.

Revised 8/31/88

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## STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Call a physician or Poison Control Center. 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 IN EYES: Flush eyes with Water for 15 Minutes and Get Medical Attention.

## ENVIRONMENTAL HAZARDS

Do not apply directly to water or wetlands. Do not contaminate water when disposing of equipment washwaters. Do not apply this product through any type of irrigation system. Do not contaminate water used for irrigation or domestic purposes. 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, grapes, fruit trees and ornamentals. Excessive amounts of this product in soil may temporarily inhibit seed germination and plant growth. 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 to minimize drift. Spray drift can be lessened by keeping the spray boom as low as possible by spraying when wind velocity is low, and by stopping all spraying when wind exceeds 6 to 7 miles per hour. Do not use the same spray equipment for applying other materials to 2,4-D susceptible crops as injury may result. Spray equipment used in applying this product should be thoroughly cleaned before using for any other purpose. Use repeated flushing with soap and warm water or suitable chemical cleaner. It is best to use a separate sprayer for application of insecticides and fungicides.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. READ ENTIRE LABEL DIRECTIONS BEFORE USING.

## RE-ENTRY STATEMENT

Do not enter treated areas without protective clothing until sprays have dried. Because certain states may require more restrictive re-entry 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. Warnings should state: "Do not enter treated areas unless wearing chemical resistant full body clothing including NIOSH approved respirator, goggles and gloves until sprays have dried". 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 LV Ester on date of application. Do not enter without protective clothing until sprays have dried. In case of accidental exposure, follow precautionary statements on label.

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. RIVERDALE 2,4-D LOW VOLATILE ESTER will kill or control the following weeds in addition to many other noxious plants susceptible to 2,4-D.

4/6/88

(Right Side Panel)

Alders	Bull thistle	Croton	Healall
American lotus	Bullrush	Curly indigo	Hemp
Arrowweed	Burdock	Dandelion	Henbit
Artichoke	Bur ragweed	Dock	Hoary cress
Aster	Buttercup	Dogbane	Honeysuckle
Austrian fieldress	Canada thistle	Duckweed	Horsetail
Beggarlicks	Carpalweed	Elderberry	Indigo
Biden	Catnip	Flea bane (daisy)	Indiana mallow
Bindweed	Chickweed	Flaxweed	Ironweed
Bitterweeds	Chicory	Florida pulsey	Jewelweed
Bitter winter cress	Cockle	Frenchweed	Jimsonweed
Blessed thistle	Cocklebur	Galinsoja	Kochia
Blue lettuce	Coffee bean	Goatsbeard	Knolweed
Box elder	Coffeeweed	Goldenrod	Lambsquarter
Broomweed	Common sowthistle	Ground Ivy	Locoweed
Buckhorn	Creeping Jenny	Gumweed	Lupines
Malow	Poison Ivy	Southern wild rose	Texas blueweed
Marshelder	Pokeweed	Sowthistle	Buckbrush
Mexican weed	Porcife	Spanishreedies	Wild buckwheat
Horningsplory	Povertyweed	Spatterdock	Burhead
Musk thistle	Prickly lettuce	Stinging nettles	Wild carrot
Mustards	Pumrose	Stickweed	Wild garlic
Nerles	Puncture vine	Sumac	Wild lettuce
Nutgrass	Purslane	Sunflower	Wild onion
Orange hawkweed	Ragweed	Sweet clover	Wild radish
Parrot leather	Rush	Tarweed	Wild rape
Parsnip	Russian thistle	Thistles	Wild strawberry
Pennycress	Sagebrush	Toadweed	Wild sweet potato
Pennywort	St. Johnswort	Tumbleweed	Willow
Peppergrass	Shepardspurse	Velvetleaf	Witchweed
Pepperweed	Sicklepod	Vervain	Wormweed
Pigweed	Smartweed	Vetch	Yellow rocket
Plantains	Sneezeweed	Virginia creeper	Fanweed
Poison hemlock	Dogfennel	Coyotebrush	Manzanita
Chanise	Cornflower	Halogeton	Coastal redstem sage
Salsify	Milkvetch	Rabbitbrush	Tansyragwort
Willow	Sand shinnery oak	Tansymustard	
	Wormwood	Yellow starthistle	

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Apply this product as water or oil spray during warm weather when weeds or brush are actively growing. Application under drought conditions often will give poor results. Use low spray pressure to minimize drift. On cropland and along roadsides, do not exceed 20 psi pressure. Apply enough spray volume to provide uniform coverage of weeds and brush, usually 5 to 20 gallons per acre by ground equipment and 3 to 5 gallons by aircraft. Higher gallonage may be used if desired to improve spray coverage. Generally, the lower dosages recommended on this label will be satisfactory for young, succulent growth of sensitive weed species. For less sensitive species and under conditions where control is more difficult, the higher dosages will be needed. For crop uses, do not mix with oil or other adjuvants unless specifically recommended on this label. Deep-rooted perennial weeds such as Canada thistle and field bindweed and many woody plants usually require repeated applications for maximum control.

TO PREPARE THE SPRAY: (1) Fill the spray tank about half full with water, then add the required amount of this product with agitation, and finally the rest of the water.

NOTE: this product in water forms an emulsion which tends to separate unless the mixture is kept agitated. (2) If oil is added, first mix this product and the oil and then add this mixture to the water. However, with adequate agitation, the oil can be added after the product is mixed in the water. (3) If straight oil is used, a solution is formed and separation does not occur. Do not allow any water to get into the oil-herbicide mixture to avoid formation of an invert emulsion.

WEED CONTROL IN CORN: Use one of the following three programs: Preemergence: Apply 1 to 2 quarts\*per acre to soil anytime after planting but before corn emerges. Do not use on light sandy soil. Emergence: Apply 1 pint\*per acre just as corn plants are breaking ground. Postemergence: After emergence of corn, use 1/2 pint per acre. Application of 3/4 to 1 pint\*per acre may be needed for maximum control of some weeds but such rates are more likely to injure the corn. If corn is over 8 inches tall, use drop nozzles to keep the spray off the corn foliage as much as possible. Do not apply from the tasseling to dough stage. Crop injury is more likely to occur if corn is growing rapidly under high temperature and high soil moisture conditions. To reduce breakage of stalks from temporary brittleness caused by 2,4-D delay cultivation for 8 to 10 days after treatment.

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\*10 to 30 gallons per acre

Do not forage or feed corn fodder for 7 days following application. NOTE: Hybrids vary in response to 2,4-D and some are easily injured. Spray only varieties known to be tolerant to 2,4-D. Contact seed company or your Agricultural Experiment Station or Extension Service weed specialists for this information. 6

**PREHARVEST CORN TREATMENT:** After the hard dough or denting stage, apply 1 to 2 pints in 20-50 gallons of water 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 for 7 days following application.

**USE IN LIQUID NITROGEN FERTILIZER:** This product may be combined with liquid nitrogen fertilizer suitable for foliar application to accomplish weeding and feeding of corn, small grains or grass pastures in one operation. Use this product in accordance with recommendations for these crops as given on this label. Use liquid fertilizer at rates recommended by supplier or Extension Service Specialist. Fill the spray tank about half full with the liquid fertilizer, then add this product with agitation and complete filling the tank with fertilizer. Apply immediately and continue agitation in the spray tank during application. Application during very cold weather (near freezing) is not advisable. Do not store the spray mixture.

**WEED CONTROL IN SORGHUM (MILO):** Apply  $\frac{1}{2}$  pint per acre in 6 to 20 gallons of water per acre when sorghum is 5 to 15 inches tall. A higher rate of  $\frac{3}{4}$  to 1 pint in 6 to 20 gal. of water per acre may be needed to control some weeds but the chance for crop injury is likewise increased. Do not treat before the sorghum is 5 inches tall nor during the boot, flowering or early dough stages. If sorghum is taller than 8 inches, use drop nozzles to keep the spray off the foliage as much as possible. Temporary injury may occur under conditions of high soil moisture and high air temperatures. 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 specialists for this information.

**WEED CONTROL IN SMALL GRAINS NOT UNDERSEEDED WITH A LEGUME:** NOTE: Do not permit dairy animals or meat animals being finished for slaughter to forage or graze treated grain fields within 2 weeks after treatment.

**Spring Wheat and Barley:** Apply  $\frac{1}{2}$  to 1 pint in 5 to 20 gallons of water per acre. Spray when grain is in full tiller stage (usually 4 to 8 inches tall) but before the boot stage and when weeds are small. Do not apply before the tiller stage nor from early boot to the dough stage. Higher rates, up to 2 pints in 5 to 20 gal. of water per acre, 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.

**Winter Wheat and Rye:** Apply  $\frac{1}{2}$  to  $\frac{3}{4}$  pint in 5 - 20 gallons of water per acre in the spring at the full tiller stage but before the early boot stage. For improved control of difficult weeds including wild garlic and wild onion, apply 1 to 2 pints in 5 - 20 gal. of water per acre. Since these rates may injure the crop, 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 specialists for recommendations or suggestions to fit local conditions.

**Spring Seeded Oats:** Apply  $\frac{1}{2}$  pint in 5 to 20 gallons of water per acre at the full tiller stage but before the early boot stage. Oats are less tolerant to 2,4-D than wheat or barley and are more likely to suffer some injury.

**Fall Seeded Oats (Southern):** Apply  $\frac{3}{4}$  to 1- $\frac{1}{4}$  pints in 5 to 20 gallons of water per acre after full tillering but before the early boot stage. Some difficult weeds may require higher rates for maximum control but crop injury may result. Do not spray during or immediately following cold weather.

**Preharvest Treatment:** Apply 1 to 2 pints in 5 to 20 gallons 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: Do not feed treated straw to livestock. 6/8

**CONTROL OF WILD GARLIC IN STUBBLE GRAIN FIELDS:** Following the harvest of small grain or corn, wild garlic often produces new fall growth. This should be sprayed with 2 to 3 quarts of this product in 20 to 40 gallons of water per acre. Do not forage for 7 days following application.

**ON FALLOW LAND:** Use 1 to 2 quarts of this product in 40 to 180 gallons of water per acre on annual broadleaf weeds and up to 3 quarts in 40 to 180 gal. of water 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 chemical has disappeared from soil.

**WEED AND BRUSH CONTROL IN RANGELAND AND GRASS PASTURES:** NOTE: Do not graze dairy animals on treated areas within 7 days after application. 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, Muskthistle and Other Broad-leaf Weeds:** Use 2 quarts of this product in 10 to 30 gallons of water per acre. If the weeds are young and growing actively, 1 quart of this product in 10 to 30 gal. of water per acre will provide control of some species. Deeprooted perennial weeds may require repeated treatments in the same year or in subsequent years.

**Wild Garlic and Wild Onion:** Apply 2 to 3 quarts of this product in 15 to 50 gallons of water 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 1 to 2 quarts of this product in 20 to 100 gallons of water per acre preemergence and/or postemergence.

**Sand Shinnery Oak and Sand Sagebrush:** On the oak, use 1 quart 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 1 quart 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 3 quarts per acre in 2 to 3 gallons of oil or in 3 to 5 gallons of oil-water emulsion spray. For rabbitbrush, the 3 quart 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 3 quarts 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.

**GRASS SEED CROPS:** Use 1 to 1½ pints of this product in 10 to 30 gallons of water for application by air or ground equipment. Apply to established stands in spring from the tiller to early boot stage. Do not spray in boot stage. New spring seedlings may be treated with the lower rate after the grasses have at least five leaves. Perennial weed regrowth may be treated in the fall.

**CONTROL OF SOUTHERN WILD ROSE:** On rangelands, 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 6 quarts of this product per acre per application. Do not graze dairy animals on treated areas within 7 days after application.

**WEED CONTROL IN NON-CROP AREAS SUCH AS LAWNS, GOLF COURSES, CEMETERIES, PARKS, AIRFIELDS, ROADSIDES, VACANT LOTS, DRAINAGE DITCHBANKS:** Apply 1 to 3 quarts of this product in 40 to 180 gallons of water. Usually 2 quarts per acre provides good weed control under average

conditions. Treat when weeds are young and growing well. 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.

**WOODY PLANT CONTROL IN NON-CROP AREAS:** To control species susceptible to 2,4-D in rights-of-way, fencerows, roadsides, and along drainage ditchbanks, spray 5 to 8 feet tall after spring foliage is well developed, using 3 to 4 quarts of this product in 100 gallons of water and wetting all parts of the brush including foliage, stems and bark. This may require up to 400 gallons of spray per acre for adequate coverage of solid stand of brush. Make application in such a way as to prevent drift of the spray off the area being treated. 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.

**FOREST CONIFER RELEASE:** After northern conifers jack pine, red pine, black spruce, and white spruce cease growth and "harden off" in late summer, a spray of 1½ to 3 quarts of this 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, 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.

Local conditions may affect the uses of this chemical as shown on this label. Consult State Experiment Station or Extension Service weed specialist for specific recommendations for local weed problems and for information on possible lower dosages.

#### STORAGE AND DISPOSAL

**STORAGE:** Always 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. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not contaminate water, food or feed by storage or disposal.

**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. 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 procedures approved by State and Local authorities. Plastic containers dispose also by incineration, or if allowed by State and Local authorities by burning. If burned, stay out of smoke.

#### WARRANTY

Rivdale warrants that this herbicide conforms to the chemical description on its label. When used in accordance with label directions under normal conditions, this herbicide is reasonably fit for its intended purposes. Since timing, method of application, weather, plant, and soil conditions, mixture with other chemicals, and other factors affecting the use of this product are beyond our control, no warranty is given concerning the use of this product contrary to label directions or under conditions which are abnormal or not reasonably foreseeable. The user assumes all risks of any such use.