# 15 APR 1993

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

Dear Mr. Sawyer:

Subject: Label Amendment- To Lessen Spray Drift

Riverdale Solution Water Soluble EPA Reference Number 228-260

Your Submission Dated November 4, 1992

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

- On page #2, under Environmental Hazards, replace "Spray drift can be lessened" with "Avoid spray drift" so the sentence reads "Avoid spray drift by (1) keeping the spray boom...."

A stamped copy is enclosed for your records. Please submit three (3) copies of final printed labeling with the above correction made prior to releasing the product for shipment.

Sincerely yours,

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

CONCURRENCES		
SYMBOL ) 475050		
SURMANE & Robbins		
DATE \$ 4/15/93		
EDA Com 1990-1A (1900)	Salated on Benedict B.	OFFICIAL FILE COPY

EPA Form 1320-1A (1/90)

#### RIVERDALE

# SOLUTIONTM WATER SOLUBLE

A High Concentrate Selective Weed Killer (Herbicide)

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

Also for Control of Trees by Injection.

ACTIVE INGREDIENT:

Solution is a Trademark of Riverdale Chemical Company

Patent Pending

Individual Soluble Bags Are Not To Be Offered For Sale

#### KEEP OUT OF REACH OF CHILDREN

#### DANGER

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

NET CONTENTS:  $22\frac{1}{2}$  lbs. (8 x 2 lb. 13 oz. packets)

EPA REG. NO. 228-260

EPA EST. NO. 228-IL-1

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MANUFACTURED BY

RIVERDALE CHEMICAL COMPANY

15 APR 1993 CLENWOOD, ILLINOIS 60425-1584

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(Back Panel)

PRECAUTIONARY STATEMENTS

REPARTS TO HUMANS AND DOMESTIC ANIMALS

## DANGER

COMMOSIVE: Causes irreversible eye damage. May be fatal if swallowed or almorbed through skin. Do not get in eyes, on skin, or on clothing. Wear goggles, or face shield. Wash thoroughly with soap and water after handling and before eating or smoking. Remove contaminated clothing and wash before reuse. Avoid inhaling, vapor or spray mist.

Revised 11/4/92

2 lb. 13 oz. Packet

# (Back Panel cont.)

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.

### STATEMENT OF PRACTICAL TREATMENT

IF IN EYES: Hold eyelids open and flush with a steady, gentle stream of water

for 15 minutes. Get medical attention at once.

IF SWALLOWED: Drink promptly a large quantity of milk, egg whites, gelatin

solution, or if these are not available, drink large quantities of

water. Avoid alcohol. Get-medical attention. Do not give

anything by mouth to an unconscious person.

Note to Physician: Probable mucosal damage may contraindicate the

use of gastric lavage.

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

IF INHALED: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

#### ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. Do not apply directly to water except as specified on this label. 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. 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 (1) keeping the spray boom as low as possible, (2) applying at 20 pounds or less nozzle pressure using nozzles that product a coarse spray pattern, and (3) applying when conditions such as wind, air stability and temperature inversions are not a factor. 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.

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.

#### 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:

**DANGER:** Area treated with 2,4-D amine salt on <u>date of application</u>. Do not enter without appropriate protective clothing until sprays have dried. In case of accidental exposure, follow precautionary statements on label.

RIVERDALE SOLUTIONTM WATER SOLUBLE will kill or control the following weeds in addition to many other noxious plants susceptible to 2,4-D.

Alders Goatsbeard American lotus Goldenrod Arrowhead Ground ivy Artichoke Gunweed Aster He alall Austrian fieldcress Hemp Henbit Beggarticks Biden Hoary cress Bindweed Honeysuckle Bitterweeds Horsetail Bitter winter cress Indigo Blessed thistle Indiana mallow Blue lettuce Ironweed Box elder Jewelweed Broomweed Jimsonweed Buckhorn Knotweed Bull thistle Kochia Bulrush Lambsquarters Burdock Locoweed Bur ragweed Lupines Buttercup Mallow Canada thistle Marshelder Carpetweed Mexican weed Catnip Morningglory Chickweed Musk thistle

St. Johnswort Shepherdspurse Sicklepod Smartweed Sneezeweed Southern wild rose Sowthistle Spanishneedles Spatterdock Stinging nettles Stinkweed Sumec Sunflower Sweet clover Tarweed Thistles Toadflax Tumbleweed Velvetleaf Vervain

Purslane

Ragweeds

Sagebrush

Russian thistle

Rush

Chicory
Cockle
Cocklebur
Coffeebean
Coffeeweed
Common sowthistle
Creeping jenny
Croton
Curly indigo
Dandelion
Dock
Dogbane
Duckweed
Elderberry
Flea bane (daisy)

Flixweed

Frenchweed

Galinsoga

Florida pusley

Mustards Nettles Nutgrass Orange hawkweed Parrotfeather Parsnip Pennycress Pennywort Peppergrass Pepperweed Pigweed Plantains Poison hemlock Poison ivy Pokeweed Poorjoe Povertyweed Prickly lettuce Primrose Puncture vine

Vetch Virginia creeper Water hyacinth Water lily Water plantain Water primrose Watershield Wild carrot Wild garlic Wild lettuce Wild onion Wild radish Wild rape Wild strawberry Wild sweet potato Willow Witchweed Wormseed Yellow rocket

Generally the lower dosages given 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. Apply Solution during warm weather when weeds are young and growing actively. Use enough spray volume for uniform coverage by ground or air application. Unless otherwise recommended, suggested application rates may be up to 10 gallons of total spray by air or 5 to 25 gallons by ground application equipment. If only bands or rows are treated, leaving middles untreated, the dosage per crop per acre is reduce proportionately. Do not apply when temperature exceeds 90°F.

TO PREPARE THE SPRAY: Mix Solution Water Soluble only with water. Just add the recommended water to your spray tank then remove the water soluble packet from plastic outer bag, add the appropriate Solution into the spray tank, agitate for three to five minutes. Solution will make a stable water mixture. It is non-flammable. Do not handle water soluble bags or expose them to moisture since this may cause rupturing.

Individual water soluble bags are not to be offered for sale.

Notes: (1) 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 crops resulting in crop damage. (2) One 2 lb. 13 oz. packet of Riverdale Solution Water Soluble is equal to 5 pints of 2,4-D "4 lb." Amine. (3) Using a 2 lb. 13 oz. packet for a 5 acre coverage is equivalent to applying 2,4-D "4 lb." Amine at a rate of 1 pint per acre.

CORM (Field, Sweet and Popcorn): 're-emergence (For annual grasses and broadleaf weeds) - Apply to soil anytime after planting but before corn emerges. Do not use on light sandy soil, or where soil moisture is low. Dissolve each 2 lb. 13 oz. water soluble packet in 4 to 30 gallons of water and apply over 1-1/8 to 2-1/4 acres. The amount of water is dependent on whether application is made with air or ground equipment.

Mesrgence - Dissolve each 2 lb. 13 oz. packet in 10 to 100 gallons of water per five acres. Apply just as corn plants are breaking ground.

Fost-embrgadee (For broadleaf weeds) - Dissolve each 2 lb. 13 oz. packet in 10-100 gallons of water. This mixture will treat 5 to 10 acres. Apply when most weeds have



Page 5

germinated. Spray after corn emerges and until 8" tall. Use low rates on inbreds. Corn is susceptible to injury shortly after emergence and after unfolding of leaves. Do not spray during this period nor after first tassels appear. When corn is over 8" tall, use drop nozzle to keep spray off corn foliage. Spray must strike tops of weeds but should not drench corn plants. Do not apply from tasseling to dough stage. Injury to corn is most likely to occur if Solution Water Soluble is applied when corn is growing rapidly under high temperatures and high soil moisture conditions. In such conditions, use the low rate. For resistant weeds, use each 2 lb. 13 oz. packet to cover 2½ acres though corn injury may result. Do not use higher rates unless possible crop injury will be accepted. After application, delay cultivation for 8-10 days to allow the corn to overcome any temporary brittleness.

Preharvest: After the hard dough or denting stage, apply 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. Dissolve the 2 lb. 13 oz. packet in 5 to 100 gallons of water to treat from 2½ to 5 acres.

WITH LIQUID NITROGEN SOLUTIONS: For late season control of young smartweed, cocklebur, annual morningglory and other annual broadleaf weeds less than 1 inch high. Field should be as clean as possible and corn 20 to 30 inches tall. The spray must be prepared by first adding the required amount of liquid nitrogen to spray tank(80 to 120 lbs. nitrogen per acre). Next dilute each 2 lb. 13 oz. packet of Riverdale Solution W.S. in 5 gallons of clean water. Start the agitator and (slowly) add the diluted Solution and water mixture. This combination of nitrogen and Solution will cover 5 acres. Spray immediately, maintaining continuous agitation until spray tank is empty. Direct the spray to lower 3" to 4" of corn stalk. Use spray equipment designed to handle corrosive liquid nitrogen solutions. After spraying, remove any remaining solution and rinse rig thoroughly with water. Mix only one tank at a time. Do not spray during or immediately following cold weather.

SORGHUM (Milo): Post-emergence - Dissolve each 2 lb. 13 oz. packet in 10 to 100 gallons of water. Each dissolved 2 lb. 13 oz packet will cover from 5 to 7½ acres. Apply when sorghum is 5"-15" tall. Treat only after the sorghum is 5 inches high and preferably before it is 15 inches high. Spraying before 5" stage may inhibit root development. Do not treat during the boot, tasseling, or early dough stages. Reduce spray drift by keeping the boom and spray nozzle as low as possible. If crop is taller than 8 inches, use drop nozzle to keep the spray off the leaves. Temporary spray injury can be expected under conditions of high soil moisture and high air temperatures. If it is necessary to apply Solution Water Soluble under these conditions, do not treat less than 7½ acres per 2 lb. 13 oz. packet.

NOTE: Corn & Sorghum Hybrids vary in tolerance to 2,4-D. Some are easily injured. Spray only varieties known to be tolerant to 2,4-D. Consult the seed company or your Agricultural Experiment Station or Extension Service Weed Specialist for this,,,;, information.

RABLEY, WHEAT, OATS AND RYE: Spring Post-emergence - In Spring grown grains, spray grain between full tillering and before the boot stage (usually 4"-8" tall) and weeds are small. Dissolve each Solution Water Soluble 2 lb. 13 oz. packet in 5 to 100' gallons of water. For Spring grown barley, wheat and rye, apply this spray mixture on 3-1/2 to 10 acres. Oats are more sensitive to 2,4-D than other grains and should be sprayed in the Spring when well established and tillered and before jointing after crop'. has reached the dough stage. For oats, spray over 5 to 10 acres. In winter grains, dissolve each 2 lb. 13 oz. packet of Solution Water Soluble in 5 to 100 gallons of



water. Apply mixture over  $2\frac{1}{2}$  to 5 acres 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.

SUCARCAME: Pre-emergence - Dissolve each 2 lt. 13 oz. packet in 10 to 50 gallons of water. Apply mixture over 1-1/8 acres as a blanket spray through lay-by, to aid in control of Johnsongrass seedlings and susceptible broadleaf weeds. Post-emergence - Dissolve each 2 lb. 13 oz. packet in 10 to 60 gallons of water. Apply over 1-2/3 to 2-1/2 acres when came is 1' - 2' tall.

PICE: Dissolve each 2 lb. 13 oz. water soluble packet of Solution Water Soluble in 5-50 gallons of water. Apply over 1½ to 1½ acres to control curly indigo and other broadleaf weeds. 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 seeding, early panicle, boot, flowering or early heading growth stages. NOTE: Some rice varieties under certain conditions can be injured by 2,4-D. Therefore before spraying, consult local Extension Service or University specialist for appropriate rates and timing of 2,4-D sprays.

ON FALLOW LAND: Dissolve each 2 lb. 13 oz. water soluble packet of Solution Waster Soluble in 5 to 100 gallons of water. This mixture will cover 1½ to 1½ acres for control of annual broadleaf weeds. Use this mixture on 1 acre to control 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.

GRASSES: In established pastures and rangelands, dissolve each 2 lb. 13 oz. water soluble backet in 5 to 100 gallons of water. This mixture will treat from 1-1/8 to 2-1/4 acres. Use the light rate on more easily injured grasses. Apply preferably when weeds are small and growing actively before bud stage. Fall or Spring is the best time to treat. Repeated treatments may be needed for less susceptible weeds. Treatments will kill or injure alfalfa, sweet clover and other legumes. White clover (including Ladino) may be injured by light application but recovers; repeated treatments will kill it. In some area dichondra, bentgrasses, carpet, buffalo, and St. Augustine grasses may be injured. Usually colonial bents are more tolerant than creeping types; velvets are most easily injured. Where bentgrass predominates, dissolve each 2 lb. 13 oz. water soluble packet in 10 to 100 gallons of water and spray this mixture over 10 acres. Repeat application after 3 weeks.

GRASS SEED CROPS: Dissolve each 2 lb. 13 oz. water soluble packet in 25 to 200 gallons of water. Spray mixture will treat 1-1/8 to 4-1/2 acres. Apply in Spring or Fall to control broadleaf weeds in grass being grown for seed. Do not apply from early boot to milk stage. Spray seeding grass only after the five leaf stage, using 4½ acre rate to control small seeding weeds. After the grass is well established higher rates of up to one 2 lb. 13 oz. packet per 1-1/8" acres can be used to control hard-to-kill annual or perennial weeds. For best results, do not use on bentgrass unless grass injury can be tolerated.

CONTROL OF SOUTHERN WILD ROSE: On rangelands, roadsides and fencerows, use 2 lb. 13 oz. packat of Solution Water Soluble plus 4-8 ounces of an agricultural surfactant per 100 gallogs 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 three (2 lb. 13 oz.)



1 gallon of solution per square rod.

packets of Solution Water Soluble per acre per application.

BROADLEAF WEED CONTROL IN NON-CROPLAND GRASS AREAS SUCH AS LAWNS, GOLF COURSES, CIMETERIES AND PARKS, AIRFIELDS, MIGHIS-OF-WAY, FRINCEROWS, ROADSIDES, VACANT LOTS, DRAINAGE DITCHBANKS AND SIMILAR PLACES: Use 1 to 2 packets (2 1b. 13 oz. each) of this product in 15-50 gallons of water per acre. Treat when weeds are young and growing well. Do not use on dichondra or other herbaceous ground covers. Do not use on creeping grasses such as bent except for spot treatment nor on freshly seeded turf until grass is well established. Reseeding of lawns should be delayed following treatment. With Spring application, reseed in the Fall. With Fall application, reseed in Spring. Legumes are usually damaged or killed. Thoroughly wet weeds when applying this mixture. Bindweed, Whitetop, Perennial sow thistle, Blue lettuce, Bur ragweed, Canada thistle and other noxious perennials somewhat resistant to 2,4-D will require repeated treatments to kill. To control small areas of woody plants, such as Willows, Honeysuckle, Virginia creeper, Alders and other susceptible to 2,4-D, use 1 to 2 water soluble, 2 lb. 13 oz. packets in 100 gallons water; spray to thoroughly wet plants when in full leaf. Re-treat as necessary for control of regrowth and seedlings. In general, it is better to cut tall woody growth and spray suckers when 2-4 feet high.

THER INJECTIONS (Pine Release): To control hardwoods, such as Oaks, Hickory, Maple, Pecan, Elm, Sumac, Sweetgum and Hawthorn in forest and other non-crop areas, dissolve a 2 lb. 13 oz. packet of Solution Water Soluble in 12 gallons of water and apply in a concentrate tree injector calibrated to apply 0.75 ml. 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 - October 15.

WEEDS AND BRUSH ON IRRIGATION CANAL DITCHBANKS - SEVENTKEN WESTERN STATES: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, New Mexico, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming. For control of annual and perennial broadleaf weeds, dissolve one 2 lb. 13 oz. packet in 30 to 200 gallons of water and apply mixture over 1½ to 3 acres. Treat when weeds are young and actively growing before the bud or early bloom stage. For harder to control weeds, a repeat spray after 3 to 4 weeks using the same rates may be needed for maximum results. Apply no more than two treatments per season.

For woody brush and patches of perennial broadleaf weeds mix two 2 lbs. 13 oz. packets of Solution Water Soluble in 150 gallons of water. Wet foliage thoroughly using about

SPRAYING INSTRUCTION: Apply with low pressure (10 to 40 psi) power spray equipment mounted on truck, tractor or boat. Apply while traveling upstream to avoid accidental concentration of chemical into water. Spray when the air is fairly clam; 5 mph for less. Do not use on small canals (less than 10 cfs) where water will be used for drinking purposes.

Boom spraying onto water surfaces must be held to a minimum and no cross-stream, '';' spraying to opposite banks should be permitted. When spraying shoreline weeds, allow no more than two-foot over-spray onto water with an average of less than one-foot over-spray to prevent introduction of greater than negligible amounts of chemical into the water.

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



FOR AQUATIC WEEDS IN STILL LAKES, PONDS, DRAINAGE DITCHES AND MARSHES: Aerial Application - Use one 2 lb. 13 oz. packet of Solution Water Soluble in 5-15 gallons of water to cover one surface acre.

Boat Application - Use 2 lb. 13 oz. packet of Solution Water Soluble in 50-100 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 - 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. Do not apply within 1500 feet of potable or irrigation water intakes.

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 secure warehouse or storage building. This product should be stored in a cool, dry location. Do not store near seeds, fertilizers, insecticides, or fungicides. Container should be opened in a well ventilated area. All containers should be kept tightly sealed when not in use. Do not contaminate water, food or feedstuff by storage of pesticide disposal.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide spray mixtures or rinsate is a violation of Federal law. If container is damaged or if pesticide has spilled, contain all spillage. Clean up all spilled material with broom. Place in a closed, labeled container for proper disposal. 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: Dispose of empty outer plastic bags and shipping case in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

# WARRANTY

Riverdala Chemical Company 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, mathod of application, weather, plant and soil conditions, mixtures with other chemicals, and factors affecting the use of this product contrary to label directions are under conditions which are abnormal or not reasonably foreseeable, the user assumes all risks of any such use.

(RS 030191/RV 110492)

