PM 23 2217-703

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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James A. Armbruster, Ph.D.
PBI/Gordon Corporation
1217 West 12th Street
P.O. Box 014090
Kansas City, MO 64101-0090

MAR 22 1996

Dear Dr. Armbruster:

Subject: Label Amendment - 2,4-D Use in Reduced or No-Tillage Soybeans (Pre-plant Only)
Acme Hi-Dep Herbicide
EPA Reg. No. 2217-703
Your Application Dated March 5, 1996

The Agency is conditionally approving an amendment to the registration of the above-referenced product under the authority of section 3(c)(7)(B) of the Federal Insecticide, Fungicide Act (FIFRA). This amendment allows use of the subject product on reduced or no-tillage soybeans (pre-plant only) with a maximum permissible level for residues of the herbicide in or on soybeans of 0.1 ppm. This amendment will expire automatically on December 31, 1998. In addition, during the period that this amendment is effective, it will be subject to the conditions listed below:

1) This acceptance is based on your certification that the submitted labeling on preplant soybean use is an exact copy of the labeling accepted by the Agency on November 25, 1992. Please note that the acceptance of this labeling pertains to the previously approved preplant soybean use only and does not signify the acceptance of any other labeling revisions. No other label revisions are being reviewed or considered with this action. You should also note that if you fail to satisfy the conditions imposed in this certification, EPA may issue a notice to cancel this amendment under FIFRA section 6(e).

2) This conditional registration will expire automatically on December 31, 1998. Sale or distribution of the subject product bearing labeling for this use on reduced or no-tillage soybeans (pre-plant only) after December 31, 1998 will be illegal. The tolerance authorizing residues of the subject product will also expire on December 31, 1998. After that date, sale or distribution of food in interstate commerce containing any residue of the subject product will be a violation of the Federal Food, Drug, and Cosmetic Act.

RD:STANTON:PM Team 23:Rm. 235:CM-2:305-5218:Disk #2:S502533.LET

CONCURRENCES

SYMBOL ►	7505C							
SURNAME ►	S. Stanton							
DATE ►	Mar 21, 1996							

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3) Finally, if and when a permanent tolerance is established, EPA will entertain an application to amend the registration of the subject product without any special limitations on the duration of the amendment.

A stamped copy of the labeling is enclosed for your records. Please submit one (1) copy of your final printed labeling before you release the product for shipment.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Fungicide-Herbicide
Registration Division (7505C)

Enclosure

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Since 1955 GORDON'S CHEMICALS

HI-DEP®
BROADLEAF HERBICIDE

Controls Canada Thistle, Musk Thistle, Field Bindweed, Hemp Dogbane, and many other broadleaf weeds

ACTIVE INGREDIENTS:	
Dimethylamine Salt of 2,4-Dichlorophenoxyacetic acid	33.2%
Diethanolamine Salt of 2,4-Dichlorophenoxyacetic acid	16.3%
INERT INGREDIENTS	50.5%
TOTAL	100.0%

This Product Contains:
3.8 lbs. 2,4-Dichlorophenoxyacetic acid equivalent per gallon or 38.60%.
Isomer Specific by AOAC Methods.

KEEP FROM FREEZING

FORMULATED FOR LOW VOLUME APPLICATIONS WITH GROUND AND AERIAL EQUIPMENT

KEEP OUT OF REACH OF CHILDREN

DANGER-PELIGRO

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 below for additional Precautionary Statements, Statement of Practical Treatment and Full Directions for Use.

Net Contents One Gallon

ACCEPTED with COMMENTS In EPA Letter Dated MAR 22 1996

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 2217-703

STOP READ THE ENTIRE LABEL BEFORE USING
OBSERVE ALL PRECAUTIONS
FOLLOW DIRECTIONS CAREFULLY

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS:
DANGER: Corrosive, causes eye damage and skin irritation. Do not get in eyes, on skin or on clothing. Harmful if swallowed, absorbed through skin or inhaled. Avoid breathing vapor or spray mist.

Personal Protective Equipment (PPE):
Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks, and protective eyewear.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining 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 or PPE must not be reused until it has been cleaned.

Engineering Control Statements:
Containers over 1 gallon and less than 5 gallons in capacity: Mixers and loaders who do not use a mechanical system (probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

Containers of 5 gallons or more in capacity: A mechanical system (probe and pump) 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)], the handler PPE requirements may be reduced or modified as specified in the WPS.

When handlers use 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.

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.

STATEMENT OF PRACTICAL TREATMENT
IF IN EYES: In case of eye contact, immediately flush eyes with plenty of water for 15 minutes. Call a physician at once.

IF ON SKIN: Wash promptly with soap and water. Rinse thoroughly. If irritation develops, get medical attention.

IF SWALLOWED: Drink promptly a large quantity of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol. Call a physician at once.

IF INHALED: Remove victim to fresh air and apply respiration if indicated.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

ENVIRONMENTAL HAZARDS: Under no circumstances should this herbicide product or any 2,4-D weed killer be used in the vicinity of cotton, tomatoes, garden crops, grapes, ornamentals or other susceptible crops, or severe damage may result. Do not apply on windy days. Do not use equipment used in applying this product or any 2,4-D weed killer to apply insecticides, fungicides, or other material to susceptible crops. Do not use this product through any type of irrigation system. Avoid contamination of water supplies that may be used to irrigate or water susceptible crops, or to be used for domestic purposes.

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget plants. Do not apply directly to water except as specified on this label. Do not contaminate water when disposing of equipment washwaters. Do not apply when weather conditions favor drift from treated areas. Do not apply in any manner not specified on this label.

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.

DIRECTIONS FOR USE

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

Do not apply this product 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 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 48 hours.

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, wear: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

STORAGE & DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

STORAGE: Store in original container in a locked storage area inaccessible to children or pets. Keep from freezing.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: For plastic container: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. For metal drums: 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.

PRECAUTION FOR PAINTS AND COATINGS OF AUTOMOBILES AND OTHER VEHICLES: Undiluted spray droplets may damage the paint, coating, or finish of vehicles. Vehicles should not be sprayed. If accidental exposure does occur, then the vehicle should be washed before the spray droplets dry.

NOTICE TO USER: This product must be applied in compliance with the pesticide regulations of the state in which application is made. Check with local authorities regarding regulations which may affect the application of this product.

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USE INSTRUCTIONS

HI-DEP® consists of the dimethylamine and diethanolamine salts of 2,4-D especially formulated for low volume applications with aerial and ground equipment.

AERIAL APPLICATION: Ready-To-Use, not necessary to dilute for application rates of ½ gallon (2 quarts) per acre or higher. For rates lower than ½ gallon, dilute with water for total solution per acre of not less than ½ gallon.

AIRCRAFT SPECIFICATIONS (FIXED WING OR ROTARY WING): Boom width should not exceed ¾ the length of the aircraft wingspan. Do not exceed 25 psi nozzle pressure. Number of nozzles required to obtain desired volume per acre is dependent on swath width and speed of aircraft. Nozzles should be positioned between 135° and 175° from direction of flight for fixed wing. DO NOT APPLY THROUGH BECO-MIST NOZZLE SYSTEMS. Maintain aircraft attitude of 10 to 12 feet during application. See manufacturer's technical bulletin regarding nozzling and method of application specifications.

GROUND APPLICATION: Apply in water, 1 to 10 gallons total solution per acre with conventional equipment. Low spray volumes (1 to 5 gallons per acre) may provide more effective weed control and better economy. Use nozzle systems capable of spraying correct gallonage with boom pressures of 25 psi or less.

WEEDS CONTROLLED LIST

Use HI-DEP® to control many broadleaf weeds including:

– PERENNIAL WEEDS –

Artichoke	Docks	Locoweed	Tanweed
Aster	Dogbane	Mugwort	Toad flax
Austrian fieldcress	Dogfennel	Nettles	Vervains
Bindweed	Goldenrod	Orange hawkweed	Whitetop
Blackeyed susan	Ground ivy	Povertyweed	(Hoary cress)
Blue lettuce	Healall	Rushes	Wild garlic
Canada thistle	Hemlock	Sowthistle	Wild onion
Catnip	Ironweed	St. Johnswort	Wild sweet potato
Chicory	Knapweed	Stinging nettles	Yellow rocket
Clover (many types)	(Spotted	Strawberry (wild)	
Coffeeweed	Russian, Diffuse)	Tall buttercup	
Dandelion	Leafy spurge		

–ANNUAL AND BIENNIAL WEEDS –

Beggarticks	Galinsoga	Mediterranean sage	Shepherdspurse
Bitterweed	Goatsbeard	Miners lettuce	Sneezeweed
Black medic	Goosefoot	Morningglory	Sow thistle (common)
Broomweed	Groundsel	(annual)	Spanishneedles
Bull thistle	Gumweed	Musk Thistle	Sunflower
Burdock	Henbit	Mustard	Tansy mustard
Carpetweed	Jewelweed	Parsnip	Tansy ragwort
Catchweed	Jim Hill mustard	Pennycress	Tumble pigweed
bedstraw	(Tumble mustard)	Pepperweed	Tumbleweed
Chickweed	Jimsonweed	Pigweed (redroot)	Velvetleaf
Cinquefoil	Knotweed	Plantains	Vetch
Cockle	Lambsquarters	Prickly lettuce	Wild carrot
Cocklebur	Lettuce (wild)	Primrose	Wild parsnip
Croton	Mallow	Puncturevine	Wild turnip
Devilsclaw	Marestail	Radish (wild)	Witchweed
Falseflax	(Horseweed)	Ragweed	Wormwood
Fleabane (Daisy)	Marijuana	Russian thistle	Yellow starthistle
Flixweed	Marshelder	Scotch thistle	
Frenchweed			

ALSO CERTAIN 2,4-D SUSCEPTIBLE WOODY PLANTS SUCH AS:

Big sagebrush	Hazel	Poison oak	Sumac
Buckbrush	Locust	Rabbitbrush	Tropical Soda Apple
Chamise	Manzanita	Sagebrush	Tules (Bulrush)
Coastal sage	Poison ivy	Sand shinnery oak	Willow
Elderberry			

To convert local recommendations into terms of HI-DEP® use the following table:

2,4-D acid equivalent	1 lb.	¾ lb.	½ lb.	⅜ lb.	¼ lb.	⅛ lb.	⅛ lb.
HI-DEP®	2 pt.	1½ pt.	1 pt.	¾ pt.	½ pt.	⅜ pt.	¼ pt.

WHEAT, BARLEY, OATS, RYE:

See Table 1 for recommended use rates. Spray after grain begins tillering and before the boot stage (usually 4 to 8 inches tall) and weeds are small. Do not apply before the tiller stage nor from early boot through the milk stage. To control large 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. Do not permit dairy animals or meat animals being finished for slaughter to forage or graze treated grain fields within two weeks of treatment.

WHEAT: Perennial broadleaf weeds — Apply 2 pints per acre when weeds are in bud stage, but do not spray grain in the boot to dough stage. The 2 pint (1 pound acid equivalent) per acre application of any 2,4-D product 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.

TANK MIXTURES FOR SMALL GRAINS: HI-DEP® can be applied as a tank mixture with GLEAN® to broaden the spectrum of weed control. In order to assure maximum safety and weed control follow all precautions and limitations on this label and the labels of products used in tank mixtures with HI-DEP®.

TANK MIXTURE FOR SMALL GRAINS	
Products	Rates
HI-DEP® + GLEAN®*	1 pint/A + ⅛ to ⅓ ounce/A

*February 1991 — GLEAN® has been withdrawn from Colorado, Minnesota, Montana, Nebraska Panhandle, North Dakota, South Dakota, New Mexico, Texas Panhandle, and Wyoming. Still available in South Central Plains and Pacific Northwest. Consult your local DuPont representative for specific recommendations.

CORN:

PREPLANT APPLICATIONS FOR NO-TILLAGE AND REDUCED TILLAGE CORN

HI-DEP® may be applied prior to planting corn with conservation tillage systems. In no-tillage or reduced tillage systems where corn is planted in previous crop residues, established sod, stale seedbeds, or broadleaf cover crops, HI-DEP® will control susceptible broadleaf weeds and certain cover crops. HI-DEP® will not control unemerged broadleaf weeds and may not control the regrowth of certain perennial weeds.

To control emerged and actively growing broadleaf weeds, apply 2 pints of product per acre with spray volumes of 1 to 10 gallons per acre with ground equipment prior to planting. For less susceptible weeds, tank mixtures are recommended.

To control established legume sod (alfalfa and red clover) or legume cover crops, apply 2 pints of product per acre with spray volumes of 1 to 10 gallons per acre with ground equipment. Allow 4 to 6 inches of growth for alfalfa and red clover prior to the herbicide application. For improved control of these legumes, Banvel® Herbicide or Clarity™ Herbicide tank mixtures are recommended.

Tank Mixtures for Pre-Plant Applications for No-Tillage and Reduced Tillage Corn

HI-DEP®, a mixed amine salt of 2,4-D, may be applied in combination with one or more of the following herbicides for improved control of broadleaf weeds. These tank mixtures must be used according to the most restrictive label limitations and precautions. No label dosage rate should be exceeded. Follow the labeling of each companion product for precautionary statements, directions for use, dosage rates, and application schedules. Tank mixture recommendations are for use only in states where the companion products and application site are registered. In addition, certain states or geographic regions may have established dosage rate limitations. Consult your State Pesticide Control Agency for additional information regarding the maximum use rates.

This product may be tank mixed with these herbicides for pre-plant applications for corn with conservation tillage systems:

Common Name	Trade Names
alachlor	Lasso® Micro-Tech Herbicide Lasso® Herbicide
alachlor and atrazine	Bullet® Herbicide Lariat® Flowable Herbicide
atrazine	AAtrex® Nine-O®
atrazine and cyanazine	Extrazine® II DF Herbicide Dispersible Granule
atrazine and dicamba	Marksman® Herbicide
atrazine and metolachlor	Bicep® 6L Herbicide
cyanazine	Bladex® 90 DF
cyanazine and metolachlor	Cycle® Herbicide
dicamba	Banvel® Herbicide Clarity™ Herbicide
glyphosate	Roundup® Herbicide
metolachlor	Dual® Herbicide
paraquat	Gramoxone® Extra Herbicide

Mixing Instructions for Fertilizer/Herbicide Combinations for Corn

HI-DEP®, a mixed amine salt of 2,4-D, can be tank mixed with fluid fertilizers. Fertilizer solutions and fertilizer suspensions will vary in density, viscosity, and nutrient analysis and will react differently than water in tank mixture combinations. Because manufacturers may change formulations, the compatibility of tank mixture combinations needs to be verified on a small scale before the tank mixtures are prepared for field applications. ALWAYS CONDUCT A "JAR TEST" FOR COMPATIBILITY BEFORE PREPARING TANK MIXTURES.

The "jar test" can be conducted by mixing all components in a small container in proportionate quantities. If the mixture separates after standing and can be mixed readily by shaking, then the mixture can be used and applied with spray equipment providing continuous agitation. If large flakes, sludges, gels or other precipitates form, or if a separate oily layer or oil globules appear, then the herbicide and the liquid fertilizer should not be prepared as a tank mixture.

ALWAYS PRE-MIX HI-DEP® WITH WATER BEFORE ADDING TO FLUID FERTILIZERS. For liquid nitrogen solutions such as U.A.N., use a pre-mix of 1 part of HI-DEP® with 4 parts of water or use a pre-mix with a 1:4 ratio of product to water. For other fluid fertilizers such as suspensions, use a pre-mix of 1 part of HI-DEP® with 50 to 60 parts of water.

Use fluid fertilizers at rates and application schedules that are recommended by the agricultural extension service specialist or fertilizer suppliers.

Use the application schedules and the dosage rates of HI-DEP® for corn production presented in Table 1.

PREEMERGENCE — See Table 1 for recommended use rates. Apply to soil after planting but before corn emerges.

EMERGENCE — Apply just as corn plants are breaking ground. See Table 1 for recommended use rates.

POST-EMERGENCE —

1. EARLY POST-EMERGENCE: CORN HEIGHT UP TO 8 INCHES, OR FROM THE SPIKE STAGE UNTIL 5-LEAF CORN, OR UP TO 3 WEEKS AFTER EMERGENCE. Apply 0.5 to 1.0 pint of HI-DEP® per acre as a broadcast treatment. Injury to corn is most likely to occur if applied when corn is growing rapidly under high temperature and high soil moisture conditions. In such situations, use the broadcast rate of ½ pint per acre. Delay cultivation for 5 to 10 days after application to allow the corn to overcome any temporary brittleness.

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2. LATE POST-EMERGENCE: CORN HEIGHT GREATER THAN 8 INCHES, OR FROM 6-LEAF CORN UNTIL TASSELING, OR LATER THAN 3 WEEKS AFTER EMERGENCE.

Use nozzle extensions or drop nozzles for a directed spray to the "inter-row" areas only. Ensure uniform coverage of target weeds. Direct the spray beneath the corn canopy away from base of the corn plants. Minimize the coverage of the corn leaves and avoid spray deposits in the whorl. Do not apply from tasseling to the hard dough or denting stage.

Diagram 1: Spray pattern of an even spray nozzle for inter-row applications.

The broadcast dosage rates presented in Table 1 must be adjusted for this "inter-row" application. Specifically, multiply the broadcast dosage rate shown in Table 1 times the fraction of the row width covered by the spray pattern. Or, use the formulas below to compute the proper dosage rate and spray volumes for this inter-row method of application.

$$\text{Dosage Rates per Treated Acre} = \frac{\text{Spray band width, inches}}{\text{Row width, inches}} \times \text{Broadcast Dosage Rate per Acre}$$

$$\text{Spray Volume per Treated Acre} = \frac{\text{Spray band width, inches}}{\text{Row width, inches}} \times \text{Broadcast Spray Volume per Acre}$$

Tank Mixtures for Early Post-Emergence and Late Post-Emergence Applications to Corn

HI-DEP®, a mixed amine salt of 2,4-D, may be applied in combination with one or more of the following herbicides for improved control of broadleaf weeds. These tank mixtures must be used according to the most restrictive label limitations and precautions. No label dosage rate should be exceeded. Follow the labeling of each companion product for precautionary statements, directions for use, dosage rates, and application schedules. Tank mixture recommendations are for use only in states where the companion products and application site are registered.

Product Name	Early Post-Emergent Applications		Late Post-Emergent Applications	
	Amount of Product		Amount of Product	
	Pints per Acre	Pounds ai/acre	Pints per Acre	Pounds ai/acre
Hi-Dep® plus Banvel® Herbicide	not recommended		¼ pint	0.125
			½ pint	0.25
Hi-Dep® plus Buctril® Brand Herbicide	⅛ to ½ pint	0.06-0.25	¼ to ½ pint	0.125-0.25
	1 pint	0.25	1½ pints	0.38

PREHARVEST — After the hard dough or denting stage, apply 1 to 2½ pints of HI-DEP® as a broadcast treatment with air or ground equipment. High dosage rates (1½ to 2½ pints of product per acre) are recommended to suppress bindweed, cocklebur, dogbane, sunflower, and velvetleaf that may interfere with harvesting. NOTE: Do not forage or feed corn or fodder for 7 days following application.

NOTE FOR ALL APPLICATION SCHEDULES: Hybrids vary in tolerance to 2,4-D. Some are easily injured. Spray only hybrids 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. Follow all directions carefully and ensure proper sprayer calibration.

GRAIN SORGHUM (MILO):

PREPLANT APPLICATIONS FOR NO-TILLAGE AND REDUCED TILLAGE GRAIN SORGHUM (MILO)

HI-DEP®, a mixed amine salt of 2,4-D, may be applied prior to planting grain sorghum with conservation tillage systems. In no-tillage or reduced tillage systems where grain sorghum is planted in previous crop residues, established sod, stale seedbeds, or broadleaf cover crops, HI-DEP® will control susceptible broadleaf weeds and certain cover crops. HI-DEP® will not control unemerged broadleaf weeds and may not control the regrowth of certain perennial weeds.

To control emerged and actively growing broadleaf weeds, apply 1.5 pints of product per acre with spray volumes of 1 to 10 gallons per acre with ground equipment prior to planting. For less susceptible weeds or over-wintering weeds, tank mixtures are recommended.

Tank Mixtures for Pre-Plant Applications for No-Tillage and Reduced Tillage Grain Sorghum

HI-DEP®, a mixed amine salt of 2,4-D, may be applied in combination with one or more of the following herbicides for improved control of broadleaf weeds. These tank mixtures must be used according to the most restrictive label limitations and precautions. No label dosage rate should be exceeded. Follow the labeling of each companion product for precautionary statements, directions for use, dosage rates, and application schedules. Tank mixture recommendations are for use only in states where the companion products and application site are registered. In addition, certain states or geographic regions may have established dosage rate limitations. Consult your State Pesticide Control Agency for additional information regarding the maximum use rates.

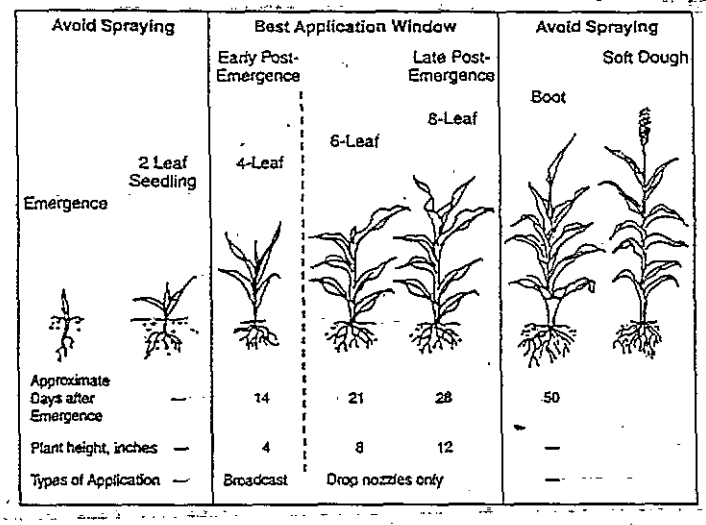
This product may be tank mixed with these herbicides for pre-plant applications for grain sorghum with conservation tillage systems:

Common Name	Trade Names
atrazine	AAtrex® Nine-O®
cyanazine	Bladex® 90 DF
dicamba	Banvel® Herbicide
glyphosate	Roundup® Herbicide
paraquat	Gramoxone® Extra Herbicide

POST-EMERGENT APPLICATIONS FOR GRAIN SORGHUM (MILO)

Post-emergent applications of HI-DEP® are recommended during the 4-leaf stage up to the boot stage of the grain sorghum. Broadcast applications are recommended for the 4 to 6-leaf stage of grain sorghum or approximately 14 to 21 days after emergence. Only directed sprays to the inter-rows are recommended for the 6-leaf stage until the boot stage of the grain sorghum or approximately 21 to 50 days after emergence.

Application Schedules for Grain Sorghum (Milo)



1. EARLY POST-EMERGENCE: GRAIN SORGHUM HEIGHT OF 4 TO 8 INCHES, OR FROM 4-LEAF UNTIL 6-LEAF GRAIN SORGHUM, OR APPROXIMATELY 14 TO 21 DAYS AFTER EMERGENCE.

Apply ⅔ to 1 pint of HI-DEP® per acre as a broadcast treatment. Temporary crop injury can be expected under conditions of high soil moisture and high air temperature. If it is necessary to apply under these conditions, use no more than ⅔ pints of product per acre.

2. LATE POST-EMERGENCE: GRAIN SORGHUM HEIGHT GREATER THAN 8 INCHES, OR FROM 6-LEAF STAGE UNTIL BOOT STAGE OF GRAIN SORGHUM, OR APPROXIMATELY 21 TO 50 DAYS AFTER EMERGENCE.

Use nozzle extensions or drop nozzles for a directed spray to the "inter-row" areas only. (See Diagram 1 shown in the instructions for corn.) Ensure uniform coverage of target weeds. Direct the spray beneath the sorghum canopy away from base of the grain sorghum plants. Minimize the coverage of the grain sorghum leaves and avoid spray deposits in the whorl. Do not apply after the boot stage of grain sorghum.

The broadcast dosage rates presented in Table 1 must be adjusted for the "inter-row" application. Specifically, multiply the broadcast dosage rate shown in Table 1 times the fraction of the row width covered by the spray pattern. Or, use the formulas below to compute the proper dosage rate and spray volumes for this inter-row method of application.

$$\text{Dosage Rates per Treated Acre} = \frac{\text{Spray band width, inches}}{\text{Row width, inches}} \times \text{Broadcast Dosage Rate per Acre}$$

$$\text{Spray Volume per Treated Acre} = \frac{\text{Spray band width, inches}}{\text{Row width, inches}} \times \text{Broadcast Spray Volume per Acre}$$

GRAIN SORGHUM TANK MIXTURES FOR EARLY POST-EMERGENCE AND LATE POST-EMERGENCE APPLICATIONS

HI-DEP®, a mixed amine salt of 2,4-D, may be applied in combination with one or more of the following herbicides for improved control of broadleaf weeds. These tank mixtures must be used according to the most restrictive label limitations and precautions. No label dosage rate should be exceeded. Follow the labeling of each companion product for precautionary statements, use directions, dosage rates, and application schedules. Tank mixture recommendations are for use only in states where the companion products and application site are registered.

Product Name	Early Post-Emergent Applications		Late Post-Emergent Applications	
	Amount of Product		Amount of Product	
	Pints per Acre	Pounds ai/acre	Pints per Acre	Pounds ai/acre
Hi-Dep® plus Banvel® Herbicide	¼ to ½ pint	0.125-0.25	not recommended	
	½ pint	0.25		
Hi-Dep® plus Buctril® Brand Herbicide	⅛ to ½ pint	0.06-0.25	¼ to ½ pint	0.125-0.25
	1 pint	0.25	1½ pints	0.38

NOTE FOR ALL APPLICATION SCHEDULES: Hybrids vary in tolerance to 2,4-D. Some are easily injured. Spray only hybrids 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.

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FOR USE IN REDUCED OR NO-TILLAGE SOYBEANS (Preplant Only)

GENERAL INFORMATION

HI-DEP® is a mixed amine salt of 2,4-D that provides post-emergence control of many susceptible annual and perennial broadleaf weeds. HI-DEP® 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. HI-DEP® should only be applied pre-plant to soybeans in situations such as reduced tillage production systems, where emerged weeds are present. Apply only according to the application instructions given below.

MIXING INSTRUCTIONS

Mix HI-DEP® only with water, unless otherwise directed on this label. 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 FOR AMINE SALTS

Maximum Amount of HI-DEP® to Apply per acre	Maximum Rate (Pounds 2,4-D a.e./acre)	When to Apply (Days Prior To (Planting Soybeans)
1 Pint	0.5	NOT LESS THAN 15 DAYS
1 Quart	1	NOT LESS THAN 30 DAYS

WEEDS CONTROLLED

alfalfa*
bindweed*
buttnettle
bittercress, smallflowered
buttercup, smallflowered
Carolina geranium
cinquefoil, common and rough
clover, red*
cocklebur, common
dandelion
dock, curly*
eveningprimrose, cutleaf
garlic, wild*
horseweed or marestail
ironweed
lambsquarters, common
lettuce, prickly
morningglory, annual
mousetail
mustard, wild
onion, wild*
pennycress, field
plantains
purslane, common
ragweed, common
ragweed, giant
shepherdspurse
smartweed, Pennsylvania
sowthistle, annual
speedwell
thistle, Canada*
thistle, bull
velvetleaf
vetch, hairy*
Virginia copperleaf

*These species are only partially controlled.

In general, weeds should be small, actively growing and free of stress caused by extremes in climatic conditions, diseases, or insect damage at the time of treatment. The response of individual weed species to HI-DEP® is variable. Consult your local county or State Agricultural Extension Service or crop consultant for advice.

APPLICATION RESTRICTIONS AND PRECAUTIONS FOR SOYBEANS (Preplant)

Important Notice: Unacceptable injury to soybeans planted in fields previously treated with HI-DEP® may occur. Whether or not soybean 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.

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

Do not apply HI-DEP® when weather conditions such as air temperature inversions or wind favor drift from treated areas to susceptible plants.

Livestock Grazing Restriction: Do not feed hay, forage, or fodder. Restrict livestock from grazing treated fields.

In fields previously treated with 2,4-D, plant soybean seed as deep as practical or at least 1.5 to 2.0 inches deep. Adjust the press wheel of the planter, if necessary, to ensure that planted seed is completely covered.

RICE:

See Table 1 for recommended use rates. Apply in the late tillering stage of rice development, at the time of first joint development (first to second green ring), usually 6 to 9 weeks after emergence. Do not apply after panicle initiation, after rice internodes exceed ½ 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 Specialists for appropriate rates and timing of 2,4-D sprays.

SUGARCANE:

See Table 1 for recommended use rates. Use up to 4 applications per year in accordance with State recommendations.

FALLOW LAND AND STUBBLE:

Annual weeds — Use 1 to 2 quarts/acre. Apply when weeds are actively growing. Perennial weeds — Use 2 to 3 quarts/acre on weeds such as Canada thistle (apply in late bud or early bloom), field bindweed (50% or greater bloom) and other perennial weeds listed. Do not make application within 90 days of planting or until chemical has disappeared from soil.

Tank Mixtures for Fallow Land and Stubble: HI-DEP®, a mixed amine salt of 2,4-D, can be applied as a tank-mixture with BANVEL® Herbicide and ROUNDUP® Herbicide to broaden the spectrum of weed control. In order to assure maximum safety and weed control follow all precautions and limitations on this label and the labels of products used in tank mixtures with HI-DEP®.

TANK MIXTURES FOR FALLOW LAND AND STUBBLE

Products	Rates
HI-DEP® + BANVEL® HERBICIDE	3 pints/A + 1 pint/A
HI-DEP® + ROUNDUP® HERBICIDE	1 to 2 pints/A + ½ to 1 pint/A

TABLE 1 – BROADCAST DOSAGE RATES FOR GROUND AND AERIAL APPLICATIONS TO SMALL GRAINS, CORN, SORGHUM, RICE, AND SUGARCANE

CROP	DOSAGE PER ACRE: Normal Rates (usually safe to crops)	DOSAGE PER ACRE: Higher rates for special situations[2] (more likely to injure crop)
SMALL GRAINS		
Spring postemergence wheat, barley, rye	¼ to 1¼ pints	2 to 3 pints
Spring postemergence oats	½ to 1 pint	1½ to 2 pints
Preharvest[3] (dough stage) wheat, barley, oats, rye	1 to 2 pints	2 to 3 pints
CORN[1]		
Preemergence	2 to 4 pints	-----
Emergence[1]	1 pint	1½ pints
Postemergence[1]		
up to 8 inches tall	½ to 1 pint	-----
8 inches to tasseling (use only directed spray)	1 pint	1½ to 2½ pints
Preharvest[3]	1 to 2 pints	1½ to 2½ pints
GRAIN SORGHUM (MILO)[1]		
Postemergence		
6 to 8 inches tall	⅔ to 1 pint	-----
8 to 15 inches tall (use only directed spray)	1 pint	1½ to 2 pints
RICE	1 to 2½ pints	2 to 3 pints
SUGARCANE		
Fall, after harvest or planting	2 to 4 pints	-----
Spring, once or twice before close-in	2 to 4 pints	-----
Summer	2½ pints	-----

[1]Corn and sorghum hybrids vary in tolerance to 2,4-D; some are easily injured. Before spraying, obtain information on 2,4-D tolerance of specific hybrids and spray only those known to be resistant to 2,4-D injury. If plants are more than 8 inches tall, use directed spray and keep off corn and sorghum foliage.

[2]These higher rates may be needed to handle difficult weed problems in certain areas such as dry conditions, especially in areas west of the Mississippi River. However, do not use unless possible crop injury will be acceptable. Consult State Agricultural Experiment Station or Extension Service Weed Specialists for recommendations or suggestions to fit local conditions.

[3]Apply after the hard dough (corn) or dough stage (wheat) by air or ground equipment to suppress perennial weeds and control tall weeds such as bindweed, cocklebur, cogbane, jimsonweed, ragweed, sunflower, velvetleaf and vines that interfere with harvesting.

NOTE: Do not apply when weather conditions favor drift from treated areas.

STONEFRUIT, NUT AND PISTACHIO ORCHARDS:

Broadleaf weeds. Use 1½ quarts in 20 to 50 gallons of water per acre. For band or spot treatment, calculate rates according to the actual portion of an acre treated. Apply as a directed spray onto the weeds to point of run-off when weeds are young and actively growing (pre-bud to early bud stage). Make up to two applications through the growing season as needed. Do not harvest stonefruits within 40 days of application. Do not harvest nuts and pistachios within 60 days of application. Do not graze or feed cover crops from treated orchards to livestock.

FILBERTS: Sucker Control. Mix 1 quart in 100 gallons of water plus 8 fluid ounces of non-ionic agricultural surfactant. Spray to run-off when suckers are 6 to 9 inches tall. Spray when needed from April through August. Use large orifice nozzles (0.04 nozzle) and low tank pressure (30 to 35 psi) to produce large droplet size. Apply no more than four times per year. Do not harvest filberts within 45 days of last application. Do not allow livestock to graze in treated areas or the feeding of cover crops grown in treated orchards.

PRECAUTIONS IN APPLYING 2,4-D IN ORCHARDS: Apply only after irrigation and allow maximum time before the next irrigation. Do not apply around fruit trees or vines with handgun. Use only flat, fan-type nozzles and low pressures — 20 to 30 psi. Use a fixed boom applicator which can be calibrated and which will deposit the spray uniformly. Avoid contact with fruit, foliage, stems or lower limbs of trees or vines. DO NOT spray bare ground. Apply precisely and uniformly to prevent damage to the trees or vines and to obtain satisfactory weed control. Do not apply during windy periods or extremely high temperatures. In California — not for use in desert valleys or on shallow or sandy soils. Allow maximum time after application and before next irrigation. Late fall applications after harvest and before frost preferred.

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PASTURE AND RANGELAND:

Annual weeds — use 1 to 2 quarts/acre. Apply when weeds are actively growing. Perennial weeds — use 2 to 4 quarts/acre when perennial weeds are translocating carbohydrates, i.e. Canada thistle (late bud to early bloom), bull thistle (bud stage), musk thistle (spring or fall in rosette or early bud stage), leafy spurge (4 quarts) (early to late bloom), field bindweed (80% or greater bloom). High rates for spot treatments may cause temporary yellowing of grasses.

The maximum application rate to pasture and rangeland is 2 pounds 2,4-D acid equivalent per acre per application per site. On pastures and rangeland, the maximum seasonal rate is 6 quarts of product (5.7 pounds acid equivalent) per acre per season.

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 where grass seed production is desired.

Observe these intervals:
1. A 7 day pregrazing interval for dairy cattle.
2. A 30 day preharvest interval for grass cut for hay.
3. A preslaughter interval for meat animals of 3 days.

CONTROL OF SOUTHERN WILD ROSE: On rangelands, roadsides, and fencerows, use 1 gallon and spray thoroughly as soon as foliage is well developed. Two or more treatments may be required. On pastures and rangelands, the maximum seasonal rate is 6 quarts of product (5.7 pounds acid equivalent) per acre per season. See grazing restrictions in pasture and rangeland section above.

TANK MIXTURES FOR PASTURES AND RANGELANDS: HI-DEP®, a mixed amine salt of 2,4-D, can be applied as a tank mixture with BANVEL® Herbicide or TORDON® 22K to broaden the spectrum of weed control. To assure maximum safety and weed control, follow all precautions and limitations on this label and the labels of products used in tank mixtures with HI-DEP®.

TANK MIXTURES FOR PASTURES AND RANGELANDS	
Products	Rates
HI-DEP® + BANVEL® HERBICIDE	1 to 2 quarts/A + 1 to 2 pints/A
HI-DEP® + TORDON® 22K	1 to 2 quarts/A + ¼ to 2 pints/A

CHART I — TANK MIXTURE RECOMMENDATIONS FOR FOLIAR BROADCAST TREATMENTS USING AERIAL EQUIPMENT

Product Name	Restricted Use	Approved States	Amount of Product		Spray Volume	Spray Preparations					Grazing and Harvest Intervals
						Water Solutions		Oil: Water Emulsions			
			Quarts per Acre	Pounds a.i./acre	gpa	Agricultural Surfactants % vol./vol.[5]	Drift Control Additives	Ratio of Oil to Water	Emulsifiers	Drift Control Additives	
HI-DEP®	NO	New Mexico Oklahoma Texas Arizona	2.0	1.9	>½ to 4	—	—	—	—	—	See footnote 1.
HI-DEP® plus RECLAIM® HERBICIDE	NO	New Mexico Oklahoma Texas	1.0 0.34-0.67	0.95 0.25-0.50	≥2	0.25% v/v	Nalco-Trol or Equivalent	1:5	Sponto 712 or Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 2.
HI-DEP® plus REMEDY® RANGE AND PASTURE HERBICIDE	NO	New Mexico Oklahoma Texas Arizona	1.0 0.50	0.95 0.50	≥2 and ≥4 for South Texas Mixed Brush	0.25% v/v	Nalco-Trol or Equivalent	1:5	Rangeland Spra-Mate, Sponto 712 Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 3.
HI-DEP® plus GRAZON® PC HERBICIDE	YES	New Mexico Oklahoma Texas	1.0 0.5-1.0	0.95 0.25-0.50	≥2 and ≥4 for South Texas Mixed Brush	0.50% v/v	Nalco-Trol or Equivalent	1:5	Sponto 712 or Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 4.

1) Observe these intervals.
   1. A 7 day pregrazing interval for dairy cattle.
   2. A 30 day preharvest interval for grass cut for hay.
   3. A preslaughter interval for meat animals of 3 days.

2) Do not spray pastures containing desirable forbs, especially legumes, unless injury to such plants can be tolerated. Do not treat more than once a year. Fall treatments are not recommended. Do not transfer livestock from treated grazing areas onto sensitive broadleaf crop areas without allowing 7 days of grazing on an untreated pasture.

3) Do not spray pastures containing desirable forbs, especially legumes such as clover, unless injury or loss of plants can be tolerated. Withdraw livestock from treated forage at least 3 days before slaughter during the year of treatment. Do not graze lactating dairy animals on treated areas for one year following treatment. Do not harvest grass for hay from treated areas for one year following treatment.

4) Do not transfer livestock from treated areas onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Otherwise, urine may contain enough picloram to cause injury to sensitive broadleaf plants. Do not spray pastures if the forage legume component is desired. GRAZON® PC HERBICIDE may injure or kill legumes. Also, new legume seedings may not be successful if made within 2 years following application of this herbicide. Do not treat with GRAZON® PC HERBICIDE (Picloram) more than once a year. Maximum application rate for GRAZON® PC HERBICIDE is 2 pints per acre per year (0.5 lbs. ae/A).

5) Use non-ionic agricultural surfactants such as ORTHO® X-77 or equivalent products.

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CHART II — TANK MIXTURE RECOMMENDATIONS FOR FOLIAR BROADCAST TREATMENTS USING GROUND EQUIPMENT

Product Name	Restricted Use	Approved States	Amount of Product		Spray Volume	Spray Preparations					Grazing and Harvest Intervals
						Water Solutions		Oil: Water Emulsions			
			Quarts per Acre	Pounds a.i./acre	gpa	Agricultural Surfactants % vol./vol.[5]	Drift Control Additives	Ratio of Oil to Water	Emulsifiers	Drift Control Additives	
HI-DEP®	NO	New Mexico Oklahoma Texas Arizona	2.0	1.9	1-10	—	—	—	—	—	See footnote 1.
HI-DEP® plus RECLAIM® HERBICIDE	NO	New Mexico Oklahoma Texas	1.0 0.34-0.67	0.95 0.25-0.50	10-20	0.25% v/v	Nalco-Trol or Equivalent	5-10% with maximum of 1 gallon of oil per acre	Sponto 712 or Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 2.
HI-DEP® plus REMEDY® RANGE AND PASTURE HERBICIDE	NO	New Mexico Oklahoma Texas Arizona	1.0 0.50	0.95 0.50	>10	0.50% v/v	Nalco-Trol or Equivalent	5-10% with maximum of 1 gallon of oil per acre	Rangeland Spra-Mate, Sponto 712 Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 3.
HI-DEP® plus GRAZON® PC HERBICIDE	YES	New Mexico Oklahoma Texas	1.0 0.5-1.0	0.95 0.25-0.50	10-25	0.50% v/v	Nalco-Trol or Equivalent	15-20% with maximum of 1 gallon of oil per acre	Sponto 712 or Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 4.

1) Observe these intervals.
   1. A 7 day pregrazing interval for dairy cattle.
   2. A 30 day preharvest interval for grass cut for hay.
   3. A preslaughter interval for meat animals of 3 days.

2) Do not spray pastures containing desirable forbs, especially legumes, unless injury to such plants can be tolerated. Do not treat more than once a year. Fall treatments are not recommended. Do not transfer livestock from treated grazing areas onto sensitive broadleaf crop areas without allowing 7 days of grazing on an untreated pasture.

3) Do not spray pastures containing desirable forbs, especially legumes such as clover, unless injury or loss of plants can be tolerated. Withdraw livestock from treated forage at least 3 days before slaughter during the year of treatment. Do not graze lactating dairy animals on treated areas for one year following treatment. Do not harvest grass for hay from treated areas for one year following treatment.

4) Do not transfer livestock from treated areas onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Otherwise, urine may contain enough picloram to cause injury to sensitive broadleaf plants. Do not spray pastures if the forage legume component is desired. GRAZON® PC HERBICIDE may injure or kill legumes. Also, new legume seedings may not be successful if made within 2 years following application of this herbicide. Do not treat with GRAZON® PC HERBICIDE (Picloram) more than once a year. Maximum application rate for GRAZON® PC HERBICIDE is 2 pints per acre per year (0.5 lbs. ae/A).

5) Use non-ionic agricultural surfactants such as ORTHO® X-77 or equivalent products.

MESQUITE MANAGEMENT IN PERMANENT GRASS PASTURES AND RANGELANDS

HI-DEP® and three tank mixtures have proven effective on mesquite in pastures and rangelands in Texas, Oklahoma, Arizona, and New Mexico. HI-DEP® can be tank mixed with RECLAIM® HERBICIDE, REMEDY® RANGE AND PASTURE HERBICIDE, and GRAZON® PC HERBICIDE for use on pastures and rangelands in accordance with the most restrictive of label limitations and precautions. No label dosages should be exceeded.

HI-DEP®, RECLAIM® HERBICIDE, and REMEDY® RANGE AND PASTURE HERBICIDE are classified as General Use Pesticides. However, GRAZON® PC HERBICIDE is classified as a Restricted Use Pesticide. Two terms of the restrictions including the following:

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicators certification. Commercial Certified Applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.

APPLICATION SCHEDULES: The appropriate growth stage of mesquite for effective control occurs in the spring or early summer after the mesquite has fully leafed out and has turned dark green in color. Do not apply when the mesquite beans are elongating. The best environmental conditions include soil temperatures above 75°F (24°C) at the depth of 12 to 18 inches and adequate soil moisture for plant growth.

BROADCAST APPLICATION WITH AERIAL EQUIPMENT

DOSAGE RATES: Refer to Chart I for the broadcast rates of HI-DEP® and tank mixtures applied with aerial equipment.

SPRAY VOLUMES — For aerial application of HI-DEP® alone, use a total spray volume of 0.5 to 4.0 gallons per acre (gpa). For aerial application of the tank mixtures, use a minimum spray volume of 2.0 gallons per acre; for South Texas mixed brush 4 gallons per acre are recommended. Refer to Chart I for specific instructions.

SPRAY PREPARATION — HI-DEP® diluted with water forms a solution. Agricultural surfactants such as ORTHO® X-77 are recommended for tank mixtures with water alone. Drift control additives such as NALCO-TROL® may be used in reducing drift. Refer to Chart I for specific instructions.

Oil in water emulsions may increase the effectiveness of the tank mixtures when compared to spray mixtures with water alone. Oil in water emulsions include oil (diesel fuel, kerosene, fuel oil, or mineral oil), an emulsifier, and the herbicides. Prepare an oil-water emulsion with a 1:5 ratio by adding a pre-mix of oil and emulsifier to the total spray mixture at the ratio of 1 part oil to 5 parts of water. Do not use more than one gallon of oil per acre. Always use a jar test to check compatibility before preparing tank mixtures. Emulsifiers such as SPONTO® 712, TRITON® X-100, or RANGELAND SPRAMATE®

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must be used for adequate stability in oil-water emulsions. Drift control agents such as NALCO-TROL® may be used in reducing drift. Refer to Chart I for specific instructions.

HARVEST AND GRAZING INTERVALS: Refer to Chart I.

BROADCAST APPLICATIONS WITH GROUND EQUIPMENT

DOSAGE RATES: Refer to Chart II for the broadcast rates of HI-DEP® and tank mixtures applied with ground equipment.

SPRAY VOLUMES: For ground application of HI-DEP® alone, use a total spray volume of 1.0 to 10.0 gallons per acre (gpa). For ground application of the tank mixtures, use a minimum spray volume of 10.0 gallons per acre; for sites with mixed brush or dense growth 10 to 25 gallons per acre are recommended. Refer to Chart II for specific instructions.

SPRAY PREPARATION: HI-DEP® diluted with water forms a solution. Agricultural surfactants such as ORTHO® X-77 are recommended for tank mixtures with water alone. Drift control additives such as NALCO-TROL® may be used in reducing drift. Refer to Chart II for specific instructions.

Oil in water emulsions may increase the effectiveness of the tank mixtures when compared to spray mixtures with water alone. Oil in water emulsions include oil (diesel fuel, kerosene, fuel oil, or mineral oil), an emulsifier, and the herbicides. The amount of oil in the spray mixture will range from 5 to 20 percent of the total spray mixture, and the maximum rate of oil should not exceed 1 gallon per acre. Emulsifiers such as SPONTO® 712, TRITON® X-100, or RANGELAND SPRAMATE® must be used for adequate stability in oil-water emulsions. Drift control agents such as NALCO-TROL® may be used in reducing drift. Always use a jar test to check compatibility before preparing tank mixtures. Refer to Chart II for specific instructions.

HARVEST AND GRAZING INTERVALS: Refer to Chart II.

HIGH VOLUME LEAF STEM TREATMENTS OF INDIVIDUAL MESQUITE PLANTS WITH BACKPACK SPRAYERS, KNAPSACK SPRAYERS, POWER SPRAYERS, HANDGUNS, OR OTHER GROUND EQUIPMENT:

This method is appropriate for sparse infestations of mesquite trees less than 6 to 8 feet in height or as a follow-up treatment in subsequent or different growing seasons. HI-DEP® may be applied alone or in combination with RECLAIM® in a dilution with water or in an oil-water emulsion.

For HI-DEP® alone, mix 2.0 gallons of HI-DEP® per 100 gallons of water (2.0% spray concentration). For HI-DEP® + RECLAIM® tank mixture, mix 1 gallon of HI-DEP® plus 0.5 to 0.75 gallon of RECLAIM® HERBICIDE per 100 gallons of water (1.0% and .5 to .75% spray concentration of HI-DEP® and RECLAIM®, respectively). See Chart III for additional instructions for the spray preparation of 100 gallons of spray solution.

Spray volumes will depend upon the density and height of the mesquite plants. Thorough coverage of the leaves, stems, trunks, and root collars is essential. Apply as a spray-to-wet application for the best results. However, do not exceed one application of 1½ pints per acre per year of RECLAIM® HERBICIDE.

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CHART II — TANK MIXTURE RECOMMENDATIONS FOR FOLIAR BROADCAST TREATMENTS USING GROUND EQUIPMENT

Product Name	Restricted Use	Approved States	Amount of Product		Spray Volume	Spray Preparations					Grazing and Harvest Intervals
						Water Solutions		Oil: Water Emulsions			
			Quarts per Acre	Pounds a.i./acre	gpa	Agricultural Surfactants % vol./vol.[5]	Drift Control Additives	Ratio of Oil to Water	Emulsifiers	Drift Control Additives	
HI-DEP®	NO	New Mexico Oklahoma Texas Arizona	2.0	1.9	1-10	—	—	—	—	—	See footnote 1.
HI-DEP® plus RECLAIM® HERBICIDE	NO	New Mexico Oklahoma Texas	1.0 0.34-0.67	0.95 0.25-0.50	10-20	0.25% v/v	Nalco-Trol or Equivalent	5-10% with maximum of 1 gallon of oil per acre	Sponto 712 or Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 2.
HI-DEP® plus REMEDY® RANGE AND PASTURE HERBICIDE	NO	New Mexico Oklahoma Texas Arizona	1.0 0.50	0.95 0.50	>10	0.50% v/v	Nalco-Trol or Equivalent	5-10% with maximum of 1 gallon of oil per acre	Rangeland Spra-Mate, Sponto 712 Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 3.
HI-DEP® plus GRAZON® PC HERBICIDE	YES	New Mexico Oklahoma Texas	1.0 0.5-1.0	0.95 0.25-0.50	10-25	0.50% v/v	Nalco-Trol or Equivalent	15-20% with maximum of 1 gallon of oil per acre	Sponto 712 or Triton X-100	Nalco-Trol or Equivalent	See footnotes 1, 4.

1) Observe these intervals.
   1. A 7 day pregrazing interval for dairy cattle.
   2. A 30 day preharvest interval for grass cut for hay.
   3. A preslaughter interval for meat animals of 3 days.

2) Do not spray pastures containing desirable forbs, especially legumes, unless injury to such plants can be tolerated. Do not treat more than once a year. Fall treatments are not recommended. Do not transfer livestock from treated grazing areas onto sensitive broadleaf crop areas without allowing 7 days of grazing on an untreated pasture.

3) Do not spray pastures containing desirable forbs, especially legumes such as clover, unless injury or loss of plants can be tolerated. Withdraw livestock from treated forage at least 3 days before slaughter during the year of treatment. Do not graze lactating dairy animals on treated areas for one year following treatment. Do not harvest grass for hay from treated areas for one year following treatment.

4) Do not transfer livestock from treated areas onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Otherwise, urine may contain enough picloram to cause injury to sensitive broadleaf plants. Do not spray pastures if the forage legume component is desired. GRAZON® PC HERBICIDE may injure or kill legumes. Also, new legume seedings may not be successful if made within 2 years following application of this herbicide. Do not treat with GRAZON® PC HERBICIDE (Picloram) more than once a year. Maximum application rate for GRAZON® PC HERBICIDE is 2 pints per acre per year (0.5 lbs. ae/A).

5) Use non-ionic agricultural surfactants such as ORTHO® X-77 or equivalent products.

MESQUITE MANAGEMENT IN PERMANENT GRASS PASTURES AND RANGELANDS

HI-DEP® and three tank mixtures have proven effective on mesquite in pastures and rangelands in Texas, Oklahoma, Arizona, and New Mexico. HI-DEP® can be tank mixed with RECLAIM® HERBICIDE, REMEDY® RANGE AND PASTURE HERBICIDE, and GRAZON® PC HERBICIDE for use on pastures and rangelands in accordance with the most restrictive of label limitations and precautions. No label dosages should be exceeded.

HI-DEP®, RECLAIM® HERBICIDE, and REMEDY® RANGE AND PASTURE HERBICIDE are classified as General Use Pesticides. However, GRAZON® PC HERBICIDE is classified as a Restricted Use Pesticide. Two terms of the restrictions including the following:

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicators certification. Commercial Certified Applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.

APPLICATION SCHEDULES: The appropriate growth stage of mesquite for effective control occurs in the spring or early summer after the mesquite has fully leafed out and has turned dark green in color. Do not apply when the mesquite beans are elongating. The best environmental conditions include soil temperatures above 75°F (24°C) at the depth of 12 to 18 inches and adequate soil moisture for plant growth.

BROADCAST APPLICATION WITH AERIAL EQUIPMENT

DOSAGE RATES: Refer to Chart I for the broadcast rates of HI-DEP® and tank mixtures applied with aerial equipment.

SPRAY VOLUMES — For aerial application of HI-DEP® alone, use a total spray volume of 0.5 to 4.0 gallons per acre (gpa). For aerial application of the tank mixtures, use a minimum spray volume of 2.0 gallons per acre; for South Texas mixed brush 4 gallons per acre are recommended. Refer to Chart I for specific instructions.

SPRAY PREPARATION — HI-DEP® diluted with water forms a solution. Agricultural surfactants such as ORTHO® X-77 are recommended for tank mixtures with water alone. Drift control additives such as NALCO-TROL® may be used in reducing drift. Refer to Chart I for specific instructions.

Oil in water emulsions may increase the effectiveness of the tank mixtures when compared to spray mixtures with water alone. Oil in water emulsions include oil (diesel fuel, kerosene, fuel oil, or mineral oil), an emulsifier, and the herbicides. Prepare an oil-water emulsion with a 1:5 ratio by adding a pre-mix of oil and emulsifier to the total spray mixture at the ratio of 1 part oil to 5 parts of water. Do not use more than one gallon of oil per acre. Always use a jar test to check compatibility before preparing tank mixtures. Emulsifiers such as SPONTO® 712, TRITON® X-100, or RANGELAND SPRAMATE® must be used for adequate stability in oil-water emulsions. Drift control agents such as NALCO-TROL® may be used in reducing drift. Refer to Chart I for specific instructions.

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HARVEST AND GRAZING INTERVALS: Refer to Chart I.

BROADCAST APPLICATIONS WITH GROUND EQUIPMENT

DOSAGE RATES: Refer to Chart II for the broadcast rates of HI-DEP® and tank mixtures applied with ground equipment.

SPRAY VOLUMES: For ground application of HI-DEP® alone, use a total spray volume of 1.0 to 10.0 gallons per acre (gpa). For ground application of the tank mixtures, use a minimum spray volume of 10.0 gallons per acre; for sites with mixed brush or dense growth 10 to 25 gallons per acre are recommended. Refer to Chart II for specific instructions.

SPRAY PREPARATION: HI-DEP® diluted with water forms a solution. Agricultural surfactants such as ORTHO® X-77 are recommended for tank mixtures with water alone. Drift control additives such as NALCO-TROL® may be used in reducing drift. Refer to Chart II for specific instructions.

Oil in water emulsions may increase the effectiveness of the tank mixtures when compared to spray mixtures with water alone. Oil in water emulsions include oil (diesel fuel, kerosene, fuel oil, or mineral oil), an emulsifier, and the herbicides. The amount of oil in the spray mixture will range from 5 to 20 percent of the total spray mixture, and the maximum rate of oil should not exceed 1 gallon per acre. Emulsifiers such as SPONTO® 712, TRITON® X-100, or RANGELAND SPRAMATE® must be used for adequate stability in oil-water emulsions. Drift control agents such as NALCO-TROL® may be used in reducing drift. Always use a jar test to check compatibility before preparing tank mixtures. Refer to Chart II for specific instructions.

HARVEST AND GRAZING INTERVALS: Refer to Chart II.

HIGH VOLUME LEAF STEM TREATMENTS OF INDIVIDUAL MESQUITE PLANTS WITH BACKPACK SPRAYERS, KNAPSACK SPRAYERS, POWER SPRAYERS, HANDGUNS, OR OTHER GROUND EQUIPMENT:

This method is appropriate for sparse infestations of mesquite trees less than 6 to 8 feet in height or as a follow-up treatment in subsequent or different growing seasons. HI-DEP® may be applied alone or in combination with RECLAIM® in a dilution with water or in an oil-water emulsion.

For HI-DEP® alone, mix 2.0 gallons of HI-DEP® per 100 gallons of water (2.0% spray concentration). For HI-DEP® + RECLAIM® tank mixture, mix 1 gallon of HI-DEP® plus 0.5 to 0.75 gallon of RECLAIM® HERBICIDE per 100 gallons of water (1.0% and .5 to .75% spray concentration of HI-DEP® and RECLAIM®, respectively). See Chart III for additional instructions for the spray preparation of 100 gallons of spray solution.

Spray volumes will depend upon the density and height of the mesquite plants. Thorough coverage of the leaves, stems, trunks, and root collars is essential. Apply as a spray-to-wet application for the best results. However, do not exceed one application of 1½ pints per acre per year of RECLAIM® HERBICIDE.

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SPOT TREATMENT/NON-CROP: Hand-held and high volume equipment. For control of weeds listed using knapsack sprayers or high volume equipment utilizing handguns or other nozzle arrangements. Unless otherwise specified, make a ¾% solution in water and apply to foliage as a coarse spray. For hard-to-kill woody plants use a 1½% solution. Applications should be made on a spray-to-wet basis with uniform coverage. Do not spray to point of run-off. When using in knapsack sprayers, insure mixture is complete by shaking or inverting sprayer several times.

Roadsides, vacant lots, fence rows and drainage ditchbanks — Use a ¾% spray concentration or mix 1.0 fl. oz. of product with 1.0 gallon of water.

Turf — Use a ½-1% spray concentration or mix ⅔-1⅓ fl. oz. of product with 1.0 gallon of water.

Woody Plants — Use a 1¼% spray concentration or mix 2.0 fl. oz. of product with 1.0 gallon of water.

Prepare the spray solution by mixing in water as per the table below.

Desired Volume	SPRAY CONCENTRATION			
	½%	¾%	1%	1½%
1 gallon	⅔ fluid ounce (4 teaspoons)	1 fluid ounce (2 Tablespoons)	1⅓ fluid ounces (8 teaspoons)	2 fluid ounces (4 Tablespoons)
25 gallons	1 pint	1½ pints	2 pints	3 pints
100 gallons	½ gallon	¾ gallon	1 gallon	1½ gallons
2 Tablespoons = 1 fluid ounce (fl. oz.) 1 Teaspoon = ⅓ Tablespoon = 0.17 fluid ounce				

LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants only that the chemical composition of this product conforms to the ingredient statement given on the label, and that the product is reasonably suited for the labeled use when applied according to the Directions for Use.

THE MANUFACTURER NEITHER MAKES NOR INTENDS ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE EXPRESSLY DISCLAIMED. This limited warranty does not extend to the use of the product inconsistent with label instructions, warnings or cautions, or to use of the product under abnormal conditions such as drought, excessive rainfall, tornadoes, hurricanes, etc. These factors are beyond the control of the manufacturer or the seller. Any damages arising from a breach of the manufacturer's warranty shall be limited to direct damages, and shall not include indirect or consequential damages such as loss of profits or values, except as otherwise provided by law.

The terms of this Limited Warranty and Disclaimer cannot be varied by any written or verbal statements or agreements. No employee or agent of the seller is authorized to vary or exceed the terms of this Limited Warranty and Disclaimer in any manner.

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