



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 13 2005

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Mandy K Styles
Helena Chemical Co.
225 Schilling Blvd. - Suite 300
Collierville, TN 38017

Dear Ms. Styles:

Subject: Add Use on Grapes and Vineyards
HM-2010
EPA Registration No. 5905-542
Your Submission Dated April 20, 2005

The amendment referred to above, submitted in connection with registration under section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is acceptable provided that you:

1. Submit/cite all data required for registration/reregistration of your product under FIFRA section 3(c)(5) or 4(a) when the Agency requires all registrants of similar products to submit such data.

2. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:

a. If the Precautionary Statements cannot appear on the front panel, add a referral statement similar to the following:

See side panel for additional precautionary statements

b. Move the "Restrictions and Limitations for Aquatic Use" section on page 16 to the end of the Aquatic Weed Control section immediately after the Water Milfoil section but before the Warranty section.

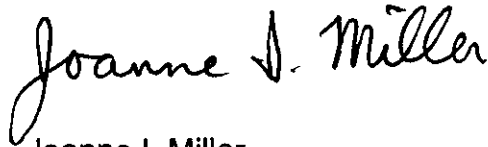
3. Submit one (1) copy of your final printed labeling before you release the product for shipment. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

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A stamped copy of the labeling is enclosed for your records.

If you have any questions concerning this letter, please contact Mr. James Stone at 703-305-7391.

Sincerely yours,

A handwritten signature in black ink that reads "Joanne I. Miller". The signature is written in a cursive style with a large initial "J" and "M".

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

Enclosure

HM-2010

ACTIVE INGREDIENT:

2,4-Dichlorophenoxyacetic Acid 19.6%

INERT INGREDIENTS: 80.4%

TOTAL 100.0%

Equivalent to 19.6% 2,4-D Acid or 1.74 lb./gal.
Isomer specific by AOAC Method 6.D01-5 (12th Ed.)
Patent No. 6,232,272
Other Patents Pending

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.)

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER – PELIGRO

Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if swallowed. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

FIRST AID

IF IN EYES: • Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
• Call a poison control center or doctor immediately for advice.

IF ON SKIN OR

CLOTHING: • Take off contaminated clothing.
• Rinse immediately with plenty of water for 15-20 minutes.
• Call a poison control center or doctor for treatment advice.

IF SWALLOWED:

- Call a poison control center or doctor immediately for advice.
- Have person sip a glass of water.
- Do not induce vomiting unless instructed to do so by poison control center or doctor.
- Do not give anything by mouth to an unconscious or convulsing person.

IF INHALED: • Move victim to fresh air.
• If person is not breathing, call 911 or an ambulance, then give artificial respiration preferably mouth-to-mouth if possible.
• Call a poison control center or doctor immediately for further treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency assistance call toll-free, 1-800-424-9300 (ChemTrec).

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

EPA REG. NO. 5905-542 NET CONTENTS:
EPA EST. NO.: First Letters of Product Batch Code Indicate Producing
Establishment. 5905-AR-1=WA • 5905-GA-1=CG •
5905-IA-1=DI • 5905-CA-1=KC

SN 043003/0204

MANUFACTURED BY

HELENA CHEMICAL COMPANY
225 SCHILLING BOULEVARD, SUITE 300
COLLIERVILLE, TENNESSEE 38017

PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-Sleeved shirt and long pants
- Chemical-resistant gloves, such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber, or Viton
- Shoes plus socks
- Protective Eyewear
- Chemical-resistant apron when cleaning equipment, mixing or loading

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 re-used until it has been cleaned.

If this container contains over 1 gallon and less than 5 gallons, 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.

If this container contains 5 gallons or more in capacity, do not open pour. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Engineering Control Statements

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 (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.

ENVIRONMENTAL HAZARDS

For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from target area. 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. Do not contaminate water by cleaning of equipment or disposal of washwaters.

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants.

Groundwater Contamination: 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.

This product may cause injury to desirable plants by contacting foliage, stems or roots. Use care in all applications to avoid surface water or soil transport to non-target plant areas. Avoid contamination of irrigation or domestic water supplies. At high temperatures (about 85° or higher), vapors from this product may injure susceptible plants growing nearby such as cotton, grapes, tobacco, fruit trees, legumes, vegetables, and ornamentals. Avoid

applications in the vicinity of susceptible plants or when winds are blowing toward nearby susceptible plants or when temperature inversions are expected. Avoid direct application or spray drift to susceptible plants since very small quantities of this herbicide can cause severe injury in the growing or dormant period. Plants contacted may be killed or suffer significant injury resulting in grade or yield losses. Do not apply in greenhouses.

The following steps may be helpful in reducing possible spray drift from ground or aerial applications:

- 1) keep the spray discharge as near to the target as possible while getting good coverage,
- 2) increase the volume of spray mixture per acre,
- 3) use low spraying pressures (as measured at the nozzle tips),
- 4) use nozzles which produce coarse spray droplets while still providing adequate weed coverage,
- 5) limit applications when wind is blowing toward nearby susceptible crops or valuable plants,
- 6) make applications when wind velocity is more favorable for on-target deposition - a general guide for application would be a) wind velocity of 0-2 mph may indicate a temperature inversion which can permit drift; b) wind velocity of 3-7 mph usually indicates good conditions, but check wind direction relative to nearby susceptible crops always allowing for wind shift; c) wind velocity 7-10 mph is acceptable if wind direction is favorable and no susceptible crops are in the vicinity always allowing for wind shift; d) wind velocity of 10-15 mph is usually not desirable except in areas of stronger prevailing winds when direction is favorable and no susceptible crops are in the vicinity always allowing for wind shift; an agriculturally accepted drift retardant is suggested; and e) if wind velocity is over 15 mph do not spray,
- 7) properly maintain and calibrate all spray equipment,
- 8) for aerial applications, use an effective spray boom length that is no more than 75% of the wingspan or rotor diameter, and
- 9) use an agriculturally accepted drift retardant designed to increase droplet size.

CHEMIGATION PROHIBITION

Do not apply this product through any type of irrigation system.

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 (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber, or Viton
- Shoes plus socks
- Protective Eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

USE REQUIREMENTS FOR PASTURES, PERENNIAL GRASSLANDS, RANGELAND, FALLOW LAND AND NONCROP AREAS:

Do not enter treated areas until spray has dried. For early entry to treated areas, wear eye protection, chemical-resistant gloves, long-sleeved shirt, long pants, shoes and socks.

TURF USE REQUIREMENTS: Do not allow persons (other than applicator) or pets on treated area during application. Do not enter treated areas until spray has dried. NOTE: For

application to turf being grown for sale or other commercial use as sod, or for commercial seed production, or for research purposes, follow AGRICULTURAL USE REQUIREMENTS on this label.

STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food, or feed by storage or disposal. Do not store under conditions which might adversely affect the container or its ability to function properly.

STORAGE: Do not store below temperature of 0°F. If frozen, warm to 40°F and re-dissolve before using by rolling or shaking container. This product can be stored in an unheated building. Store in a safe manner. Store in original container only. Keep container tightly closed when not in use. Reduce stacking height where local conditions can affect package strength.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. 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:

Metal: 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: 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.

Returnable-Refillable Container (Drum): After use, return the container to the point of purchase or designated locations. This container must only be filled with **HM-2010**. **DO NOT RE-USE THIS CONTAINER FOR ANY OTHER PURPOSE.** Prior to refilling, inspect thoroughly for damage such as cracks, punctures, abrasions, and damaged or worn out threads on closure devices. Do not refill or transport damaged or leaking containers. Check for leaks after refilling and before transportation. If the container is not being refilled, return to the point of purchase.

GENERAL INFORMATION

Local conditions, crop varieties, and application method may affect performance of this product. User should consult local extension service, agricultural experiment station, or university weed specialists, and state regulatory agencies for recommendations in your area.

Best results are obtained when product is applied to young succulent weeds that are actively growing. Application rates lower than recommended will not be satisfactory on susceptible annual weeds. For perennial weeds and conditions such as the very dry areas of the western states, where control is difficult, the higher recommended rates should be used. When product is used for weed control in crops, the growth stage of the crop must be considered. Some plants and weeds, especially woody varieties, are hard to control and may require repeat applications. Application rates should be 1 to 5 gallons of total spray by air or 5 to 25 gallons by ground equipment unless otherwise directed. In either case, use the same amount of **HM-2010** per acre. **HM-2010** should not be allowed to come into contact with desirable, susceptible plants such as beans, cotton, fruit trees, grapes, legumes, ornamentals, peas, tomatoes and other vegetables. **HM-2010** should not be used in greenhouses. If stored below freezing, it may be necessary to warm product to 40°F and agitate before using. This does not affect the efficiency of the product. Spray equipment used to apply **HM-2010** or other products containing 2,4-D should not be used for any other purpose until thoroughly cleaned with a suitable chemical cleaner.

WEEDS CONTROLLED

HM-2010 will control or partially control the following as well as many other noxious plants susceptible to 2,4-D:

- | | |
|--------------------------|--------------------------------|
| American Lotus | Alligatorweed |
| Artichoke | Arrowhead |
| Biden | Austrian Fieldcress |
| Bittercress, smallflower | Bittersweet |
| Bitterweed | Black-eyed Susan |
| Blessed Thistle | Bitter wintercress |
| Blue Thistle | Blue lettuce |
| Box elder | Blueweed, Texas |
| Buckhorn | Broomweed, common |
| Bull Thistle | Bull nettle |
| Burdock, common | Bulrush |
| Buttercup, smallflowered | Bur ragweed |
| Carpetweed | Burhead |
| Chickweed | Carolina geranium |
| Chicory | Catnip |
| Cockle | Cinquefoil, common & rough |
| Coffeebean | Cocklebur, common |
| Creeping jenny | Coffeeweed |
| Croton (Texas, woolly) | Cornflower |
| Dandelion | Curly indigo |
| | Devil's Claw |
| | <i>Proboscidea louisianica</i> |
| Dogfennel (mayweed) | Duckweed |
| Evening primrose, common | Elderberry |
| Fanweed | Evening primrose, cutleaf |
| Fleabane | Fixweed |
| Florida Pusley | Figwort |
| Four o'clock | Goosefoot |
| Frenchweed | Galinsoga (elderberry, hairy) |
| Goatsbeard | Gumweed |
| Hemp | Healall |
| Henbit | Horsetail |
| Honeysuckle | Indian Mallow |

- | | |
|--|--------------------------------|
| Indigo | Jewelweed |
| Jerusalem artichoke | Klamathweed |
| Jimsonweed | Lambsquarters, common |
| Ladysthumb | Marijuana |
| Loco, Bigbend | Mallow (Venice, dwarf, little) |
| Marestail | Marshelder |
| Mexican weed | Milk vetch |
| Morningglory (annual, common, ivy, woolly) | Mousetail |
| Mustards (except blue), prior to bolting | Nutgrass |
| Parrotfeather | Parsnip |
| Pennywort | Pennycress (fanweed) |
| Plantains | Pepperweeds (except perennial) |
| Peppergrass | Poison ivy |
| Pokeweed | Poorjoe |
| Poverty weed | Primrose |
| Prickly lettuce | Puncture vine |
| Purslane, common | Quickweed |
| Radish | Redstem |
| Ragweeds (common, giant) | Rush |
| Rough fleabane | Sicklepod |
| Shepherdspurse | Sowthistle (annual, spiny) |
| Sneezeweed, bitter | Spatterdock |
| Spanish Needles | Speedwell |
| Stinging Nettle | St. John's Wort |
| Stinkweed | Sumacs |
| Sunflower | Tanweed |
| Sweetclover (annual) | Velvetleaf |
| Tanweed | Venicemallow |
| Thistles | Virginia coppertleaf |
| Toadflax | Water hyacinth |
| Tumbleweed | Water plantain |
| Vetches, except hairy | Water primrose |
| Virginia creeper | Water shield |
| Water lily | Wild lettuce |
| Wild carrot | Wild parsnip |
| Wild hemp | Wild rape |
| Wild mustard | Wild strawberry |
| Wild radish | Willow |
| Wild sweet potato | Wormwood |
| Witchweed | Yellow rocket |
| Yellow goatsbeard | |
| Yellow starthistle | |

Weeds Partially Controlled (Higher rates and/or repeated applications may be needed):

- | | |
|-----------------------------|---------------------------|
| Alfalfa | Beggarticks |
| Bindweeds (hedge, European) | Buckbrush |
| Bull thistle | Canada thistle |
| Chamise | Clover, red |
| Corn groomwell | Coyotebrush |
| Dandelion | Docks |
| Dogbanes | Goldenrod |
| Ground ivy | Hawkweed |
| Henbit | Hoary cress |
| Ironweed | Mallow |
| Knotweed | Many-flowered aster |
| Manzanita | Musk thistle |
| Nettles | Orange Hawkweed |
| Prickly lettuce | Peppergrass |
| Russian thistle | Rabbitbrush |
| Sagebrush (big, sand) | Sage, coastal |
| Sand shinnery oak | Salsify (western, common) |
| Smartweed, Pennsylvania | Smartweed, annual |
| Vervains | Tansyragwort |
| Western ironweed | Vetch, hairy |
| Wild garlic | Wild carrot |
| | Wild onion |

Weeds Partially Controlled And For Which Locally Resistant Biotypes May Occur:

Pigweed

Weeds Suppressed When Another Labeled Herbicide Is Also Applied:

radweed (field)

Russian knapweed

MIXING INSTRUCTIONS

HM-2010 is a macro-emulsifiable concentrate formulation intended for dilution in water for many applications. For certain specified applications, liquid fertilizer or oil may replace part or all of the water as diluent.

If dry flowable (DF), wettable powder (WP) or flowable (F) tank mix products are to be used, these should generally be added to the spray tank first. Refer to the mixing directions on the labels of the tank mix products.

For best results, thoroughly clean sprayer immediately after use by flushing system with water and heavy duty detergent such as Wipe Out®.

Water Spray: To prepare a water spray mixture, fill clean spray tank about 1/2 to 2/3 full with clean water. With agitation turned on, add the required amount of **HM-2010**. Continue agitation while adding balance of water and during spray operations. NOTE: In water this product forms a macro-emulsion and can separate upon prolonged standing. spray mixture is allowed to stand, agitate again to assure uniformity.

Liquid Fertilizer Spray: Due to increased risk of crop foliage burn with fertilizer, use only as recommended on this label or supplemental labeling distributed for **HM-2010**. Use fertilizer rate recommended locally. Fill clean spray tank about 1/2 to 2/3 full with liquid nitrogen fertilizer (UAN or urea) solution. Add required amount of product with vigorous agitation running. Continue agitation while adding balance of liquid fertilizer and during spray operations. Application should be made immediately. Overnight storage of mixture is not recommended. Application during very cold (near freezing) temperatures is not advisable because of the likelihood of crop injury. This product is formulated to be compatible with most liquid nitrogen solutions, however, due to variability in fertilizers, users may wish to perform a jar compatibility test before large scale mixing.

Oil Spray: Use only as recommended on this label or supplemental labeling distributed for **HM-2010**. Fill clean spray tank about 1/2 to 2/3 full with an oil approved for agricultural use (diesel oil, fuel oil, stove oil, etc.). Add required amount of product with agitation turned on. Continue agitation while adding balance of oil. The resulting mixture is a solution and will generally remain uniform without

agitation once mixed. However, agitation is suggested if available. Do not allow any water to get into the spray mixture to avoid formation of an invert emulsion (mayonnaise consistency).

Water Spray With Oil: Use only as recommended on this label or supplemental labeling distributed for **HM-2010**. Where a combination of water and oil diluent is recommended, the use of emulsifiable crop oil or crop oil concentrate is suggested since mild agitation will be sufficient. Mix in the sequence of water, product, and oil. If diesel or other non-emulsified oils listed above under "Oil Spray" are desired for use with water, add no more than 1 quart of such oil per 1 gallon of water and agitate vigorously until tank is emptied. If possible, premix non-emulsified oil with this product and add this premix to a mostly filled spray tank with agitation on. Follow these procedures carefully to avoid formation of an invert emulsion (mayonnaise consistency).

APPLICATION PROCEDURES

Use calibrated spray equipment for all types of applications to assure applying the recommended amount of spray mixture per acre. Use sufficient spray volume within the ranges specified to obtain good coverage of weeds. **HM-2010** is absorbed sufficiently within 1 hour after application to provide adequate weed control.

Ground Broadcast Spray: Unless otherwise specified in the appropriate crop or non-crop directions, apply in 5 or more gallons of spray solution per acre. Use enough spray volume to provide uniform coverage of weeds, taking into account the amount of vegetation present and the type of application equipment to be used. As crop canopy and weed density increase, a higher spray volume may be needed for equivalent coverage and weed control. Typical crop applications utilize 10 to 50 gallons of spray solution per acre, while certain high volume non-crop applications may utilize more than 100 gallons per acre. Use coarse sprays to minimize potential spray drift. Do not apply with hollow cone nozzles or other nozzles that produce fine spray droplets. Boom spraying with flat fan or low volume nozzles is generally most suitable for ground broadcast applications.

Ground Band Spray: Determine band equivalents to broadcast rates and volumes by the following formulas:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Band rate per acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Band volume per acre}$$

Aerial Broadcast Spray: Unless otherwise specified in the appropriate crop or non-crop directions, apply in 1 to 5 gallons of spray solution per acre. For best coverage and weed control, as well as reduced potential for spray drift, a minimum of 3 gallons per acre is suggested. Avoid using nozzles or nozzle configurations that generate fine droplets. One configuration usually found to be suitable includes straight stream nozzles (such as disk with no swirl plate) directed straight back along the wind stream. Mechanical flagging or GPS (Global Positioning Systems) is suggested to obtain more uniform application.

With fixed-wing or helicopter application, an exactly even swath deposition may not be achieved, and consequently, crop injury or pesticide nonperformance may result wholly or in part. Do not apply by air during periods of thermal inversion. Avoid application if potential for drift is excessive and/or susceptible crops are growing in the vicinity.

TANK MIXES

Unless otherwise prohibited on this label or the label of an intended tank mix product, this product may be applied in combination with any herbicide registered for the same crop, timing, and method of application. Observe the most restrictive label statements of various tank mix products used. LIABILITY FOR CROP INJURY RESULTING FROM A TANK MIXTURE NOT SPECIFIED ON THIS LABEL, OR SUPPLEMENTAL LABELING DISTRIBUTED FOR HM-2010, IS SPECIFICALLY DISCLAIMED BY HELENA CHEMICAL COMPANY.

COMPATIBILITY

Before full-scale mixing of this product with other herbicides, fertilizer solutions and adjuvants, it is advisable to determine the compatibility of the proposed mixture. Use proportionate quantities of each ingredient and mix in a small container. Always mix one product thoroughly with the diluent before adding another product. If no incompatibility is evident after 30 minutes, the mixture is generally compatible for spraying.

PLANTING IN TREATED AREAS

Labeled Crops: Within 29 days following an application of this product, plant only those crops named as use sites on this or other registered 2,4-D labels. Follow more specific limitations, if any, provided in the directions for individual crops. Labeled crops may be at risk for crop injury or loss when planted soon after application, especially in the first 14 days. Degradation factors described below should be considered in weighing this risk.

Other Crops: All other crops may be planted 30 or more days following an application without concern for illegal residues in the planted crop. However, under certain

conditions, there may be a risk of injury to susceptible crops. Degradation factors described below should be considered in weighing this risk. Under normal conditions, any crop may be planted without risk of injury if at least 90 days of soil temperatures above freezing have elapsed since application.

Degradation Factors: When planting into treated areas, the risk of crop injury is less if lower rates of product were applied and conditions following application have included warm, moist soil conditions that favor rapid degradation of 2,4-D. Risk is greater if higher rates of product were applied and soil temperatures have been cold and/or soils have been excessively wet or dry in the days following application. Consult your local Agricultural Extension Service for information about susceptible crops and typical soil conditions in your area.

APPLICATIONS

READ ALL PROCEEDING GENERAL SECTIONS OF LABEL AND WARRANTY BEFORE USE.

Unless otherwise specified, applications may be made by ground or air equipment. Ground applications may provide more thorough coverage and better weed control. For selective postemergent weed control in crops, do not add oil, surfactant, fertilizer or other additives unless specifically recommended on this label or supplemental labeling.

CORN (Field, Sweet and Pop)

This product may be applied to corn at several different timings. In all cases, plant corn to a uniform depth of at least 1½ inch. Avoid applying this product with Accent® SP Herbicide because severe grass control antagonism may occur. Apply this product at least 7 days before or 3 days after Accent® SP Herbicide.

Preplant: To control existing broadleaf weed seedlings or burn down susceptible cover crops, prior to planting, apply from 7 to 14 days before planting. To control grasses and certain other problem weeds, it may be desirable to use a tank mixture with other herbicides. Liquid fertilizers and agriculturally approved surfactants may be added. Observe the most restrictive label statements of various tank mix products used.

Corn Preplant Application Rates: Do not apply on fine or medium textured soils (silt & clay loams) with less than 1% organic matter or on coarse textured soils (sand, sandy loam, loamy sand) with less than 2% organic matter. For fine or medium textured soils with 1% or more organic matter, apply at a rate of 1.0 - 4.0 pints per acre. On coarse* textured soils with 2% or more organic matter, apply 1.0- 3.0 pints per acre.

Preemergence: To control small broadleaf weeds, apply after planting, but before corn emerges. Liquid fertilizers and agriculturally approved surfactants may be added. Do not apply preemergence if a preplant application of this product is made.

Corn Preemergence Application Rates: Do not apply on fine or medium textured soils (silt & clay loams) with less than 1% organic matter or on coarse textured soils (sand, sandy loam, loamy sand) with less than 2% organic matter. For fine or medium textured soils with 1% or more organic matter, apply at a rate of 1.0– 4.75 pints per acre. On coarse* textured soils with 2% or more organic matter, apply 1 pint per acre.

*Due to the lower rate, partial weed control may result on coarse soils.

Postemergence: Do not apply with liquid fertilizer or oil. Many types of adjuvants will increase risk of crop injury. Where an adjuvant is required because of tank mixing with another herbicide, use the lowest recommended concentration of a nonionic surfactant (often 0.25% vol./vol. or less) to minimize such risk. Treated crop may be brittle and subject to breaking by wind and/or cultivation, especially in the 2 weeks following application.

Early Postemergence: To control small broadleaf weeds, apply broadcast from spike to 4-leaf stage of crop or up to 8 inches tall, whichever comes first. Avoid spraying just after corn leaves unfold. Postemergence application should not follow a preplant or preemergence application by less than 3 weeks. Use rates stipulated under "Corn Postemergence Application Rates" below.

Late Postemergence: Typical timing for this application is when most broadleaf weeds are no more than 4 to 6 inches tall and corn is between 8 and 16 inches tall. The timing can extend until corn is 36 inches tall or to tasseling, whichever comes first, but weeds usually become too large and hard to control. Perennial weeds should be in the bud to bloom stage for best results. Apply as a directed spray using drop nozzles to keep spray off crop foliage. Do not apply from tasseling to hard dough stage. Use the following rates.

Corn Postemergence Application Rates: Spike to 4-leaf or up to 8 inches tall apply by ground or aerially as an early postemergence over-the-top broadcast spray at 0.50 – 1.75 pints per acre. When corn is 8 - 36 inches tall, before tasseling, apply by ground only as a late postemergence directed spray using drop nozzles at 21 to 27 fluid ounces per acre. Lowest rates may not provide adequate weed

control unless used in a tank mix with another registered herbicide.

Preharvest: After the hard dough (or denting) stage when silks have turned brown, apply 2.0 – 4.5 pints per acre to suppress perennial weeds such as hemp dogbane or field bindweed, and many tall weeds such as cocklebur, pigweed, and sunflower that interfere with harvest. Weed seed production will also be suppressed if application is prior to the flowering stage of weeds. The high rate is recommended under dry conditions. Do not forage or feed corn fodder for 7 days following application.

Postharvest: Following the harvest of corn, perennial or biennial weeds produce new fall growth. To aid in suppressing these weeds before a hard freeze, product may be applied at the rate of 2.0 – 4.5 pints per acre either alone or in a combination with other registered herbicides such as certain formulations of dicamba and picloram. See "Planting in Treated Areas" section. If products to be tank mixed have more restrictive limitations, these limitations should be followed.

GRAPES

Application Timing: At least 3 year old established vineyards. Apply after shatter following bloom and before grapes shoots reach the ground, or during dormant season.

Apply **HM-2010** at the rate of 1-3 quarts per acre using hooded sprayers or equivalent to direct coarse spray to weeds and minimize potential contact with grape foliage, shoots or stems.

Note: Do not use more than 1.36 lbs. acid equivalent per season. Do not apply to grape foliage, shoots or stems.

RICE

Preplant: Apply 1 - 2.25 quarts of **HM-2010** 2-4 weeks prior to planting.

Postemergence: Apply 1-3.25 quarts in the late tillering stage of development, at the time of first joint development (first to second green ring), usually 6 to 9 weeks after emergence.

Note: Do not apply after panicle initiation, after rice internodes exceed ½ inch, at early seedling, early panicle, boot, flowering, or early heading growth stages. Do not harvest within 60 days of application. Maximum allowable use rate per acre per season is 1.5 pounds acid equivalent. Use 2 or more gallons of spray solution per acre. 2,4-D can injure some rice varieties. Before spraying, consult local Extension Service or University specialists for appropriate rates and timing of sprays.

SMALL GRAINS (Wheat, Oats, Barley, Rye) NOT UNDERSEEDED WITH A LEGUME

Apply as directed below.

Restock Feeding Restrictions: Do not permit dairy animals or meat animals being finished for slaughter to forage or graze treated grain fields within 2 weeks after treatment. Do not feed treated straw to livestock if an emergency and/or preharvest treatment are applied.

Liquid Nitrogen Fertilizers: At full tiller, product may be combined with liquid nitrogen fertilizers suitable for foliar application to small grains. Refer to "Mixing Instructions" section of this label for further information. Fertilizers can increase foliage contact burn of herbicides. Reducing the fertilizer rate and concentration will reduce the hazard of foliage burn.

Tank Mixtures: HM-2010 may be tank mixed with other herbicides for control of certain weeds in small grains. Use tank mix directions appearing on the labels of the specific herbicides when tank mixing with this product. Observe all precautions and limitations on labeling of product used in a particular tank mix.

Suggested 2-way tank mix combinations are listed below:

HM-2010+ Ally®	(Use on Wheat & Barley only)
HM-2010+ Amber®	(Use on Wheat & Barley only)
HM-2010+ Canvas®	(Use on Wheat & Barley only)
HM-2010+ Express®	(Use on Wheat & Barley only)
HM-2010+ Finesse®	(Use on Wheat & Barley only)
HM-2010+ Glean®	(Use on Wheat, Oats & Barley only)
HM-2010+Harmony® Extra	(Use on Wheat, Oats & Barley only)
HM-2010 + Peak®	(Use on Wheat, Oats, Barley & Rye)
HM-2010 + Bromoxynil	(Use on Wheat, Oats, Barley & Rye)
HM-2010 + Dicamba	(Use on Wheat, Oats & Barley only)
HM-2010 + Diuron	(Use on Wheat, Oats & Barley only)
HM-2010 + Metribuzin	(Use on Wheat & Barley only)

Suggested 3-way tank mixes include*:

HM-2010+Bromoxynil or Dicamba or Diuron or Metribuzin+ Ally®
HM-2010+Bromoxynil or Dicamba or Diuron or Metribuzin+ Amber®
HM-2010+Bromoxynil or Dicamba or Diuron or Metribuzin + Canvas®
HM-2010+Bromoxynil or Dicamba or Diuron or Metribuzin + Express®
HM-2010+Bromoxynil or Dicamba or Diuron or Metribuzin + Finesse®
HM-2010+Bromoxynil or Dicamba or Diuron or Metribuzin+ Glean®

HM-2010+Bromoxynil or Dicamba or Diuron or Metribuzin + Harmony® Extra

HM-2010 + Bromoxynil or Dicamba or Diuron or Metribuzin + Peak®

HM-2010 + Diuron + Metribuzin

HM-2010 + Diuron + Dicamba

HM-2010 + Diuron + Bromoxynil

HM-2010 + Dicamba + Metribuzin

HM-2010 + Dicamba + Bromoxynil

HM-2010 + Metribuzin + Bromoxynil

*Refer to the previous section (Suggested 2-way tank mix combinations) and the registered product labels to determine the specific small grain crops that may be treated.

Spring Wheat and Barley

Onset of Tillering Stage: Grains are generally tolerant of these treatments, but risk of crop injury is greater than at full tillering stage. Do not make application if the risk of injury is unacceptable. The onset of tillering stage is defined as grain having 1 or more tillers as well as 3 or more leaves.

Apply 1.0 – 1.75 pints per acre in the spring when grain has 1 or more tillers as well as 3 or more leaves. Do not apply from boot to dough stage.

Full Tillering Stage: For these applications, full tillering stage is defined as grain that has 3 or more tillers and the flag leaf should not be visible.

Apply 1.0 - 3.25 pints of product per acre when grain is in the full tiller stage (usually 4 to 8 inches tall). Do not apply from boot to dough stage.

Emergency Weed Control: To control difficult weed problems in certain areas, such as under dry conditions especially in Western areas, higher rates, up to 4.5 pints per acre, may be needed. Higher rates increase the risk of crop injury. The severity of the weed problem should be balanced against the possibility of crop injury. Do not apply before the tiller stage or from boot to dough stage.

Winter Wheat, Barley and Rye

Onset of Tillering Stage: Grains are generally tolerant of these treatments, but risk of crop injury is greater than at full tillering stage. Do not make application if the risk of injury is unacceptable.

Apply 1.0 - 3.25 pints per acre in the spring when grain has 1 or more tillers as well as 3 or more leaves. Do not apply from boot to dough stage.

Full Tillering Stage: For these applications, grain should have 3 or more tillers and the flag should not be visible.

Apply 1.0 - 3.25 pints per acre when grain is in the full tiller stage (usually 4 to 8 inches tall). Do not apply from boot to dough stage.

Emergency Weed Control: For improved control of difficult weeds and heavy weed infestations, apply up to 4.5 pints per acre. Higher rates increase the risk of crop injury. The severity of the weed problem should be balanced against the possibility of crop injury. Do not apply before the tiller stage or from boot to dough stage.

Spring Seeded Oats

Full Tillering Stage: Grains should have 3 or more tillers and the flag leaf should not be visible. Oats are less tolerant to **HM-2010** than wheat or barley and present a greater risk of crop injury. The severity of the weed problem should be balanced against the possibility of crop injury. Larger weeds and hard-to-kill weeds may be poorly controlled, especially under dry conditions.

Apply 1.0 pint per acre when grain is in the full tiller stage as specified above. Do not apply before the tiller stage nor from boot to dough stage.

Fall Seeded Oats (Southern) Grown for Grain

Apply 16 to 51 fluid ounces per acre after full tillering, but prior to joints forming in the stem. Do not apply until after full jointing nor from jointing to dough stage. Oats are less tolerant to **HM-2010** than wheat or barley and present a greater risk of crop injury. The severity of the weed problem should be balanced against the possibility of crop injury, especially at higher rates. Avoid spraying during or immediately following cold weather.

Preharvest Treatment (Wheat, Oats, Barley, Rye)

Apply 1.5 - 4.5 pints per acre when grains are in the hard dough stage to control large weeds that may interfere with harvest. In tank mixtures with other herbicides registered for preharvest application, a rate of 1.0 - 1.75 pints per acre may be desired. Best results will be obtained when soil moisture is sufficient to cause succulent weed growth. Addition of a nonionic surfactant, such as **INDUCE®** or **DYNE-AMIC®**, usually improves weed control.

Postharvest (Wheat, Oats, Barley, Rye)

Following harvest, a flush of new weed growth may occur. For control of many annual broadleaf species, apply at up to 2.25 pints per acre. Certain perennial or biennial weeds may produce new fall growth in stubble grain fields. To aid in suppressing these weeds, product may be applied at the rate of 2.25 - 4.5 pints per acre either alone or in combination with other registered herbicides such as dicamba or picloram.

See "Planting In Treated Areas" section. Follow more restrictive limitations for tank mix products used.

SORGHUM (Milo-Grain)

Postemergence: To control small broadleaf weeds, apply when sorghum is 6 to 15 inches tall to top of canopy. If sorghum is taller than 8 inches to top of canopy, use drop nozzles to keep spray off crop foliage. Do not treat during the boot, flowering or early dough stages. Do not forage or feed fodder for 7 days following application. Use rates that follow.

Sorghum (Milo) Postemergence Application Rates:

When crop is 6 to 8 inches tall use as an over-the-top broadcast spray by ground or air at 0.5 - 1.75 pints per acre. When sorghum reaches 8 to 15 inches tall, use as a directed spray using drop nozzles with application by ground only at 0.75 - 1.75 pints per acre. The lowest rates may not provide adequate weed control unless used in a tank mixture with another registered herbicide. Highest rates may increase risk of injury.

SORGHUM-SUDAN GRASS HYBRIDS (Forage Crop Only)

Postemergence: To control small broadleaf weeds, apply when sorghum-sudan has at least 6 leaves, is well established, and is 5 to 10 inches tall at the rate of 16 to 35 fluid ounces per acre. Do not treat crop over 10 inches tall through maturity.

Plant Response: Even when sprayed at the proper stage, some crop injury is likely, including reduced seed production. If risk of crop injury is unacceptable, do not use this product. The lower rate may reduce the risk of crop injury, but will result in reduced weed control.

Livestock Feeding Restrictions: Do not feed fodder for 7 days following application. Do not graze meat animals on treated areas within 3 days before slaughter. Do not graze dairy animals on treated areas within 7 days after application.

SUGARCANE (NOT REGISTERED FOR USE IN CALIFORNIA):

Preemergence: Apply 1 quart (32 ounces) to 1 gallon (128 ounces) of **HM-2010** as a preemergent spray before canes appear for control of emerged broadleaf weeds.

Postemergence: Apply 1 quart (32 ounces) to 1 gallon (128 ounces) of **HM-2010** after cane emerges through canopy closure. Consult local Agricultural Experiment or Extension Service Weed Specialists on specific use of this product.

Note: Do not harvest cane prior to crop maturation. Do not apply more than 4.0 lbs acid equivalent per acre per use

season. Always use more than 2 gallons of spray solution per acre. Not registered for use in California.

PISTACHIOS, FILBERTS, POME FRUITS, STONE FRUITS, AND TREE NUT ORCHARDS (DO NOT USE IN CALIFORNIA):

HM-2010 is comprised of a 2,4-D acid formulation that may be used in low volume ground application equipment. The product is used in directed applications to control broadleaf weeds in established pistachio, pome fruits, stone fruits and tree nut plantings and orchards. **HM-2010** is to be applied as a broadcast treatment in the row middles of established trees as well as a band application to control many broadleaf weeds in the tree rows and the orchard floor.

Note: Established and transplanted stock must be a least (1) one year old and in good growing conditions.

APPLICATION METHOD

The precise and uniform application of **HM-2010** is essential to obtain satisfactory economic control while minimizing the potential injury to the trees. Avoid direct contact with the fruit, foliage, lower limbs, stems, tree trunks and any exposed roots.

It is best to use a fixed boom with flat fan nozzles at not more than 25 psi. For small concentrated infestations, small areas, individual weeds, or as a follow up application, spot treating is recommended with hand held nozzle sprayer. Do not apply **HM-2010** when conditions favorable to drift are present.

APPLICATION TIMING

Most annuals will best controlled when they are actively growing either in the spring or fall. Most biennials are best controlled when they are in the seedling to rosette stage. Sequential applications may have to be utilized to obtain the best results. Perennials that are either in the early bud to bloom stage or during fall regrowth have to best chance of being controlled at this time.

TANK MIXTURES

For improved broadleaf control, **HM-2010** may be applied in combination with other approved products. The combination must be used in accordance to the most restrictive label limitations of the product in the tank mix. Both products must be labeled for the site of application. Dosages of the tank mix must not cause either product to exceed the tolerance established for that active ingredient on the use site to be applied on. All applications of the tank mix must be in accordance with Federal, State, and local use limitations.

IRRIGATION RESTRICTIONS

HM-2010 is not to be applied to sandy or shallow soils or to dry soils without vegetation in Pistachio, Pome Fruit, Stone Fruit or Tree Nut Orchards. Best results with **HM-2010** can be obtained when the product is applied 1 - 2 days following irrigation.

Do not apply the product immediately prior to irrigation or irrigate immediately following an application.

DO NOT APPLY HM-2010 THROUGH ANY TYPE OF IRRIGATION SYSTEM.

DOSAGE RATES FOR BROADLEAF WEED CONTROL

The following dosage rate recommendations are for broadcast applications. The proper amount of **HM-2010** to be used in banded or row applications must be determined by using the following formula:

Dosage Rate per Treated acre = $\frac{\text{Spray Band Width} \times \text{Broadcast rate per Acre}}{\text{Tree Row Width}}$

Recommended Spray Volumes: Generally 1 - 10 gallons per acre is sufficient, but in many cases 10 - 25 gallons may be needed to obtain adequate coverage.

Note: Do not graze or feed cover crops from treated orchards to livestock. Do not apply during windy conditions or extremely high temperatures.

PISTACHIOS

HM-2010 is to be applied at the broadcast rate of 0.6 - 1.15 gallons per acre per application to the orchard floor. Two broadcast applications 30 days apart are permitted.

Note: Do not harvest pistachios within sixty (60) days of application. Do not cut orchard floor forage for hay within 7 days of application. Do not make more than 2 applications per year.

POME FRUITS (APPLES AND PEARS)

HM-2010 is being applied at the broadcast rate of 0.6-1.15 gallon per acre per application for the control of unwanted vegetation on the orchard floors. It is important to avoid contact with the fruit, fruit foliage, and tree trunks, lowers limbs and exposed brace roots. Two applications 75 days apart are permitted.

Note: Do not harvest apples or pears within 14 days of application. Do not cut orchard floor forage for hay within 7 days of application. Do not make more than 2 applications per year.

STONE FRUITS (CHERRIES, PEACHES, PLUMS)

HM-2010 is to be applied at the broadcast rate of 0.6 - 1.15 gallons per acre per application for the control of unwanted vegetation on the orchard floors. It is important to avoid contact with the fruit, foliage, tree trunks, lower limbs and exposed brace roots. Two applications 75 days apart are permitted per year.

Note: Do not harvest stone fruits within 40 days of application. Do not cut orchard floor forage for hay within 7 days of application. Do not make more than 2 applications per year.

TREE NUTS (ALMOND, FILBERT OR HAZLENUT, PECAN, BLACK AND ENGLISH WALNUT)

HM-2010 is to be applied at the broadcast rate of 0.6 - 1.15 gallons per acre for the control of unwanted vegetation on the orchard floors. It is important to avoid contact with the fruit, foliage, tree trunks, lower limbs and exposed brace roots. Two applications 30 days apart are permitted per year.

Note: Do not harvest tree nuts within 60 days of application. Do not cut orchard floor forage for hay within 7 days of application. Do not make more than 2 applications per year.

SPOT TREATMENT PROCEDURES FOR PISTACHIOS, POME FRUITS, STONE FRUITS, AND TREE NUT CROPS

In many cases spot treatment applications are necessary for sparse infestations of broadleaf weeds, especially in small areas for a follow up treatment. High volume wands, spray guns or similar equipment may be used for this application. Care must be taken to use nozzles that deliver a coarse spray pattern to reduce the potential for nontarget drift exposure. The amount of spray volume will be directly proportionate to the height, density, weed species and type of equipment used.

Rate: Mix 2 - 4 gallons of **HM-2010** per 100 gallons of water or .0 - 2.0% vol./vol. solution.

For one gallon of water, mix in 2.5 - 5 ounces. Apply dilute sprays to the foliage of the broadleaf to be controlled until entire foliage is sufficiently wet.

Note: Do not use spray guns for spot treatment applications around or near the base of stone fruits and nut trees.

FALLOW LAND AND CROP STUBBLE

Fallow land or land idle between crops may be subject to unwanted weed growth. For control of many annual broadleaf species, apply at the rate of 1.0 - 4.0 pints per acre. To aid in suppressing certain perennial or biennial broadleaf weeds (including cotton regrowth), this product may be applied at the rate of 2.25 - 8.0 pints per acre either alone or in combination with other registered herbicides such as dicamba or picloram. Use the high rate on older plants, drought stressed plants or for hard to kill species. See "Planting In Treated Areas" section. Follow more restrictive limitations for tank mix products used.

HM-2010 may be used to kill fall alfalfa stands in preparation spring planting of row crops under conservation tillage. The treated alfalfa crop cannot be grazed, fed to livestock or cut for hay.

GRASS PASTURES

To control many emerged broadleaf weeds, apply 1.0 - 4.0 pints **HM-2010** per acre. Addition of a nonionic surfactant, such as **INDUCE®** or **DYNE-AMIC®**, usually improves weed control. Preferred timing is in the early spring when sufficient weeds have emerged, and when weeds are small and actively growing, but before weeds are too mature. Summer applications to older, drought-stressed weeds are less effective. However, weeds are more susceptible again in the fall when cooler, wetter conditions support active growth before a killing frost. For fall treatment of mature weeds or perennial weed regrowth, use 3.5 - 8.0 pints per acre. Several seasons of spring plus fall treatments may be necessary to control certain perennials.

Plant Response: Injury may result to bent grass, other warm season or southern grasses, and alfalfa, clover or other legumes. Do not use if this risk of injury is unacceptable. Clovers may recover from early spring applications. If grass seed production is desired, do not apply when grass is in boot to milk stage or after heading begins. Do not apply to newly seeded areas until grass is well established. Reseeding is not recommended for at least 30 days following application. Addition of a surfactant may increase the risk of injury to newly seeded grasses.

Livestock Feeding Restrictions: Do not graze dairy animals on treated areas within 7 days after application. Do not graze meat animals on treated areas within 3 days before slaughter. Do not cut treated grass for hay within 30 days of application.

GRASS SEED CROPS

To control many emerged broadleaf weeds, apply 1.0 - 3.25 pints per acre. Use on established stands of cool season grass seed crops, such as bentgrass, bluegrass, fine fescue, tall fescues, orchard grass, annual ryegrass, and perennial ryegrass. Make applications in the spring from the tiller to early boot stage. Do not spray in boot stage. New spring seedlings may be treated after the grasses have more than 5 true leaves. On established stands that have had the seed crop removed, perennial weed regrowth may be treated in the fall at up to 4.5 pints per acre. Refer to "Plant Response" and "Livestock Feeding Restrictions" under **GRASS PASTURES** section above.

SOD FARMS

HM-2010 is intended for use on Sod Farms to provide selective control of certain broadleaf weeds in cool season and warm season turfgrasses established for commercial sod production. Apply **HM-2010** to actively growing broadleaf weeds. Follow up may be required for dense infestations of perennial and biennial weeds. For best results, do not mow

turf 1 to 2 days before or after application. Turf watering should be delayed until two days after application. Do not apply to newly seeded areas until grass is well established and has been mowed at least twice.

reseeding Grass areas: Do not reseed until at least 30 days after application of **HM-2010**. Seeding a small area and observing response is recommended before a large scale seeding is accomplished.

Application Rates:

HM-2010 application rates and spray volumes will vary with the growth stage and population of broadleaf weeds to be controlled. In general the smaller the weed the lower use of the recommended rate range will provide satisfactory control. The larger the weed, the population and environmental conditions will require the higher end of the rate range to achieve satisfactory control especially for many of the perennial broadleaf weeds.

Ornamental and Recreational Trufgrassess, Lawns, Golfcourses (Fairways, Aprons, Tees and Rough), Parks and Cemeteries:

Application Rates			
Species	Amount of Product		Spray Volume
	Oz/1,000 SQ.FT	Pints/acre	Gallons/Acre
Cool Season Turf			
Kentucky Bluegrass	.75 to 1.28	2 to 3.5	20 to 100
Perennial Ryegrass	.75 to 1.28	2 to 3.5	20 to 100
Fescue spp.	.75 to 1.28	2 to 3.5	20 to 100
Creeping Bentrgass	.56 to 1.0	1.5 to 2.25	20 to 100
Warm Season Turf			
Centipede grass	.75 to 1.28	2 to 3.5	20 to 100
Common Bermudgrass	.75 to 1.28	2 to 3.5	20 to 100
Hybrid Bermudagrass	.75 to 1.28	2 to 3.5	20 to 100
Bahiagrass.	.75 to 1.28	2 to 3.5	20 to 100
Zoysiagrass	.75 to 1.28	2 to 3.5	20 to 100

Rate Recommendations For Sod Farms		
Species	Amount of Product	Spray Volume
	Pints/acre	Gallons/Acre
Cool Season Turf		
Kentucky Bluegrass	2 to 3.5	20 to 100
Perennial Ryegrass	2 to 3.5	20 to 100
Fescue spp.	2 to 3.5	20 to 100
Creeping Bentrgass	1.5	20 to 100
Warm Season Turf		
Centipede grass	1.5 to 2.5	20 to 100
Common Bermudgrass	1.5 to 2.5	20 to 100
Hybrid Bermudagrass	1.5 to 2.5	20 to 100
Bahiagrass.	1.5 to 2.5	20 to 100
Zoysiagrass	1.5 to 2.5	

Precautions and Limitations:

1. Avoid mist to vegetables, flowers, ornamentals, shrubs, trees, and other desirable plants
2. Do not spray on Carpetgrass, Dichondra or where desirable clovers are present
3. The maximum number of broadcast applications is per treatment site is two (2) per year.
4. Do not apply to newly seeded areas until well established and preferably after the second mowing.
5. Reduced rates of **HM-2010** must be used grass is stressed from heat or drought.
6. Do not apply through any type of irrigation system.
7. Avoid drift, spay mist, or excessive overlapping during application as undesirable injury may occur.
8. Use only lawn type sprayers. Use coarse spray droplets as they are less likely to drift.

Precautions and Limitations for SOD FARMS:

1. Do not apply this **HM-2010** to any variety of St Augustine grass. Do not use **HM-2010** on carpet grass, Dichondra or where desirable clovers are present.
2. Do not apply this product through any type of irrigation system
3. Avoid drift or spray mist onto vegetables, flowers, ornamental plants, shrubs, trees, and other desirable plants. Do not pour spray solution or rinsate near any desirable plants.
4. Do not apply **HM-2010** immediately before rainfall or irrigation. Do not water the turfgrass for 24 hours after application.
5. Application to Bermuda grass can be during dormancy or when actively growing. Do not apply during periods of semi-dormancy or transition.

Special Note: Care should be taken to avoid over dosing Bentgrass, Bermuda grass, and Centipedegrass or unacceptable injury may occur. Higher volumes of spray water will aid in obtaining uniform coverage if hand-type sprayers are used, it recommended using a single nozzle sprayer than a booms containing multiple nozzles as overspray can occur.

RANGELAND PASTURES AND PERENNIAL GRASSLANDS NOT IN AGRICULTURAL PRODUCTION

HM-2010 can be used to control or suppress a number of susceptible broadleaf weeds in rangeland or perennial grasslands that are set aside from agricultural use such as in the Conservation Reserve Program (CRP) or similar government programs. Consult program rules to determine whether grass and hay may be used. For best results, apply when broadleaf weeds are small. Adequate moisture is

needed for best grass tolerance and weed control. Addition of a nonionic surfactant, such as **INDUCE®** or **DYNE-AMIC®**, usually improves weed control.

ant Response: Injury to legumes, bent grass, and other warm season grasses is likely to occur. Grasses may be discolored following treatment. If grass seed production is desired, do not apply when grass is in boot to milk stage or after heading begins.

New Stands: Preseeding applications should be made at least 30 days prior to seeding. Newly seeded stands should only be treated after they are well established (more than 5 true leaves) or injury may occur. Apply 1.0 – 4.0 pints per acre when weeds are small and actively growing. Addition of a surfactant may increase the risk of injury at this stage of growth.

Established Stands: For optimum results, weeds must be actively growing. Apply 2.25 - 3.25 pints per acre for annual weeds and up to 4.5 pints per acre for biennial or perennial weeds. Treat biennial weeds when they are in the seedling to rosette stage and before flower stalks become apparent. Treat perennial weeds in the bud to bloom stage. For brush species in rangeland, apply up to 4.25 quarts per acre in an oil spray (see "Mixing Instructions"). Another option is to add 1 gallon of oil per acre to a **HM-2010** water spray (see "Mixing Instructions"). Repeat applications in the same or subsequent year may be needed to control brush species.

Livestock Feeding Restrictions: Do not graze dairy animals on treated areas within 7 days of application. Do not graze meat animals within 3 days of slaughter. Treated grass cut for hay should not be cut within 30 days of application. For government program grasslands, follow program grazing restrictions if more restrictive than those stated above.

FOREST MANAGEMENT (INCLUDING SITE PREP, FOREST ROADSIDES, BRUSH CONTROL, ESTABLISHED CONIFER RELEASE)

For the general control of annual, biennial and perennial broadleaf weeds and brush: Apply to emerged weeds and brush. For best results, treat when weeds and brush are young and actively growing. For broadcast applications apply no more than 4.0 lbs acid equivalent per acre per 12 months.

For specific use-site applications and restrictions see appropriate site-specific instructions as follows:

Forest Site Preparation

Bud break Spray: For control of alder, susceptible broadleaf weeds, and susceptible woody plants before planting forest seedlings, apply up to 2.0 gallons per acre in a minimum of 10 gallons spray mixture per acre. Apply as an oil spray (see "Mixing Instructions") after alder buds break, but before foliage is 1/4 full size. A water spray including 2 to 4 quarts per acre of diesel oil, fuel oil, stove oil, or crop oil concentrate may also be used.

ANNUAL, BIENNIAL, PERENNIAL BROADLEAF WEEDS AND GENERAL BRUSH CONTROL

Foliage Spray: To control seedlings and susceptible woody plants before planting forest, apply up to 2.0 gallons per acre in a minimum of 10 gallons spray mixture per acre. If desired, apply as a water spray including up to 1 quart of diesel oil, fuel oil, stove oil, or crop oil concentrate per gallon of water (see "Mixing Instructions"). For best results, apply after alder foliage has reached full size.

TREE AND BRUSH CONTROL (i.e., alder, ash, aspen, birch, black gum, cherry, elm, oak, sweet gum, tulip poplar, willow, and others)

Basal Spray Treatment: Mix 2 - 4 gallons of **HM-2010** per 100 gallons of diluent (may contain oil). Apply directly to base and root collar of all stems until the spray begins to accumulate at the ground line. Also wetting stems with this mixture may aid control.

Cut Surface Stumps: Mix 2-4 gallons of **HM-2010** per 100 gallons of diluent (may contain oil). Apply as soon as possible after curing trees. Thoroughly soak the entire stump with 2,4-D mixture. Also treat exposed roots and bark.

Frill: Mix 2 - 4 gallons of **HM-2010** per 100 gallons of diluent (may contain oil). Make frills with an axe or other tool that can cut overlapping v-shaped notches through the bark in a continuous ring around the base of the tree. Treat freshly cut frills with as much **HM-2010** mixture as they will hold.

Injection: Make injections as near to the root collar as possible, using one injection per inch of trunk dbh (4 1/2 feet) for resistant species such as hickory. Injections should overlap. For best results, injections should be made during the growing season (May 15th through October 15th in many areas). The injection bit must penetrate the bark. Apply 2-4 ml of **HM-2010** per injection site.

Conifer Release: To control alder, susceptible broadleaf weeds, and susceptible woody plants in young conifer stands, apply up to 1 gallon per acre in a minimum of 10 gallons spray mixture per acre. This spring foliage treatment

should be applied as a water spray when 3/4 of the brush foliage has full size leaves and before new conifer growth reaches 2 inches in length. Such stages usually occur between early May and mid-June, but application timing could be based on growth stages of brush and conifers. Application may cause leader deformation and other conifer injury, but trees should overcome it during the next growing season.

To control tanoak, madrone, ceanothus, canyon live oak, and manzanita, and to release Douglas fir, hemlock, Sitka spruce or grand fir, apply up to 1.5 gallons per acre in a minimum of 10 gallons spray mixture per acre. This spring foliage treatment should be applied as a water spray including, if desired, up to 1 quart of diesel oil, fuel oil, stove oil, or crop oil concentrate per gallon of water (see "Mixing Instructions"). Make application before new growth on Douglas fir is 2 inches long. To release ponderosa pine from the same species, treat before new pine growth begins in the spring. Addition of oil or oil concentrate may cause unacceptable injury to pines. For dormant applications in late winter or early spring for control of susceptible woody species such as alder, willow, poplars, cherry, vine maple, ceanothus, tanoak, madrone, and manzanita, apply up to 1.5 gallons per acre in a minimum of 10 gallons spray mixture per acre. This dormant treatment should be applied in diesel oil, fuel oil, stove oil, or other suitable diluent such as water plus crop oil concentrate (see "Mixing Instructions"). Do not use in plantations where pine and larch are among the desired crop species.

To control hazel brush in the Lake states, apply up to 1.0 gallon per acre in a minimum of 10 gallons spray mixture per acre. Apply as a water spray when new shoot growth of hazel is complete (usually mid-July).

After conifer species such as white pine, ponderosa pine, jack pine, red pine, black spruce, white spruce, red spruce, and balsam fir cease growth and harden off and brush is still actively growing in late summer, apply up to 1.5 gallons per acre in a minimum of 10 gallons spray mixture per acre. Apply as a water spray to control certain competing hardwoods such as alder, aspen, birch, hazel and willow. However, if possible injury cannot be tolerated, do not use since this treatment may cause conifer injury.

Forest Roadsides: To control susceptible broadleaf weeds and woody plants on forest roadsides, apply 0.5 - 1.5 gallons per acre in a minimum of 10 gallons spray mixture per acre. Apply as a water spray and, if desired, include up to 3 quarts per acre of diesel oil, fuel oil, stove oil, or crop oil concentrate (see "Mixing Instructions"). Apply when sufficient foliage is present for absorption.

Established Conifers (including Christmas trees):

Directed Spray or Spot Spray: To control susceptible broadleaf weeds, mix up to 1.0 gallon per 100 gallons of water and apply to emerged weeds in the spring with ground equipment. Avoid contacting conifer foliage with spray or drift as injury may result. For brush, mix 2.0 gallons per 100 gallons of water. Thoroughly spray brush in full foliage, but avoid contacting conifer foliage with spray or drift. Do not apply more than the equivalent of 2.0 gallons per acre.

Over-the-Top Broadcast Application: To control susceptible broadleaf weeds, apply 0.5 gallons per acre in a minimum of 10 gallons spray mixture per acre. To decrease the potential for injury to firs, apply only before bud break in the spring and/or after complete bud set and hardening in the late summer or fall. Avoid treatment during the year of intended harvest.

ROADSIDES; MEDIANS; HIGHWAY, RAILROAD, UTILITY AND PIPELINE RIGHTS-OF-WAY; VACANT LOTS; AROUND UTILITY INSTALLATIONS, TRANSFORMERS, PUMP HOUSES, AND BUILDINGS; STORAGE AREAS; FENCES; GUARDRAILS; LUMBER YARDS; INDUSTRIAL SITES; AIRPORTS; TANK FARMS; FARMSTEADS; AND SIMILAR NONCROP AREAS

For the control of many broadleaf weeds and small woody plants, applications may be as broadcast sprays, small areas or spot treatments. Regardless of the method of application, use adequate spray volume for full coverage of weeds. Preferred application timing is in the early spring when sufficient weeds have emerged, and are still small and actively growing and before weeds are too mature.

Summer applications to older, drought-stressed weeds are less effective. However, weeds and small woody plants are more susceptible again in the fall when cooler, wetter conditions support active growth before a killing frost.

Postemergence Control of Annual and Perennial Weeds: Apply 0.5 - 1 gallon of **HM-2010** to emerged weeds. For best results treat when weeds are young and actively growing.

Postemergence Control of Woody Plants: Apply 0.5 - 2 gallons of **HM-2010** to trees and brush when foliage is fully expanded and plants are actively growing.

Note: Plant Response: Bent grass, other warm season or southern grasses, alfalfa, clover or other legumes may be killed or injured. Do not apply when grass is in boot to milk stage, or after heading begins, if grass production is desired. Do not apply to newly seeded areas until grass is well established. Reseeding is not recommended for at least 30 days following application. Do not make repeat applications

within 30 days of the previous application. Apply no more than 4.0 lbs acid equivalent per acre per use season.

Special Uses:

rights-of-way: Up to 4.0 lbs acid equivalent can be applied in a single application. This includes electrical power lines, communication lines, pipelines, highways, and railroads that intersect wooded areas or stands of trees, brush and woody plants. Usage under this section is not applicable to treatment of commercial timber or other plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

ORNAMENTAL AND RECREATIONAL TURFGRASSES, LAWNS, GOLF COURSES (Fairways, Aprons, Tees, and Roughs), PARKS AND CEMETERIES

Refer to "Turf Use Requirements" in the "Non-Agricultural Use Requirements" section. The maximum number of broadcast applications per treatment site is 2 per year. For best results, do not mow turf 1 to 2 days before or after application. Turf watering should be delayed for at least 1 hour after application. Avoid contacting desirable trees, shrubs, flowers or vegetables since plant injury may result. Do not apply to newly seeded areas until grass is well established and has been mowed several times. A period of about 30 days after application is usually a sufficient interval before reseeding grasses (or other plants). Seeding a small area and observing response is recommended before large scale seeding.

Cool Season Grasses: To control many emerged broadleaf weeds in cool season turfgrasses such as tall fescue, bluegrass, or perennial ryegrass, apply 1.0 – 1.75 quarts per acre (0.75 - 1.28 fluid ounces per 1,000 square feet). Preferred application timing for broadcast treatment is in the early spring when small weeds have emerged and are actively growing under good moisture conditions. For very weedy turf, a follow-up broadcast or spot application may be needed from 2 to 4 weeks later. Summer applications are typically spot treatments of individual weeds that have emerged after a spring broadcast treatment. In the fall when cooler, wetter conditions favor active weed growth, broadcast application may be appropriate for very weedy turf, such as an area that had no spring broadcast treatment. Do not use on centipede, carpetgrass, St. Augustine, bentgrass or Dichondra turf, or where desirable clovers are present.

AQUATIC WEED CONTROL

Notice to Applicators: Before application, coordination and approval of local and state authorities may be required, either by letter of agreement or issuance of special permits for such use.

Ground or Surface Application: Do not apply when wind speeds are at or above 10 mph.

Air Application: Do not apply when wind speeds are at or above 5 mph. The restrictions do not apply to subsurface applications used in weed control programs.

DITCH BANK APPLICATION:

For postemergent control use 2 pints to 1 gallon of HM-2010. For best results, treat when weeds are young and actively growing.

Restrictions and Limitations For Use In Irrigation Canal Ditch Banks:

Do make sequential application within 30 days of each other. Always use 2 or more gallons of spray solution per acre. Do not use on small canals (less than 10 CFS) where water will be used for drinking purposes. Note: Boom spraying onto water surface must be held to a minimum and no cross-stream spraying to opposite bank should be permitted. When spraying shoreline weeds, allow no more than 2 foot over-spray onto water with an average of less than 1 foot over-spray to prevent introduction of greater than negligible amounts of chemical into the water. For further use instructions and precautions see "Surface Application Instructions." Your State Conservation Department or Game and Fish Commission will assist you in determining the best time and rate for application under local conditions. Perennial and other hard to control weeds may require a repeat application to give adequate control.

Note: The maximum use rate per acre per application is 2.0 lbs acid equivalent. The maximum use rate per season is 4.0 lbs acid equivalent per acre. Apply no more than 2 treatments per season. Always allow at least 30 days in-between applications

Use power sprayers operated with a boom or spray gun mounted on a boat, tractor, or truck. Thorough wetting of foliage is essential for maximum control. Use 100 to 400 GPA of spray mixture. Special precautions such as the use of low pressure, large nozzles and thickening agents should be taken to avoid spray drift in areas of sensitive crops. For DIRECTASPRA™ operation, use with 1 pint of drift control agent in 50 to 100 gallons of water. For other applications, follow the drift control agent label for mixing directions.

FOR AQUATIC WEEDS IN LAKES, PONDS, RESERVOIRS, MARSHES, BAYOUS, DRAINAGE DITCHES, CANALS, AND RIVERS AND STREAMS THAT ARE QUIESCENT OR SLOW MOVING INCLUDING PROGRAMS OF THE TENNESSEE VALLEY AUTHORITY:

Use 1 - 5 gallons of HM-2010 per acre foot. For best results, apply in spring or early summer. A second treatment may be

needed when weeds show signs of recovery, but no later than September in most areas. Spray to wet foliage thoroughly. Application should be made when leaves are fully developed above water line and plants are actively growing. Apply to attain a concentration of 2 to 4 ppm.

EMERGENT AND FLOATING WEEDS

Surface Application: Apply 2.25 gallons per acre in a minimum spray volume of 5 gallons mix per acre.

Air Application: Use drift control spray equipment or thickening agents mixed into the spray solution. Apply 2.5 - 5 gallons per acre through standard boom systems with a minimum of 5 gallons of spray mix per acre. For MICROFOIL® drift control spray systems, apply in 12 - 15 gallons spray mix per acre.

Restrictions and Limitations for Aquatic Use:

Do not exceed 4.0 lbs acid equivalent per surface acre per application. Do not reapply less than 3 weeks after prior application. Do not apply within 1,500 feet of active potable water intakes.

Fish breathe dissolved oxygen in the water and a water/oxygen ratio must be maintained. Decaying weeds use up oxygen. When treating continuous, dense weed masses, it may be appropriate to treat only part of the infestation at a time. For example, apply HM-2010 in lanes separated by untreated strips that can be treated after vegetation in treated lanes has disintegrated. During the growing season, weeds decompose in a 2 to 3 week period following treatment. Waters having limited and less dense weed infestations may not require partial treatments. Other local factors such as water exchange and sediment load can also influence the dissolved oxygen level.

To avoid fish kill from decaying plant material, do not treat more than one-half the lake or pond at one time. For large bodies of weed infested waters, leave buffer strips of at least 100 feet wide and delay treatment of these strips for 4 to 5 weeks or until the dead vegetation has decomposed.

Water Use Instructions:

Unless an approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) or less, or only growing crops and non-crop areas labeled for direct treatment with 2,4-D will be effected, do not use water from treated areas for:

1. Irrigating plants (especially cotton, grapes, and tomatoes).
2. Mixing sprays for agricultural or ornamental plants.

Unless an approved assay indicates the 2,4-D concentration is 70 ppb (0.07 ppm) or less, do not use water from treated areas for potable water (drinking water).

Except as stated above, there are no restrictions on using water from treated areas for fishing, watering livestock or domestic purposes.

SUBMERGED AQUATIC WEEDS

Subsurface Application: Apply 2.5 - 10 gallons per acre foot as a concentrate directly into the water through boat mounted distribution systems.

Amount to Apply to Attain Concentration of 2 to 4 ppm.		
Surface Area	Average Depth	2,4-D Acid Equivalent to Apply
1 acre	1 ft.	5.4 to 10.8 lbs
	2 ft.	10.8 to 21.6 lbs
	3 ft.	16.2 to 32.4 lbs
	4 ft.	21.6 to 43.2 lbs
	5 ft.	27 to 54 lbs

WATER HYACINTH (*Eichornia crassipe*): For control of actively growing plants with surface and air applications, use 4 - 8 pints per acre. **Spray the weed mass only.** Use 8 pints when plants are matured or when the weed mass is dense. Repeat as necessary to kill regrowth and hyacinth plants missed in the previous application.

WATER MILFOIL (*Myriophyllum spicatum*): For Eurasian Water Milfoil in programs conducted by the Tennessee Valley Authority (TVA) in dams and reservoirs of the TVA system, HM-2010 will control Water Milfoil with surface, subsurface and air applications.

To control water milfoil when less than 5 gallons of concentrate per acre is recommended, dilute the concentrate with water to apply a minimum of 5 gallons of spray mix per acre. Do not treat within 1/2 mile of potable water intakes. Shoreline areas should be treated by sub-surface injection applied by boat to avoid aerial drift. Do not apply when weather conditions favor drift from target area.

CONDITIONS OF SALE - LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

Read the Conditions of Sale - Warranty and Limitations of Liability and Remedies before using this product. If the terms are not acceptable, return the product, unopened, and the full purchase price will be refunded.

The directions on this label are believed to be reliable and should be followed carefully. Insufficient control of pests and/or

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injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions or the failure to follow the label directions or good application practices, all of which are beyond the control of Helena Chemical Company (the "Company") or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. The Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the factors noted above which are beyond the control of the Company. The Company makes no other warranties or representations of any kind; express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose, and no such warranty shall be implied by law.

The exclusive remedy against the Company for any cause of action relating to the handling or use of this product shall be limited to, at Helena Chemical Company's election, one of the following:

1. Refund of the purchase price paid by buyer or user for product bought, or
2. Replacement of the product used

To the extent allowed by law, the Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or sense of any nature, including, but not limited to, loss of profits or income. The Company and the seller offer this product and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

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ACCEPTED
with COMMENTS
In EPA Letter Dated:
MAY 13 2005

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

5905-542

04-30-05

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