


5905-542

8/14/2008

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 <p>U.S. ENVIRONMENTAL PROTECTION AGENCY Office of Pesticide Programs Registration Division (7505P) 1200 Pennsylvania Ave., N.W. Washington, D.C. 20460</p> <p>NOTICE OF PESTICIDE: <u>    </u> Registration <u>  X  </u> Reregistration</p> <p>(under FIFRA, as amended)</p>	EPA Reg. Number:  5905-542	Date of Issuance:  AUG 14 2008
	Term of Issuance:	
	Name of Pesticide Product:  Helena 2010	
Name and Address of Registrant (include ZIP Code):  Helena Chemical Company 225 Schilling Blvd., Suite 300 Collierville, TN 38017		
<p><b>Note:</b> Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.</p>		
<p>On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.</p> <p>Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.</p> <p><b>This product is reregistered in accordance with FIFRA section 4(g)(2)(C) provided you:</b></p>		
Signature of Approving Official:  <i>Joanne I. Miller</i> Joanne I. Miller, Product Manager (23) Herbicide Branch, Registration Division (7505P)	Date:  AUG 14 2008	

1. Move the Agricultural Use Requirements and Non-Agricultural Use Requirements boxes from the Precautionary Statements section to the Directions for Use section and enclose both Agricultural and Non-Agricultural Requirements within a box.

2. Immediately following the heading Directions for Use, insert the following text as follows:

**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 maybe in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

3. Based on toxicity ranking per the acute toxicity review, the First Aid statements must be placed on the label in the following order:

IF In EYES:....

IF SWALLOWED:....

IF INHALED:....

IF ON SKIN OR CLOTHING:....

4. Include a statement to address eye irritation concerns within the Note to Physicians immediately following the First Aid section.

5. The Hazards to Humans and Domestic Animals text must be revised to read as follows:

**DANGER**

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

6. "Citrus Use" does not appear in the Directions for Use and all references to postharvest "Citrus Use" must be deleted.

7. The PPE section must be revised to read as follows:

All mixers, loaders, applicators, flaggers, and other handlers must wear:

Long sleeved shirt and long pants,

Shoes and socks,

Goggles or face shield,

Chemical-resistant gloves when applying with any handheld nozzle or equipment, mixing or loading, cleaning up spills, or equipment, or otherwise exposed to the concentrate,

Chemical-resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.

8. Under the heading Environmental Hazards, delete the following text:

“except as noted on appropriate labels”

9. The duplicate early entry PPE and REI text appearing under the Directions for Use must be deleted from the label.

10. The entry restriction text currently on the label under the heading “Use Requirements for Pastures, Perennial Grasslands, Rangelands, Fallowland and Non-Crop Areas” and “Turf Use Requirements” must be revised to read “Do not enter or allow others to enter treated areas until sprays have dried”

11. Under the heading Storage and Disposal, Storage should be replace with “Pesticide Storage”.

The word “Prohibitions” must be deleted.

The text “Do not store under conditions which might adversely affect the container or its ability to function properly” should be placed under the “Pesticide Storage” subheading.

12. This label prohibits applying this product through any type of irrigation system. Thus, all references to chemigation must be deleted from the spray drift section.

Immediately preceding the CHEMIGATION PROHIBITION statement, on page 3, the following text conflicts in some cases with spray drift language on page 4 and 5 and must be deleted.

Delete "The following steps...applications:"

Items 1 - 8 delete

Items 9 move to page 5 under "Droplet Size".

13. On page 23 preceding the Pistachios section delete "Do not apply during windy conditions or extremely high temperatures and replace with "Do not apply at wind speeds greater than 10 mph."

14. On page 11, under the heading Asparagus, 10 pints of product (2.2lbs ae) per acre exceeds the allowable single application rate of 2.0 lbs per acre. The label must be revised.

15. Under the heading low bush blueberries, correct the typographical error of "BLUBERRIES" and change to BLUEBERRIES.

The maximum allowable application rate appearing in the rate table must be listed as volume of product per acre.

16. On page 13, under the heading Restrictions and Limitations For Use On Cereal Grains, the restriction to limit the application to 592 ounces (8lbs ae) per acre per application exceeds the allowable application rate of 1.25 lbs ae per acre for postemergence use and must be revised.

17. On page 17, bottom of the page, revise "Maximum of 2.25 pints acre per application.g" to maximum of 2.25 pints per acre per application.

18. On page 19, top of the page, the Maximum of 1.15 gallons (4lbs ae) must be revised to read Maximum of 1.15 gallons (2.0 lbs ae).

19. On page 18, correct the typographical error "Craneberries".

20. On page 19, add to the heading Grass Pastures and include the following text:

For susceptible annual and biennial broadleaf weeds: Use 1.0 lbs ae per acre application.

For moderately susceptible biennial and perennial broadleaf weeds: Use 1-2 lbs ae per acre per application.

For difficult to control weeds and wood plants: Use 2 lbs ae per acre per application.

Spot treatment : Use 2 lbs ae per acre.

Do not cut forage for hay within 7 days of application.

If grass is to be cut for hay, Agricultural Use Requirements for the Worker Protection Standard are applicable.

21. On page 19, under the heading Grass Seed Crops, add the following text:

The following rate restrictions must be added to the label.

Do not apply more than 2 applications per year.

The maximum individual application rate is 2 lbs ae per acre per application.

The retreatment interval is 21 days.

22. On page 20, under the heading Ornamental and Recreational Turfgrass, Lawns...Parks and Cemeteries replace "Refer to Turf Use Requirements in the Non-Agricultural Use Requirements section" with the following text:

Do not apply more than 1.5 lbs ae per acre per application.

The maximum seasonal application rate is 3.0 lbs ae per acre, excluding spot treatments.

The rate restriction to apply only 2 applications per year must be retained.

- 23. On Page 23, replace "Do not graze of feed cover crops..." with Do not graze or feed cover crops from treated orchards to livestock.
- 24. On page 24, the preharvest for Stone Fruit must be revised to read 40 days.
- 25. On page 27, Preplant for Single application to Soybeans, replace "Apply not less than 15 days prior to planting soybeans" with Apply not less than 30 days prior to planting soybeans.
- 26. On page 27, Restrictions and Limitations...Strawberries, replace "Not currently registered for use in California" with "Do not apply in California or Florida."
- 27. On page 28, the rates listed in the Sugarcane use table (1 to 2.25 gallons), exceed the allowable rate of 2.0 lbs ae per acre per application and must be adjusted.
- 28. On page 28, under Precautions and Limitations for SOD Farms, add the following restriction:  
  
A retreatment interval of 21 days must be added to the label.
- 29. On page 33, under the heading Ditch Bank Application, correct the typographical error of "Mximum" under Postemergence.
- 30. On page 38, Water Hyacinth, delete the text "repeat as necessary" it is too broad.
- 31. On page 33, Emergent and Floating Weeds, the directions to apply up to 5 gallons of product (8.7 lbs ae) per acre exceed the maximum allowable rate of 4 lbs ae per surface acre per application.
- 32. On page 35, Submerged Aquatic Weeds, the text "apply 2.5 - 10 gallons per acre foot as a concentrate directly into the water through boat mounted distribution systems exceeds the allowable rate of 10.8 lbs ae per acre foot per application and must be revised.

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33. On page 35, Swimming (2,4-D ...ester only) the swimming restriction text required only for 2,4-D butoxyethanol ester products must be deleted from the label.

34. Include the following statement:

Use of this product in certain portions of California, Oregon, and Washington is subject to the January 22, 2004 Order for injunctive relief in Washington Toxics Coalition, et. al. v. EPA, C01-0132C, (W.D. WA)" For further information, please refer to <http://www.epa.gov/espp/wtc/>.

You will submit one 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). A stamped copy of the labeling is enclosed for your records

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ACCEPTED  
with COMMENTS  
in EPA Letter Dated

2010

AUG 14 2008  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.

**ACTIVE INGREDIENT:**  
2,4-Dichlorophenoxyacetic Acid .....19.6%  
**INERT INGREDIENTS:** .....80.4%  
**TOTAL**.....100.0%

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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. 5,877,112  
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:

Disclaimer: Always refer to the label on the product before using Helena or any other product.



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**SPECIMEN LABEL**

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

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

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**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

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.

**All mixers, loaders, applicators, flaggers, and other handlers must wear:**

- long-sleeved shirt and long pants,
- shoes and socks, plus
- chemical resistant gloves, such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber, or Viton when applying postharvest dips or sprays to citrus, applying with any handheld nozzle or equipment, mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.
- Chemical resistant apron when applying postharvest dips or sprays to citrus, mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate

See engineering controls for additional requirements.

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**User Safety Requirements**

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

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**Engineering Control Statements**

Pilots must use an enclosed cockpit that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(6)].

**USER SAFETY RECOMMENDATIONS**

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water.

Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

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**ENVIRONMENTAL HAZARDS**

**For terrestrial uses:** This product may be toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark except as noted on appropriate labels. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

**Aquatic Weed Control:** Fish breathe dissolved oxygen in the water and decaying weeds also use oxygen. When treating continuous, dense weed masses, it may be appropriate to treat only part of the infestation at a time. For example, apply the product 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. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Waters having limited and less dense weed infestations may not require partial treatments.

**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. 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.

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**CHEMIGATION PROHIBITION**

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

**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.

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**SPECIMEN LABEL**

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 made of any water-proof material
- 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.

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**DIRECTIONS FOR USE**

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 made of any water-proof material,
- Shoes plus socks,
- Protective eyewear

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

Do not enter or allow people (or pets) to enter the treated area until sprays have dried.

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.

**SPRAY DRIFT MANAGEMENT**

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

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**SPECIMEN LABEL**

**Droplet Size**

When applying sprays that contain 2,4-D as the sole active ingredient, or when applying sprays that contain 2,4-D mixed with active ingredients that require a Coarse or coarser spray, apply only as a Coarse or coarser spray (ASAE standard 572) or volume mean diameter of 385 microns or greater for spinning atomizer nozzles.

When applying sprays that contain 2,4-D mixed with other active ingredients that require a Medium or more fine spray, apply only as a Medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

**Wind Speed**

Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition and there are not sensitive areas (including, but not limited to, residential areas, bodies of water, known habitat for nontarget species, nontarget crops) within 250 feet downwind. If applying a Medium spray, leave one swath unsprayed at the downwind edge of the treated field.

**Temperature Inversions**

If applying at wind speeds less than 3 mph, the applicator must determine if: a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

**Susceptible Plants**

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption. Susceptible crops include, but are not limited to, cotton, okra, flowers, grapes (in growing stage), fruit trees (foliage), soybeans (vegetable stage), ornamentals, sunflowers, tomatoes, beans, and other vegetables, or tobacco. Small amounts of spray drift that might not be visible may injure susceptible broadleaf plants.

**Other State and Local Requirements**

Applicators must follow all state and local pesticide drift requirements regarding application of 2,4-D herbicides. Where states have more stringent regulations, they must be observed.

**Equipment**

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

***Additional requirements for aerial applications;***

The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.

Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety. This requirement does not apply to forestry or rights-of-way applications.

When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this by adjusting the path of the aircraft upwind.

***Additional requirements for ground boom application"***

Do not apply with a nozzle height greater than 4 feet above the crop canopy.

**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.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

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SPECIMEN LABEL

**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 **HELENA® 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.

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**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 **HELENA® 2010** per acre. **HELENA® 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. **HELENA® 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 **HELENA® 2010** or other products containing 2,4-D should not be used for any other purpose until thoroughly cleaned with a suitable chemical cleaner.

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**WEEDS CONTROLLED**

Disclaimer: Always refer to the label on the product before using Helena or any other product.

SPECIMEN LABEL

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

- Alders
- American Lotus
- Artichoke
- Biden
- Bittercress, smallflower
- Bitterweed
- Blessed Thistle
- Blue Thistle
- Box elder
- Buckhorn
- Bull Thistle
- Burdock, common
- Buttercup, smallflowered
- Carpetweed
- Chickweed
- Chicory
- Cockle
- Coffeebean
- Creeping jenny
- Croton (Texas, woolly)
- Dandelion
- Dogfennel (mayweed)
- Evening primrose, common
- Fanweed
- Fleabane
- Florida Pusley
- Four o'clock
- Frenchweed
- Goatsbeard
- Hemp
- Henbit
- Honeysuckle
- Indigo
- Jerusalem artichoke
- Jimsonweed
- Ladysthumb
- Loco, Bigbend
- Marestail
- Mexican weed
- Morningglory (annual, common, ivy, wo
- Mustards (except blue), prior to bolting
- Parrotfeather
- Pennywort
- Plantains
- Peppergrass
- Pokeweed
- Poverty weed
- Prickly lettuce
- Purslane, common
- Radish
- Ragweeds (common, giant)
- Rough fleabane
- Shepherdspurse
- Sneezeweed, bitter
- Spanish Needles
- Stinging Nettles
- Stinkweed
- Sunflower
- Sweetclover (annual)
- Tarweed
- Thistles
- Toadflax
- Alligatorweed
- Arrowhead
- Austrian Fieldcress
- Bittersweet
- Black-eyed Susan
- Bitter wintercress
- Blue lettuce
- Blueweed, Texas
- Broomweed, common
- Bull nettle
- Bulrush
- Bur ragweed
- Burhead
- Carolina geranium
- Catnip
- Cinquefoil, common & rough
- Cocklebur, common
- Coffeeweed
- Cornflower
- Curly indigo
- Devil's Claw
- Proboscidea louisianica*
- Duckweed
- Elderberry
- Evening primrose, cutleaf
- Fixweed
- Figwort
- Goosefoot
- Galinsoga (elderberry, hairy)
- Gumweed
- Healall
- Horsetail
- Indian Mallow
- Jewelweed
- Klamathweed
- Lambsquarters, common
- Marijuana
- Mallow (Venice, dwarf, little)
- Marshelder
- Milk vetch
- Mousetail
- Nutgrass
- Parsnip
- Pennycress (fanweed)
- Pepperweeds (except perennial)
- Poison ivy
- Poorjoe
- Primrose
- Puncture vine
- Quickweed
- Redstem
- Rush
- Sicklepod
- Sowthistle (annual, spiny)
- Spatdock
- Speedwell
- St. John's Wort
- Sumacs
- Tanweed
- Velvetleaf
- Venicemallow
- Virginia copperleaf
- Water hyacinth

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

Tumbleweed  
 Vetches, except hairy  
 Virginia creeper  
 Water lily  
 Wild carrot  
 Wild hemp  
 Wild mustard  
 Wild radish  
 Wild sweet potato  
 Witchweed  
 Yellow goatsbeard  
 Yellow starthistle

Water plantain  
 Water primrose  
 Water shield  
 Wild lettuce  
 Wild parsnip  
 Wild rape  
 Wild strawberry  
 Willow  
 Wormwood  
 Yellow rocket

**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 gromwell	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)
Salt Cedar ( T. ramossissim)	Smartweed, annual
Smartweed, Pennsylvania	
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:**

Bindweed (field)	Russian knapweed
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**MIXING INSTRUCTIONS**

**HELENA® 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 **HELENA® 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. If 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 **HELENA® 2010**. Use fertilizer rate recommended locally. Fill clean

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

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 **HELENA® 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 **HELENA® 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).

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**APPLICATION PROCEDURES**

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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. **HELENA® 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:

$$\begin{array}{l} \text{Band width in inches} \\ \text{Row width in inches} \end{array} \times \begin{array}{l} \text{Broadcast} \\ \text{rate per acre} \end{array} = \begin{array}{l} \text{Band rate} \\ \text{per acre} \end{array}$$

$$\begin{array}{l} \text{Band width in inches} \\ \text{Row width in inches} \end{array} \times \begin{array}{l} \text{Broadcast} \\ \text{volume per acre} \end{array} = \begin{array}{l} \text{Band volume} \\ \text{per acre} \end{array}$$

**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.



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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.

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### 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 HELENA® 2010, IS SPECIFICALLY DISCLAIMED BY HELENA CHEMICAL COMPANY.**

#### **Glyphosate Tank Mixes:**

**HELENA® 2010+** Glyphosate (various formulations) may be used on all approved crops, use sites and use patterns, approved on both labels. **HELENA® 2010** should be used at the rate of 1.5-3 pints in combination with the appropriate rate of Glyphosate per acre to provide best control of weed pest species. Consult the Glyphosate label to determine proper rate of Glyphosate to be used in combination with **HELENA® 2010**.

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### 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.

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### 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.

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### 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.

**SPECIMEN LABEL**

**ASPARAGUS**

<b>CROP STAGE</b>	<b>APPLICATION RATE/ACRE</b>	<b>DIRECTIONS/TIMING</b>
<b>After cutting</b>	<b>8 -10 pints (1.75-2.0 lbs. acid equivalent)</b>	<b>Apply on actively growing weeds</b>

**RESTRICTIONS AND LIMITATIONS FOR USE ON ASPERAGUS**

- PHI: Do not harvest within 3 days of application
- Max application rate/acre: 10 pints ( 2.0 lbs acid equivalent)
- Max seasonal rate: 2.29 gals (4.0 lbs acid equivalent per acre)
- Do not exceed two applications per crop
- Do not apply within 30 days of previous application

**LOW BUSH BLUBERRIES**

<b>CROP STAGE</b>	<b>APPLICATION RATE /ACRE</b>	<b>DIRECTIONS/TIMING</b>
<b>Postemergence</b>	<b>Wiper solution containing 0.03-0.0375 lbs/gallon (3.6-4.5 g/l) acid eq.</b>	<b>Make directed wipe or spot applications when tips are above the crop</b>
<b>Postharvest</b>	<b>Solution containing .75-1.0 lb acid equivalent per 10 gallons of oil</b>	<b>Make directed application to cut hardwoods in row middles in summer or fall after harvest.</b>

**RESTRICTIONS AND LIMITATIONS FOR USE IN BLUEBERRIES;**

- Postemergence:
  - Limited to one postemergence applications per year
  - Maximum of 2.75 ounces (.0375 lbs. acid equivalent)
  - Max seasonal rate: Not applicable-spot treatment
  - Avoid herbicide contact with blueberry foliage.
  - Apply only in the nonbearing year.
- Post harvest:
  - Limited to one post harvest application per crop cycle

**HIGH BUSH BLUBERRIES:**

<b>CROP STAGE</b>	<b>APPLICATION RATE/ACRE</b>	<b>DIRECTIONS/TIMING</b>
<b>POSTEMERGENCE</b>	<b>3.5-4.0 pints</b>	<b>Make directed or shielded application in the spring.</b>
<b>POSTHARVEST</b>	<b>3.5-4.0 pints</b>	<b>Make directed application to row middles in summer or fall after harvest</b>

**RESTRICTIONS AND LIMITATIONS FOR USE IN BLUEBERRIES;**

- Postemergence and Postharvest:
  - PHI: Do not harvest within 30 days of application
  - Limited to two ( 2) applications per year
  - Maximum rate: 102 ounces (1.4 lbs acid equivalent) per acre per application

**SPECIMEN LABEL**

**CEREAL GRAINS**  
**Spring Wheat and Barley**

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
Not underseeded with legumes  <b>Onset of Tillering Stage:</b> Postemergence *Annual and biennial broadleaf weeds  Perennial broadleaf weeds	1-1.75 pints	Apply after grain is well tillered (usually about 4 to 8 inches high). Do not spray grain in the boot to dough 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.
<b>Full Tillering Stage:</b> Postemergence Annual and biennial broadleaf weeds  Perennial broadleaf weeds	1-3.25 pints	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 after grain is 8 inches tall. Do not spray grain in boot to dough stage. Do not spray alfalfa or sweet clover unless the infestation is severe and injury to these legumes can be tolerated.
<b>Emergency weed control in</b> Triticale, Wheat Perennial broadleaf weeds	4.5	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.

\*Use the lower rate if small annual and biennial weeds are the major problem. Use the higher rate if perennial weeds or annual and biennial weeds are present which are in the hard-to-kill categories as determined by local experience. The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the grain damage risk. Do not apply HM-2010 to grain in the seedling stage.

**RESTRICTIONS AND LIMITATIONS FOR USE ON CEREAL GRAINS**

- For aerial application on grain, apply HM-2010 in 3 to 10 gallons of water per acre.
- For ground application a minimum of 10 to 15 gallons of water per acre is recommended for proper spray coverage.
- Do not permit dairy animals or meat animals being finished for slaughter to forage treated grain fields within 2 weeks after treatment.
- Do not feed treated straw to livestock if an emergency treatment as described above is applied.
- **Postemergence:**
  - Limited to one application per crop cycle.
  - Maximum of 92 ounces per acre per application.
- **Preharvest:**
  - Limited to one application to crop cycle.
  - Maximum of 36 ounces per acre per application
- Preharvest interval (PHI) is 14 days.
- Limited to 1 gallon per acre per crop cycle

**SPECIMEN LABEL**

**WINTER WHEAT, BARLEY AND RYE**

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
Not underseeded with legumes  <b>Onset of Tillering Stage:</b> Postemergence *Annual and biennial broadleaf weeds  Perennial broadleaf weeds	1-3.25 pints	Apply after grain is well tillered (usually about 4 to 8 inches high). Do not spray grain in the boot to dough 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.
<b>Full Tillering Stage:</b> Postemergence Annual and biennial broadleaf weeds  Perennial broadleaf weeds	1-3.25 pints	For these applications, full tillering stage is defined as grain that has 3 or more tillers and the flag leaf should not be visible (usually 4 to 8 inches tall). Do not spray grain in boot to dough stage. Do not spray alfalfa or sweet clover unless the infestation is severe and injury to these legumes can be tolerated.
<b>Emergency weed control in</b> Triticale, Wheat Perennial broadleaf weeds	4.5	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.

\*Use the lower rate if small annual and biennial weeds are the major problem. Use the higher rate if perennial weeds or annual and biennial weeds are present which are in the hard-to-kill categories as determined by local experience. The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the grain damage risk. Do not apply HM-2010 to grain in the seedling stage.

**RESTRICTIONS AND LIMITATIONS FOR USE ON CEREAL GRAINS**

- For aerial application on grain, apply HM-2010 in 3 to 10 gallons of water per acre.
- For ground application a minimum of 10 to 15 gallons of water per acre is recommended for proper spray coverage.
- Do not permit dairy animals or meat animals being finished for slaughter to forage treated grain fields within 2 weeks after treatment.
- Do not feed treated straw to livestock if an emergency treatment as described above is applied.
- **Postemergence:**
  - Limited to one application per crop cycle.
  - Maximum of 592 ounces per acre per application.
- **Preharvest:**
  - Limited to one application to crop cycle.
  - Maximum of 36 ounces per acre per application
- Preharvest interval (PHI) is 14 days.
- Limited to 1 gallon per acre per crop cycle

SPECIMEN LABEL

CEREAL GRAINS (Not Underseeded with a Legume)  
OATS.

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE* (Average Conditions)	DIRECTIONS FOR USE
Spring Planted Oats Full Tillering Stage: Postemergence Annual and biennial broadleaf weeds  Perennial broadleaf weeds	1 pint	Apply in sufficient water to give good coverage. Apply after the fully tillered stage, except during the boot to dough stage. Note: Oats are less tolerant to 2,4-D than wheat or barley and more likely to be injured. Grains should have 3 or more tillers and the flag leaf should not be visible. Oats are less tolerant to HELENA® 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.
Fall Planted Oats	1- 3.25 pints	Apply after full tillering but before early boot stage. Some difficult weeds may require higher rates per acre for maximum control, but injury may result. Do not spray during or immediately following cold weather. Note: Oats are less tolerant to 2,4-D than wheat or barley and more likely to be injured.
Pre-Harvest	2 pints	Apply with recommended amount of water per acre when grains are in the hard dough stage to control large weeds that may interfere with harvest. Best results will be obtained when soil moisture is sufficient to cause succulent weed growth. Addition of a nonionic surfactant, such as INDUCE® or DYNE-AMIC®, usually improves weed control.

\* If band treatment is used, base the dosage rate on the actual area sprayed.

RESTRICTIONS AND LIMITATIONS FOR USE ON CEREAL GRAINS (Not Underseeded with a Legume) (Oats)

- The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the grain damage risk.
- Apply HM-2010 in sufficient water for adequate coverage.
- Do not permit dairy animals or meat animals being finished for slaughter to forage treated grain fields within 2 weeks after treatment.
- Do not feed treated straw to livestock.
- **Postemergence:**
  - Limited to one application per crop cycle.
  - Maximum of 92 ounces per acre per application.
- **Preharvest:**
  - Limited to one application to crop cycle.
  - Maximum of 36 ounces per acre per application
- Preharvest interval (PHI) is 14 days.
- Limited to 1 gallon per acre per crop cycle

**Livestock 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.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

**Tank Mixtures:** HELENA® 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:

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

Suggested 3-way tank mixes include\*:

- HELENA® 2010 +Bromoxynil or Dicamba or Diuron or Metribuzin+ Ally®
- HELENA® 2010 +Bromoxynil or Dicamba or Diuron or Metribuzin+ Amber®
- HELENA® 2010 +Bromoxynil or Dicamba or Diuron or Metribuzin + Canvas®
- HELENA® 2010 +Bromoxynil or Dicamba or Diuron or Metribuzin + Express®
- HELENA® 2010 +Bromoxynil or Dicamba or Diuron or Metribuzin + Finesse®
- HELENA® 2010 +Bromoxynil or Dicamba or Diuron or Metribuzin+ Glean®
- HELENA® 2010 +Bromoxynil or Dicamba or Diuron or Metribuzin + Harmony® Extra
- HELENA® 2010 + Bromoxynil or Dicamba or Diuron or Metribuzin + Peak®
- HELENA® 2010 + Diuron + Metribuzin
- HELENA® 2010 + Diuron + Dicamba
- HELENA® 2010 + Diuron + Bromoxynil
- HELENA® 2010 + Dicamba + Metribuzin
- HELENA® 2010 + Dicamba + Bromoxynil
- HELENA® 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.

**CORN ( Field and Pop)**

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
<b>CORN (Field and Pop)</b> Preplant: Fine and medium texture soils having 1% or more organic matter:  For coarse textured soils with 2% or more organic matter:	1-4.5 pints	To control emerged broadleaf weed seedlings or existing cover crops prior to planting corn, apply 7 to 14 days before planting. Use high rate for less susceptible weeds or cover crops such as alfalfa.
	1-3.0 pints	
Preemergence Fine and medium texture	1-4.5	Apply 3 to 5 days after planting but before corn emerges. Liquid fertilizers and agriculturally approved surfactants may be added.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

<p>soils having 1% or more organic matter:</p> <p>For coarse textured soils with 2% or more organic matter:</p>	<p>1 pint*</p>	<p>*Due to the lower rate, partial weed control may result on coarse soils.</p>
<p>Postemergence; Annual broadleaf weeds Early Postemergence: (from spike to 4 leaf stage or up to 8 inches)</p> <p>Perennial broadleaf weeds Late Postemergence: (corn is 8-36 inches tall before tasseling)</p> <p>Preharvest</p>	<p>½ pint to 2.25 pints</p> <p>1.3 to 2.25 pints</p> <p>2 to 6.75 pints</p>	<p>Apply when weeds are small and corn is less than 8 inches tall (to top of canopy). 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 such as INDUCE® (often at 0.25% vol./vol. or less) to minimize such risk. Corn may be brittle and subject to breaking by wind and/or cultivation, especially in the 2 weeks following application. Avoid spraying just after corn leaves unfold</p> <p>When corn is 8- 36 inches tall, use drop nozzles and keep spray off foliage. Treat perennial weeds when they are in the bud to bloom stage. 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. Lowest rates may not provide adequate weed control unless used in a tank mix with another registered herbicide.</p> <p>After the hard dough (or denting) stage when silks have turned brown, apply the appropriate rate 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.</p>

**RESTRICTIONS AND LIMITATIONS FOR USE ON CORN (Field and Pop)**

- Corn( Field and Pop):
  - Preharvest Interval (PHI) is 7 days.
  - Do not use treated crop as fodder for 7 days following application.
  - Do not apply on fine or coarse textured soils ( silt & clay loams) with less than 1% organic matter or on coarse textured sils (sand, sandy loam, loamy sand) with less than 2% organic matter.
  - Maximum Use rate per acre per crop cycle is 1.75 gallons.
  - Preplant or Preemergence:
    - Limited to one application per crop cycle.
    - Maximum of 4.5 pints per acre per application.
    - Do not apply preemergence if a preplant application of this product was made.
  - Postemergence:
    - Limited to one application per crop cycle.
    - Maximum of 36 ounces per acre per application.
    - Do not spray corn in the tassel to dough stage
    - Do not apply with liquid fertilizer or oil.
    - Postemergence application should not follow a preplant or preemergence application by less than 3 weeks.
  - Preharvest:
    - Limited to one application per crop cycle.

**Disclaimer:** Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

- Maximum of 110 ounces per acre per application.

**CORN ( Sweet)**

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
<b>CORN (Sweet)</b> <b>Preplant:</b> Fine and medium texture soils having 1% or more organic matter:  For coarse textured soils with 2% or more organic matter:	1-4.5 pints  1-3.0 pints	To control emerged broadleaf weed seedlings or existing cover crops prior to planting corn, apply 7 to 14 days before planting. Use high rate for less susceptible weeds or cover crops such as alfalfa.
<b>Preemergence</b> Fine and medium texture soils having 1% or more organic matter:  For coarse textured soils with 2% or more organic matter:	1-4.5  1 pint*	Apply 3 to 5 days after planting but before corn emerges. Liquid fertilizers and agriculturally approved surfactants may be added.  *Due to the lower rate, partial weed control may result on coarse soils.
<b>Postemergence;</b> <b>Annual broadleaf weeds</b> Early Postemergence: (from spike to 4 leaf stage or up to 8 inches)  <b>Perennial broadleaf weeds</b> Late Postemergence: (corn is 8-36 inches tall before tasseling)	2.25 pints  1.3 to 2.25 pints	Apply when weeds are small and corn is less than 8 inches tall (to top of canopy). 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 such as INDUCE® (often at 0.25% vol./vol. or less) to minimize such risk. Corn may be brittle and subject to breaking by wind and/or cultivation, especially in the 2 weeks following application. Avoid spraying just after corn leaves unfold  When corn is 8- 36 inches tall, use drop nozzles and keep spray off foliage. Treat perennial weeds when they are in the bud to bloom stage. 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. Lowest rates may not provide adequate weed control unless used in a tank mix with another registered herbicide.

• **Corn( Sweet)**

- Preharvest Interval (PHI) is 45 days.
- Do not use treated crop as fodder for 7 days following application.
- Minimum of 21 days between applications.
- Do not apply on fine or coarse textured soils ( silt & clay loams) with less than 1% organic matter or on coarse textured sils (sand, sandy loam, loamy sand) with less than 2% organic matter.
- Maximum Use rate per acre per crop cycle is 110 ounces
- Preplant or Preemergence:
  - Limited to one application per crop cycle.
  - Maximum of 2.25 pints acre per application.g
  - Do not apply preemergence if a preplant application of this product was made.
- Postemergence:
  - Limited to one application per crop cycle.

Disclaimer: Always refer to the label on the product before using Helena or any other product.



**SPECIMEN LABEL**

- Maximum of 36 ounces per acre per application.
- Do not spray corn in the tassel to dough stage
- Do not apply with liquid fertilizer or oil.
- Postemergence application should not follow a preplant or preemergence application by less than 3 weeks.

**CRANEBERRIES**

CROP STAGE	APPLICATION RATE/ACRE	DIRECTIONS/TIMING
Dormant	1.6 -2.25 gallons	Make broadcast application in the dormant season
Postemergence	3.5-5.5 pints	Make directed wipe or spot applications when weed tops are above crop

**RESTRICTIONS AND LIMITATIONS FOR USE IN CRANEBERRIES;**

PHI: Do not harvest within 30 days of application.

Dormant: Make only one dormant application per crop

Max. seasonal rate: 2.25 gallons (4 lbs. acid equivalent per acre in the dormant season 2.4 lbs acid equivalent in the growing season

Postemergence: Limited to (2) two applications per crop cycle.

Max. rate:

**FILBERTS**

CROP STAGE	APPLICATION RATE/ACRE	DIRECTIONS/TIMING
FOR SUCKER CONTROL	3-4.5 pints	For control of suckers, spray to wet leaves and stems of suckers that are 6 to 8 inches in height during April through August

**Restrictions And Limitations For Use In Filberts:**

- PHI: Do not harvest nuts within 45 days of application
- Minimum: Allow at least 30 days between applications.
- Limited to 4 applications per year.
- Maximum use rate: 72 ounces per 100 gallons of spray solution per application

**GRAPES**

CROP STAGE	APPLICATION RATE/ACRE	DIRECTIONS/TIMING
Apply after shatter following bloom and before grape shoots reach the ground, or during dormant season	4.5-6.25 Pints	Applications to at least 3 year old established vineyard. Use hooded boom sprayer or equivalent to direct coarse spray to weeds and minimize potential contact with grape foliage, shoots or stems

**RESTRICTIONS AND LIMITATIONS FOR USE IN GRAPES:**

- For use only in California.
- The preharvest interval (PHI) is 100 days.
- Limited to 1 application per crop cycle.
- Maximum of 100 ounces (1.36 lbs ae/acre) per application.

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

**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.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

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

**RESTRICTIONS AND LIMITATIONS:**

- Plant only labeled crops within 29 days following application.
- Limited to 2 applications per year.
- Maximum of 1.15 gallons ( 4 lbs ae)/acre per application.
- Minimum of 30 days between applications.

**GRASS PASTURES**

To control many emerged broadleaf weeds, apply 1.0 - 4.0 pints **HELENA® 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.

**RESTRICTIONS AND LIMITATIONS: Grass Pastures.**

- Plant only labeled crops within 29 days following application.
- Limited to 2 applications per year.
- Maximum of 1.15 gallon ( 2lbs ae)/acre per application.
- Minimum of 30 days between applications.

**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.

**HOPS**

<b>WEEDS IN CROPS</b>	<b>AMOUNT OF OPTIAMINE PER ACRE</b>	<b>DIRECTIONS FOR USE</b>
Annual broadleaf weeds	1-2 pints	Make directed applications to the row middles.

**RESTRICTIONS AND LIMITATIONS FOR HOPS:**

- Limited to three (3) applications per crop cycle
- Maximum of 36 ounces per acre per application
- Maximum of 110 ounces per acre per crop cycle
- Minimum of 30 days between applications
- Preharvest Interval (PHI) is 28 days after application

**Disclaimer:** Always refer to the label on the product before using Helena or any other product.

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**SPECIMEN LABEL**

**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 (annual and perennial weeds):**

- Limited to 2 applications per year.
- Maximum of 4.5 quarts (2.0 lbs) ae/acre per application.
- Minimum of 30 days between applications.

**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 4.5 quarts (2.0 lbs acid equivalent) per acre per use season

**Postemergence (woody plants):**

- Limited to 1 application per year.
- Maximum of 2.25 gallons (4.0 lbs) ae/acre per year.

Applications to non-cropland areas are 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.

***Postemergence Control of Annual and Perennial Weeds:*** Apply 0.5 - 1 gallon of HELENA® 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 HELENA® 2010 to trees and brush when foliage is fully expanded and plants are actively growing.

***Special Uses:***

On rights-of-way: Up to 2.25 gallons (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.

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**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.

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**RANGELAND PASTURES AND PERENNIAL GRASSLANDS NOT IN AGRICULTURAL PRODUCTION**

**HELENA® 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.

**RESTRICTIONS AND LIMITATIONS:**

Postemergence:

For susceptible annual and biennial broadleaf weeds: Use 4.5 pints ( 1.0 lbs ae/acre per application.

For moderately susceptible biennial and perennial broadleaf weeds: 2.25-4.5 quarts ( 1.0 lb to 2 lbs ae/acre per application.

For difficult to control weeds and woody plants: Use 4.5 quarts (2.0 lbs ae/acre) per application.

- Limited to 2 applications per year
- Maximum of 2.0 lbs ae/acre per application.
- Minimum of 30 days between applications.
- If grass is to be cut for hay, Agricultural Use Requirements for the Worker Protection Standard are applicable.
- The preharvest interval (PHI) is 7 days (cut forage for hay).
- For program lands, such as Conservation Reserve Program, consult program rules to determine whether grass or hay may be used. The more restrictive requirements of the program rules or this label must be followed.

**Plant 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 4.5 quarts per acre in an oil spray (see "Mixing Instructions"). Another option is to add 1 gallon of oil per acre to a **HELENA® 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

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application. For government program grasslands, follow program grazing restrictions if more restrictive than those stated above.

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**PISTACHIOS, FILBERTS, POME FRUITS, STONE FRUITS, AND TREE NUT ORCHARDS**

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**HELENA® 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. **HELENA® 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 **HELENA® 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 **HELENA® 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, **HELENA® 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**

**HELENA® 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 **HELENA® 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 HELENA® 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 **HELENA® 2010** to be used in banded or row applications must be determined by using the following formula:

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

**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.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

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

**PISTACHIOS**

CROP STAGE	APPLICATION RATE	DIRECTIONS / Timing
Orchard Floor Broadcast	0.6-1.15 gallons	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.

**RESTRICTIONS AND LIMITATIONS: Pistachios**

Postemergence:

- Limited to 2 applications per year.
- Maximum of 4.5 quarts (2.0 lbs) ae/acre per application.
- Minimum of 30 days between applications.
- PHI ( Pre harvest Interval): 60 days

**POME FRUITS (APPLES AND PEARS)**

CROP STAGE	APPLICATION RATE: HELENA® 2010	DIRECTIONS / Timing
Orchard Floor Broadcast	0.6-1.15 gallon per acre	Apply broadcast 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.

**RESTRICTIONS AND LIMITATIONS: Pome Fruits**

Postemergence:

- Limited to 2 applications per year.
- Maximum of 4.5 quarts (2.0 lbs) ae/acre per application.
- Minimum of 75 days between applications.
- Do not cut orchard floor forage for hay within 7 days of application.
- PHI ( Pre harvest Interval): 14 days

**SPECIMEN LABEL  
STONE FRUITS (CHERRIES, PEACHES, PLUMS)**

CROP STAGE	APPLICATION RATE: HELENA® 2010	DIRECTIONS / Timing
Orchard Floor Broadcast	0.6 - 1.15 gallons per acre	Apply at the broadcast rate of 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.

**RESTRICTIONS AND LIMITATIONS: Pome Fruits**

Postemergence:

- Limited to 2 applications per year.
- Maximum of 4.5 quarts (2.0 lbs) ae/acre per application.
- Minimum of 75 days between applications.
- Do not cut orchard floor forage for hay within 7 days of application.
- PHI ( Pre harvest Interval): 14 days

**POTATOES  
Fresh Market Only**

CROP STAGE	APPLICATION RATE	DIRECTIONS / Timing
Postemergence	3.25 -5.0ounces per acre (Max. rate: .07 lbs acid equivalent acre)	Make first application when potatoes are in pre-bud stage (about 7 to 10 inches) and Make a second application about 10 to 14 days later.

**RESTRICTIONS AND LIMITATIONS FOR USE IN POTATOES**

Postemergence:

- PHI: Do not harvest within 45 days of application.
- Max rate: 0.07 lbs. acid-equivalent per acre.
- Limited to 2 applications per crop cycle.

**RICE**

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
<i>Preplant:</i>	1-2.25 Quarts	Apply HELENA® 2010 2-4 weeks prior to planting.
<i>Postemergent:</i>	1-3.25 quarts	Apply 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.

**RESTRICTIONS AND LIMITATIONS :**

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

Preplant:

- Limited to one preplant application per crop cycle.
- Maximum of 4.5 pints (1.0 lb ae/acre) per preplant application.

Postemergence:

- Limited to one postemergence application per crop cycle.
- Maximum of 1.5 lbs ae/acre per postemergence application.

**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.

**WILD RICE**  
(For Use in Minnesota Only)

CROP STAGE	MAXIMUM APPLICATION RATE/ACRE	DIRECTIONS/TIMING
Postemergence paddies	10-12 ounces	<p>For use only on wild rice grown in commercial</p> <p>Apply to rice in the 1 to 2 aerial leaf through early tillering stage. Do not spray after wild rice has reached the boot stage. For best coverage, apply 4 to 10 gallons total spray solution per acre</p>

**RESTRICTIONS AND LIMITATIONS FOR USE ON WILD RICE**

- PHI: Do not harvest within 60 days of application
- Limited to one (1) Application per crop cycle
- Max seasonal rate: Apply no more than 18 ounces (0.25 lb acid equivalent) per acre use season
- Use 2 or more gallons of spray solution per acre.

**SORGHUM (Milo-Grain)**

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
Postemergence	½ -4.5 pints	<p>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. 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. Do not treat during the boot, flowering or early dough stages. Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.</p>
Over-the-Top application	½-2.25	<p>When crop is 6 to 8 inches tall use as an over-the-top broadcast spray by ground or air.</p>

Disclaimer: Always refer to the label on the product before using Helena or any other product.



**SPECIMEN LABEL**

**RESTRICTIONS AND LIMITATIONS: Sorghum ( milo)**

- Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.
- PHI: Do not harvest within 30 days of application
- Limited to one (1) Application per crop cycle
- Max seasonal rate: Apply no more than 4.5 pints (1.0 lb acid equivalent) per acre use season
- Use 2 or more gallons of spray solution per acre.

**SORGHUM-SUDAN GRASS HYBRIDS ( Forage Crop Only)**

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
Postemergence	1 -4.5 pints	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. <i>Plant Response:</i> 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.

**RESTRICTIONS AND LIMITATIONS: Sorghum-Sudan Grass Hybrids( Forage Crop Only)**

- Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.
- PHI: Do not harvest within 30 days of application
- Limited to one (1) Application per crop cycle
- Max seasonal rate: Apply no more than 4.5 pints (1.0 lb acid equivalent) per acre use season
- Use 2 or more gallons of spray solution per acre.

**SOYBEANS**

**. SOYBEANS' (Preplant Only)**

Weeds in Crop	Amount of HM-2010 per acre	Directions for Use
Preplant Only	2 to 2.25 pints	Apply not less than 15 days prior to planting soybeans, when weeds are small and actively growing. Use the higher rate on larger weeds and when perennials are present. Limited to two (2) applications.
	4.5 pints	Apply not less than 30 days prior to planting soybeans, when weeds are actively growing. Limited to one(1) application.
		In addition to those weeds found on the GENERAL WEED LIST, HM-2010 will suppress or control the following broadleaf weeds frequently encountered in reduced tillage soybean production systems: alfalfa*, bullnettle, smallflowered bittercress, Carolina geranium, smallflowered buttercup, common and rough cinquefoil, red clover*, horseweed or marestalk, mousetail, wild mustard, field pennycress. cutleaf evening primrose, common purslane. speedwell, velvetleaf, and Virginia copperleaf*. These weeds are only partially controlled.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

		<p>Apply no more than 2.0 pints of HM-2010 in one season prior to planting soybeans. After applying, plant soybean seed as deep as practical or at least 1-1 1/2 to 2 inches deep, Adjust the planter press wheel, If necessary, to ensure that planted seed is completely covered.</p> <p>If desired, HM-2010 may be applied pre-plant to soybeans in tank mixtures with other herbicides such as Poast®, Poast Plus®, Roundup®, Roundup D-Pak®, Honcho®, Gramoxone Extra®, Prowl®, Pursuit Plus®, Scepter®, Scepter 70 DC, Squadron® and others that are registered for pre-plant soybean use.</p> <p>NOTE: Unacceptable injury to soybeans planted in fields previously treated with HM-2010 may occur and the extent of injury will depend on weather and agronomic factors such as the amount of weed vegetation and previous crop residue present that may be in effect between the time of application and the emergence of the soybean plant.</p>
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**RESTRICTIONS AND LIMITATIONS FOR USE IN SOYBEANS (PREPLANT)**

- **Preplant:**
  - **Preplant for Two ( 2 ) applications per crop cycle**
    - Limited to 2 preplant applications per crop cycle.
    - Maximum of 36 ounces per acre per preplant application.
    - Apply not less than 15 days prior to planting soybeans.
  - **Preplant for Single ( 1 ) application per crop cycle**
    - Limited to 1 preplant application per crop cycle.
    - Maximum of 72 ounces per acre per preplant application.
    - Apply not less than 15 days prior to planting soybeans
- Do not apply HM-2010 when weather conditions such as temperature, air inversions, or wind favor drift from treated areas to susceptible plants.
- Do not apply HM-2010 prior to planting soybeans if you are not prepared to accept the results of soybean injury including possible loss of stand and yield.
- Do not replant fields treated with HM-2010 in the same growing season with crops other than those labeled for 2, 4-D pre-plant use.
- Do not mow or cultivate weeds prior to treating with HM-2010 as poor control may result.
- Do not cut for feed treated hay, forage, or fodder or graze treated soybeans to livestock.
- Do not apply HM-2010 pre-plant to soybeans in fields having a coarse-textured soil where the percent organic matter is <1.0%.
- Do not feed treated hay, forage or fodder. Livestock should be restricted from feeding/grazing of treated cover crops.
- Not currently registered for use In California.

**STRAWBERRIES**

CROP STAGE	APPLICATION RATE/ACRE	DIRECTIONS/TIMING
Dormant or after last picking	6-6.75 PINTS	Apply to established plantings when strawberries have gone into dormancy or soon after the last picking.

**RESTRICTIONS AND LIMITATIONS AND FOR USE IN STRAWBERRIES;**

Limited to 1 application per crop cycle  
 Maximum seasonal rate: 110 ounces (1.5 lbs acid equivalent) per acre per application  
 State Restrictions: Not currently registered for use in California

Disclaimer: Always refer to the label on the product before using Helena or any other product.

SPECIMEN LABEL

SUGARCANE

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
Preemergence	½ to 1 gallon	Apply as a preemergent spray before canes appear for control of emerged weeds.
Postemergence	1 to 2.25 gallons	Apply after cane emerges through canopy closure. Consult local Agricultural Experiment or Extension Service Weed Specialists on specific use of this product.

RESTRICTIONS AND LIMITATIONS:

Preemergence:

- Limited to one application per crop cycle.
- Maximum of 2.0 lbs ae/acre per application.

Postemergence:

- Limited to one application per crop cycle.
- Maximum of 2.0 lbs ae/acre per application.
- Do not harvest cane prior to crop maturity.

Maximum per Crop Cycle:

- Do not apply more than 4 lbs ae/acre per crop cycle
- Always use more than 2 gallons of spray solution per acre.

SOD FARMS

**HELENA® 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 **HELENA® 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 **HELENA® 2010**. Seeding a small area and observing response is recommended before a large scale seeding is accomplished.

Application Rates:

**HELENA® 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.

Rate Recommendations For Sod Farms		
	Amount of Product	Spray Volume
Species	Pints/acre	Gallons/Acre
<b>Cool Season Turf</b>		
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

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL**

Creeping Bentgrass	1.5	20 to 100
<b>Warm Season Turf</b>		
Centipede grass	1.5 to 2.5	20 to 100
Common Bermudagrass	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 for SOD FARMS:**

- Limited to two (2) applications per year
- Maximum of 4.5 quarts ( 2 lbs ae) per acre per application
- Do not apply this **HELENA® 2010** to any variety of St Augustine grass. Do not use **HELENA® 2010** on carpet grass, Dichondra or where desirable clovers are present.
- Do not apply this product through any type of irrigation system
- 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.
- Do not apply **HELENA® 2010** immediately before rainfall or irrigation. Do not water the turfgrass for 24 hours after application.
- Application to Bermuda grass can be during dormancy or when actively growing. Do not apply during periods of semi-dormancy or transition.

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

WEEDS IN CROPS	AMOUNT OF HM-2010 PER ACRE	DIRECTIONS FOR USE
Postemergence ( broadcast)	0.6 - 1.15 gallons	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.
Spot Treatment  1.0 - 2.0% vol./vol. solution	Mix 2 - 4 gallons of per 100 gallons of water  or  mix 2.5 - 5 ounces per gallon of water	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.  Apply dilute sprays to the foliage of the broadleaf to be controlled until entire foliage is sufficiently wet.  <b>Note:</b> Do not use spray guns for spot treatment applications around or near the base of stone fruits and nut trees.
For one gallon of water		

**RESTRICTIONS AND LIMITATIONS:**

Postemergence:

- Limited to 2 applications per crop cycle.
- Maximum of 1.15 gallon (2.0 lbs ae/acre) per application.
- Minimum of 30 days between applications.
- The preharvest interval (PHI) is 60 days.
- Do not cut orchard floor forage for harvest within 7 days of application.

Disclaimer: Always refer to the label on the product before using Helena or any other product.

**SPECIMEN LABEL  
TURF ( Ornamental)**

**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 1.25 – 2.75 pints per acre (0.50 - 1.0 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.

<b>Application Rates</b>			
	<b>Amount of Product</b>	<b>Spray Volume</b>	
<b>Species</b>	<b>Oz/1,000 SQ.FT</b>	<b>Pints/acre</b>	<b>Gallons/Acre</b>
<b>Cool Season Turf</b>			
Kentucky Bluegrass	.75 to 1.28 oz.	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 Bentgrass	.56 to 1.0	1.5 to 2.25	20 to 100
<b>Warm Season Turf</b>			
Centipede grass	.75 to 1.28	2 to 3.5	20 to 100
Common Bermudagrass	.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

**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. Maximum of 6.75 pints (1.5 lbs ae) per application
5. Maximum Seasonal rate is 1.72 gallons ( 3.0 lbs) acre excluding spot treatments.
6. Do not apply to newly seeded areas until well established and preferably after the second mowing.
7. Reduced rates of HM-2010 must be used grass is stressed from heat or drought.
8. Do not apply through any type of irrigation system.
9. Avoid drift, spray mist, or excessive overlapping during application as undesirable injury may occur.
10. Use only lawn type sprayers. Use coarse spray droplets as they are less likely to drift.

**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.

**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 2.25 gallons (4.0 lbs acid equivalent) per acre per 12 months.

**Broadcast application:**

Limited to 1 broadcast application per year.

Maximum of 2.25 gallons (4.0 lbs ae/acre) per broadcast application.

**Basal spray, Cut Surface – Stumps, and Frill:**

Limit of one basal spray or cut surface application per year.

Maximum of 4.5 gallons (8.0 lbs ae) per 100 gallons of spray solution.

**Injection:**

Limit to one injection application per year.

Maximum of 2 ml of 4.0 lbs ae formulation per injection site.

*For specific use-site applications and restrictions see the 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 HELENA® 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 HELENA® 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 HELENA® 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 HELENA® 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 ½ feet) for resistant species such as hickory. Injections should overlap. For best results, injections should be made during the growing season (May 15<sup>th</sup> through October 15<sup>th</sup> in many areas). The injection bit must penetrate the bark. Apply 2-4 ml of HELENA® 2010 per injection site.

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**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 should 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.

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**AQUATIC WEED CONTROL**

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**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.

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**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:**

**RESTRICTIONS AND LIMITATIONS: WEED AND BRUSH ON IRRIGATION CANAL DITCHBANKS**

- **Postemergence:**
  - Limited to 2 applications per season.
  - Maximum of 1.15 gallons (2 lb ae) per acre per application.
  - Maximum of 2.25 gallons (4 lb ae) per acre per season
  - Minimum of 30 days between applications.
- **Spot treatment permitted.**
- Do not use on small canals with a flow rate less than 10 cubic feet per second (CFS) where water will be used for drinking purposes. CFS may be estimated by using the formula below. The approximate velocity needed for the calculation can be determined by observing the length of time that it takes a floating object to travel a defined distance. Divide the distance (ft.) by the time (sec.) to estimate velocity (ft. per sec.) Repeat 3 times and use the average to calculate CFS.

Average Width (ft.) x Average Depth (ft.) x Average Velocity (ft. per sec.) = CFS

- **Note:For ditchbank weeds:**
  - Do not allow boom spray to be directed onto water surface.
  - Do not spray across stream to opposite bank.
- When spraying shoreline weeds, allow no more than 2-foot overspray onto water with an average of less than one-foot overspray to prevent introduction of greater than negligible amounts of chemical into the water.

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 HELENA® 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.

- Maximum of 2.25 gallons (4.0 lbs ae)/surface acre per application.
- Limited to 2 applications per season.
- Minimum of 21 days between applications.
- Spot treatments are permitted.

Apply to emergent aquatic weeds in ponds, lakes, reservoirs, marshes, bayous, drainage ditches, non-irrigation canals, rivers, and streams that are quiescent or slow moving. Coordination and approval of local and state authorities may be required, either by letter of agreement or issuance of special permits for aquatic applications.

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**Water Use:**

**1. Water for irrigation or sprays:**

A. If treated water is intended to be used only for crops or non-crop areas that are labeled for direct treatment with 2,4-D such as pastures, turf or cereal grains, the treated water may be used to irrigate and/or mix sprays for these sites at anytime after the 2,4-D aquatic application.

B. Due to potential phytotoxicity considerations, the following restrictions are applicable: If treated water is intended to be used to irrigate or mix sprays for plants grown in commercial nurseries and greenhouses; and other plants or crops that are not labeled for direct treatment with 2,4-D, the water must not be used unless one of the following restrictions has been observed:

- i. A setback distance from functional water intake(s) of  $\geq 600$  ft. was used for the application, or,
- ii. A waiting period of 7 days from the time of application has elapsed, or,
- iii. An approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) or less at the water intake. Wait at least 3 days after application before initial sampling at water intake.

**2. Drinking water (potable water):**

A. Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits. The potable water use restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of 2,4-D in the water is less than the MCL (Maximum Contaminant Level) of 70 ppb. Applicators should consider the unique characteristics of the treated waters to assure that 2,4-D concentrations in potable water do not exceed 70 ppb at the time of consumption.

B. For floating and emergent weed applications, the drinking water setback distance from functioning potable water intakes is  $\geq 600$  ft.

C. If no setback distance of  $\geq 600$  ft. is used for the application, applicators or the authorizing organization must provide a drinking water notification prior to a 2,4-D application to the party responsible for a public water supply or to individual private water users. Notification to the party responsible for a public water supply or to individual private water users must be done in a manner to assure that the party is aware of a water use restrictions when this product is applied to potable water.

The following is an example of an example of notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as a condition of a permit.

**Example:** Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points. Posting must include the day and time of application. Posting may be removed if analysis of a sample collected at the intake 3 or more days following application shows that the concentration in the water is less than 70 ppb (100 ppb for irrigation or sprays), or after 7 days following application, whichever occurs first.

**Text of notification:** Wait 7 days before diverting functioning surface water intakes from the treated aquatic site to use as drinking water, irrigation, or sprays, unless water at functioning drinking water intakes is tested at least 3 days after application and is demonstrated by assay to contain not more than 70 ppb 2,4-D (100 ppb for irrigation or sprays). Application Date: \_\_\_\_\_ Time: \_\_\_\_\_ .

D. Following each application of this product, treated water must not be used for drinking water unless one of the following restrictions has been observed:

- i. A setback distance from functional water intake(s) of  $\geq 600$  ft. was used for the application, or,

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**SPECIMEN LABEL**

- ii. A waiting period of at least 7 days from the time of application has elapsed, or,
- iii. An approved assay indicates that the 2,4-D concentration is 70 ppb (0.07 ppm) or less at the water intake. Sampling for drinking water analysis should occur no sooner than 3 days after 2,4-D application. Analysis of samples must be completed by a laboratory that is certified under the Safe Drinking Water Act to perform drinking water analysis using a currently approved version of analytical Method Number 515, 555, other methods for 2,4-D as may be listed in Title 40CFR, Part 141.24, or Method Number 4015 (immunoassay of 2,4-D) from U.S. EPA Test Methods for Evaluating Solid Waste SW-846.

E. Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to municipal water system or a potable water well, are not considered to be functioning potable water intakes.

F. Drinking water setback distances do not apply to terrestrial applications of 2,4-D adjacent to water bodies with potable water intakes.

**3. Swimming (2,4-D butoxyethanol ester only):**

A. Do not swim in treated water for a minimum of 24 hours after application.

B. Users must provide the following notification prior to performing a 2,4-D BEE application. Notification to the party responsible for the public swimming area or to individual private users must be done in a manner to assure that the party is aware of the swimming restrictions when this product is applied to water. The following is an example of a notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as a condition of a permit.

**Example:**

Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points.

**Text of Notification:** Do not swim in treated water for a minimum of 24 hours after application. Application Date: \_\_\_\_\_ Time: \_\_\_\_\_

4. Except as stated above, there are no restrictions on using water from treated areas for swimming, 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.

Maximum of 10.8 lbs ae/per acre-foot per application.

Limited to 2 applications per season.

Apply to aquatic weeds in ponds, lakes, reservoirs, marshes, bayous, drainage ditches, non-irrigation canals, rivers, and streams that are quiescent or slow moving.

Do not apply within 21 days of previous application.

When treating moving bodies of water, applications must be made while traveling upstream to prevent concentration of 2,4-D downstream from the 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.

Table 1. Amount of 2,4-D to Apply for a Target Subsurface Concentration			
Surface Area	Average Depth	For typical conditions - 2 ppm 2,4-D ae/acre-foot	For difficult conditions* - 4ppm 2,4-D ae/acre

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1 acre	1 ft.	5.4 lbs	10.8 lbs
	2 ft.	10.8 lbs	21.6 lbs
	3 ft.	16.2 lbs	32.4 lbs
	4 ft.	21.6 lbs	43.2 lbs
	5 ft.	27.0 lbs	54.0 lbs

\*Examples include spot treatment of pioneer colonies of Eurasian Water Milfoil and certain difficult to control aquatic species.

**Water Use: 1.**

Water for irrigation or sprays:

A. If treated water is intended to be used only for crops or non-crop areas that are labeled for direct treatment with 2,4-D such as pastures, turf or cereal grains, the treated water may be used to irrigate and/or mix sprays for these sites at anytime after the 2,4-D aquatic application.

B. Due to potential phytotoxicity and/or residue considerations, the following restrictions are applicable:

If treated water is intended to be used to irrigate or mix sprays for unlabeled crops, non-crop areas or other plants not labeled for direct treatment with 2,4-D, the water must not be used unless one of the following restrictions has been observed:

- i. A setback distance described in the Drinking Water Setback Table was used for the application, or,
- ii. A waiting period of 21 days from the time of application has elapsed, or,
- iii. An approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) or less at the water intake. See Table 3 for the waiting period after application but before taking the initial sampling at water intake.

**2. Drinking water (potable water):**

A. Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits.

The potable water use restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of 2,4-D in the water is less than the MCL (Maximum Contaminant Level) of 70 ppb. Applicators should consider the unique characteristics of the treated waters to assure that 2,4-D concentrations in potable water do not exceed 70 ppb at the time of consumption.

B. For submersed weed applications, the drinking water setback distances from functioning potable water intakes are provided in Table 2 Drinking Water Setback Distance (below).

C. If no setback distance from the Drinking Water Setback Table (Table 2) is to be used for the application, applicators or the authorizing organization must provide a drinking water notification and an advisory to shut off all potable water intakes prior to a 2,4-D application. Notification to the party responsible for a public water supply or to individual private water users must be done in a manner to assure that the party is aware of the water use restrictions when this product is applied to potable water. The following is an example of an example of notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as a condition of a permit.

**Example:**

Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points. Posting should include the day and time of application. Posting may be removed if analysis of a sample collected at the intake no sooner than stated in Table 3 (below) shows that the concentration in the water is less than 70 ppb (100 ppb for irrigation or sprays), or after 21 days following application, whichever occurs first.

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**Text of notification:** Wait 21 days before diverting functioning surface water intakes from the treated aquatic site to use as drinking water, irrigation, or sprays, unless water at functioning drinking water intakes is tested no sooner than (insert days from Table 3) and is demonstrated by assay to contain not more than 70 ppb 2,4-D (100 ppb for irrigation or sprays). Application Date: \_\_\_\_\_ Time: \_\_\_\_\_.

**D.** Following each application of this product, treated water must not be used for drinking water unless one of the following restrictions has been observed:

- i. A setback distance described in the Drinking Water Setback Distance Table was used for the application, or,
- ii. A waiting period of at least 21 days from the time of application has elapsed, or,
- iii. An approved assay indicates that the 2,4-D concentration is 70 ppb (0.07 ppm) or less at the water intake. Sampling for drinking water analysis should occur no sooner than stated in Table 3. Analysis of samples must be completed by a laboratory that is certified under The Safe Drinking Water Act to perform drinking water analysis using a currently approved version of analytical Method Number 515, 555, other methods for 2,4-D as may be listed in Title 40CFR, Part 141.24, or Method Number 4015 (immunoassay of 2,4-D) from U.S. EPA Test Methods for Evaluating Solid Waste SW-846.

**E.** Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.

**F.** Drinking water setback distances do not apply to terrestrial applications of 2,4-D adjacent to water bodies with potable water intakes.

**3. Swimming (2,4-D butoxyethanol ester only):**

**A.** Do not swim in treated water for a minimum of 24 hours after application.

**B.** Users must provide the following notification prior to performing a 2,4-D BEE application. Notification to the party responsible for the public swimming area or to individual private users must be done in a manner to assure that the party is aware of the swimming restrictions when this product is applied to water. The following is an example of a notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as a condition of a permit.

**Example:**

Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points.

**Text of Notification:** Do not swim in treated water for a minimum of 24 hours after application. Application Date: \_\_\_\_\_ Time: \_\_\_\_\_.

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

<b>Table 2. Drinking Water Setback Distance for Submersed Weed Applications</b>			
Application Rate and Minimum Setback Distance (feet) from Functioning Potable Water Intake			
1 ppm*	2ppm*	3ppm*	4ppm*
600	1200	1800	2400
*ppm acid equivalent target water concentration			

**Table 3. Sampling for Drinking Water Analysis After 2,4-D Application for Submersed**

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Weed Applications			
Minimum Days After Application Before Initial Water Sampling at the Functioning Potable Water Intake			
1 ppm*	2ppm*	3ppm*	4ppm*
5	10	10	14
*ppm acid equivalent target water concentration			

**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, **HELENA® 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 ½ 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.

***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 **HELENA® 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.

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**CONDITIONS OF SALE - LIMITED WARRANTY**

Disclaimer: Always refer to the label on the product before using Helena or any other product.

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**SPECIMEN LABEL**

**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 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 expense 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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