



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs
Registration Division (7505P)
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

EPA Reg. Number: 5905-529
Date of Issuance: 1 JUL 2008

NOTICE OF PESTICIDE:
Registration
[X] Reregistration
(under FIFRA, as amended)

Term of Issuance:
Name of Pesticide Product:
Barrage HF

Name and Address of Registrant (include ZIP Code):

Helena Chemical Company
225 Schilling Boulevard, Suite 300
Collierville, Tennessee 38017

Note: 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.

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. 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.

This product is reregistered in accordance with FIFRA sec. 4(g)(2)(C) provided that you:

- 1) Submit and/or cite all data required for registration/reregistration review of your product when the Agency requires all registrants of similar products to submit data.
2) To the label add "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. EP, C01-0132C, (W.D. WA)" For further information, please refer to http://www.epa.gov/espp/wtc/.

Signature of Approving Official:
Joanne I. Miller
Product Manager 23
Herbicide Branch
Registration Division (7505P)

Date: 1 JUL 2008

3) Revise the statement "Have person sip a glass of water is able" under the If Swallowed, First Aid statement, to read "Do not give any liquid to the person." In addition, add the statement "Call a poison control center or doctor for treatment advice" to the If In Eyes statement.

4) As specified in the acute toxicity review, a phone number for emergency medical treatment information should be added to the label.

5) Per the acute toxicity review, the Hazards to Humans and Domestic Animals must be revised to include the following: "Harmful if absorbed through skin. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals."

6) The following chemical-resistant glove text must be deleted from the PPE section of the label: "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."

7) Delete the following text from the Environmental Hazards section of the label: "except as noted on appropriate labels".

8) The non-agricultural use requirements text must be revised to read: "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 product agricultural plants on farms, forests, nurseries, or greenhouses. Do not enter or allow people (or pets) to enter the treated area until sprays have dried."

9) Directions for Use

- Under the restrictions and limitations for **Fallowland**, revise the statement "Plant only labeled crops within 29 days after application" to read "Only labeled crops can be planted within 30 days of application." In addition, revise the statement "Maximum of 54 pints per acre per application" to read "Maximum of 54 ounces per acre per application."

- Under the restrictions and limitations for **Pastures and Rangeland**, revise the statement "Maximum of 108 pints per acre per year" to read "Maximum of 108 ounces per acre per year." In addition, delete the statement "Preharvest interval (PHI) is y days (cut forage for hay)."

- Under the restrictions and limitations for **Pastures and Grassland**, revise the statement "Maximum of 45 ounces per acre per application" to read "Maximum of 108 ounces per acre per year."

-Move the Agricultural Use Requirements and Non-Agricultural Use Requirements boxes from the Precautionary Statements section to the Directions for Use section.

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-Immediately after the heading "Directions for Use" add "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."

10) Assure when labels are printed that in the ingredient declaration that the percentage of active ingredient, other ingredients and the total percentage are aligned on the same margin.

11) To the Warranty section add "to the extent consistent with applicable law" in front of "the exclusive remedy".

Submit one copy of the revised final printed label for the record.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

If you have any questions please call Erik Kraft at 703-308-9358 or email at Kraft.Erik@epa.gov.

BARRAGE[®] HF

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LOW VOLATILE HERBICIDE

ACTIVE INGREDIENT:

2-Ethylhexyl Ester of 2,4-Dichlorophenoxyacetic Acid 78.1%

INERT INGREDIENTS: 21.9%

TOTAL 100.0%

Equivalent to 51.8% 2,4-D Acid or 4.7 lb./gal.

Isomer specific by AOAC Method 6.D01-5 (12th Ed.)

Patent No. 6,232,272

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Avoid contact with skin, eyes, or clothing. Harmful if swallowed. Avoid inhaling vapor or spray mist.

This product may cause skin irritation.

FIRST AID

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 if able.
 - Do not induce vomiting unless instructed to do so by poison control center or doctor.
 - Do not give anything by mouth to an unconscious person.

- 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.

- IF INHALED:**
- Call a poison control center or doctor immediately for advice.
 - Move person 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

SEE INSIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS.

SN 1104/0305
EPA REG. NO. 5905-529

NET CONTENTS: 2.5 Gallons (9.46 Liters)
EPA EST. NO: 228-IL-01

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

ACCEPTED
with COMMENTS
In EPA Letter Dated:

1 JUL 2008

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

PERSONAL PROTECTIVE EQUIPMENT (PPE)

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

5905-529

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. 5/21

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.

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.

Engineering Controls:

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.

ENVIRONMENTAL HAZARD

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.

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 nontarget plant areas. Avoid contamination of irrigation or domestic water supplies. Although this product is a low volatile formulation, at high temperatures (about 85 degrees or higher), vapors from this product may injure susceptible plants growing nearby such as cotton, grapes, tobacco, fruit trees, legumes, vegetables, and ornamentals. Avoid applications in the vicinity of susceptible plants or when winds are blowing toward nearby susceptible plants or when temperature inversions are expected. Avoid direct application or spray drift to susceptible plants since very small quantities of this herbicide can cause severe injury in the growing or dormant period. Plants contacted may be killed or suffer significant injury resulting in grade or yield losses. Do not apply in greenhouses.

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

1. keep the spray discharge as near to the target as possible while getting good coverage,
2. increase the volume of spray mixture per acre,
3. use low spraying pressures (as measured at the nozzle tips),
4. use nozzles which produce coarse spray droplets while still providing adequate weed coverage,
5. limit applications when wind is blowing toward nearby susceptible crops or valuable plants,

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

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 3-7 mph usually indicates good conditions, but check wind direction relative to nearby susceptible crops always allowing for wind shift, c) wind velocity 7-10 mph is acceptable if wind direction is favorable and no susceptible crops are in the vicinity always allowing for wind shift, d) wind velocity of 10-15 mph is usually not desirable except in areas of stronger prevailing winds when direction is favorable and no susceptible crops are in the vicinity always allowing for wind shift; an agriculturally accepted drift retardant is suggested, and e) if wind velocity is over 15 mph do not spray,
7. properly maintain and calibrate all spray equipment,
8. for aerial applications, use an effective spray boom length that is no more than 75% of the wingspan or rotor diameter, and
9. use an agriculturally accepted drift retardant designed to increase droplet size.

CHEMIGATION PROHIBITION

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

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 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

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.

DIRECTIONS FOR USE

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 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

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

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

SPRAY DRIFT MANAGEMENT

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

ORIGINAL LABEL

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. 7/21

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.

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.

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

2,4-D esters may volatilize during conditions of low humidity and high temperatures. Do not apply during conditions of low humidity and high temperatures.

STORAGE AND DISPOSAL

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

STORAGE: Do not store below temperature of 0° F. If frozen, warm to 40°F and redissolve 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:

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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 BARRAGE® HF. **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.

WEEDS CONTROLLED

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

Artichoke	Marshelder
Bitter wintercress	Mexican weed
Bittercress, smallflowered	Milk vetch
Blue lettuce	Morningglory (annual, common, ivy, woolly)
Blue Thistle	Mousetail
Blueweed, Texas	Mustards (except blue), prior to bolting
Boxelder	Nutgrass
Broomweed, common	Pennycress (fanweed)
Buckhorn	Pennywort
Bull nettle	Pepperweeds (except perennial)
Bur ragweed	Plantains
Burdock, common	Poison ivy
Burhead	Pokeweed
Buttercup, smallflowered	Poorjoe
Carolina geranium	Proverty weed
Carpetweed	Puncture vine
Catnip	Purslane, common
Chickweed	Quickweed
Chicory	Ragweeds (common, giant)
Cinquefoil, common & rough	Redstem
Cocklebur, common	Rough fleabane
Coffeeweed	Shepherdspurse
Cornflower	Sicklepod
Creeping jenny	Sneezeweed, bitter
Croton (Texas, woolly)	Sowthistle (annual, spiny)
Curly indigo	Spanishneedles
Devil's claw	Speedwell
<i>Proboscidea louisianica</i>	
Dogfennel (mayweed)	Stinkweed
Elderberry	Sumacs
Evening primrose, common	Sunflower
Evening primrose, cutleaf	Sweetclover (annual)
Fanweed	Tumbleweed
Figwort	Velvetleaf
Four o'clock	Vetches, except hairy
Galinsoga (elderberry, hairy)	Virginia copperleaf
Goatsbeard	Virginia creeper
Healall	Wild hemp
Hemp	Wild lettuce
Hoary Cress	Wild mustard
Honeysuckle	Wild parsnip
Indigo	Wild radish
Ironweed	

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Jerusalem artichoke
Jewelweed
Jimsonweed
Klamathweed
Ladysthumb
Lambsquarters, common
Loco, Bigbend
Mallow (Venice, dwarf, little)

Wild rape
Wild sweet potato
Willow
Witchweed
Wormwood
Yellow goatsbeard
Yellow rocket
Yellow starthistle

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

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

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

MIXING INSTRUCTIONS

BARRAGE® HF is an 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 Helena Chemical Company Wipeout.

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 **BARRAGE® HF**. Continue agitation while adding balance of water and during spray operations. NOTE: In water this product forms an 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 **BARRAGE® HF**. Use fertilizer rate recommended locally. Fill clean spray tank about 1/2 to 2/3 full with liquid nitrogen fertilizer (UAN or urea) solution. Add required amount of product with vigorous agitation running. Continue agitation while adding balance of liquid fertilizer and

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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 **BARRAGE® HF**. Fill clean spray tank about 1/2 to 2/3 full with diesel oil, fuel oil, stove oil, or other suitable oil. 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 **BARRAGE® HF**. 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 nonemulsified 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 nonemulsified oil with this product and add this premix to a mostly filled spray tank with agitation on. Follow these procedures carefully to avoid formation of an invert emulsion (mayonnaise consistency).

APPLICATION PROCEDURES

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

Ground Broadcast Spray: Unless otherwise specified in the appropriate crop or noncrop 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 per acre while certain high volume noncrop 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 are generally most suitable for ground broadcast applications.

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

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

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

Aerial Broadcast Spray: Unless otherwise specified in the appropriate crop or noncrop directions, apply in 1 to 10 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 windstream. Mechanical flagging or GPS (Global Positioning Systems) systems are suggested to obtain more uniform application.

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

TANK MIXES

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

COMPATIBILITY

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

PLANTING IN TREATED AREAS

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

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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.

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

APPLICATIONS

Read all preceding general sections of label and Warranty before use.

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

CORN (Field and Pop)

WEEDS IN CROPS	AMOUNT OF BARRAGE® HF PER ACRE	DIRECTIONS FOR USE
Preplant	6 to 19 ounces	To control existing broadleaf weed seedlings or burn down susceptible cover crops prior to planting, apply from 7 to 14 days before planting. To control grasses and certain other problem weeds, it may be desirable to use a tank mixture with other herbicides. Liquid fertilizers and agriculturally approved surfactants may be added. Observe the most restrictive label statements of various tank mix products used.
Preemergence	6 to 16 ounces	To control small broadleaf weeds, apply after planting, but before corn emerges. Liquid fertilizers and agriculturally approved surfactants may be added. Do not apply preemergence if a preplant application of this product was made.
Early Postemergence	3 to 10 ounces	To control small broadleaf weeds, apply broadcast from spike to 4-leaf stage of crop or up to 8 inches tall, whichever comes first. Avoid spraying just after corn leaves unfold. Postemergence application should not follow a preplant or preemergence application by less than 3 weeks.
Late Postemergence	5 - 10 ounces	Typical timing for this application is when most broadleaf weeds are no more than 4 to 6 inches tall and corn is between 8 and 16 inches tall. The timing can extend until corn is 36 inches tall or to tasseling, whichever comes first, but weeds usually become too large and hard to control. Perennial weeds should be in the bud to bloom stage for best results. Apply as a directed spray using drop nozzles to keep spray off crop foliage. Do not apply from tasseling to hard dough stage.
Preharvest	13 to 26 ounces	After the hard dough (or denting) stage when silks have turned brown, apply 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.

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

Postharvest	13 to 26 ounces	Following the harvest of corn, perennial or biennial weeds produce new fall growth. To aid in suppressing these weeds before a hard freeze, product may be applied either alone or in a combination with other registered herbicides such as certain formulations of dicamba and picloram. See "Planting in Treated Areas" section. If products to be tank mixed have more restrictive limitations, these limitations should be followed.
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RESTRICTIONS AND LIMITATIONS FOR USE ON CORN; (Field and Pop):

- Preharvest Interval (PHI) is 7 days.
- Do not use treated crop as fodder for 7 days following application.
- Maximum Use rate per acre per crop cycle is 82 ounces.
 - Preplant or Preemergence:
 - Limited to one preplant or premergent application per crop cycle.
 - Maximum of 27 ounces per acre per application.
 - Postemergence:
 - Limited to one postemergent application per crop cycle.
 - Maximum of 13.6 ounces per acre per application.
 - Due to the lower rate, partial weed control may result on coarse soils.
 - Preharvest:
 - Limited to one Preharvest application per crop cycle.
 - Maximum of 40 ounces per acre per application

CORN (Sweet)

WEEDS IN CROPS	AMOUNT OF BARRAGE® HF PER ACRE	DIRECTIONS FOR USE
Preplant	6 to 19 ounces	To control existing broadleaf weed seedlings or burn down susceptible cover crops prior to planting, apply from 7 to 14 days before planting. To control grasses and certain other problem weeds, it may be desirable to use a tank mixture with other herbicides. Liquid fertilizers and agriculturally approved surfactants may be added. Observe the most restrictive label statements of various tank mix products used.
Preemergence	6 to 16 ounces	To control small broadleaf weeds, apply after planting, but before corn emerges. Liquid fertilizers and agriculturally approved surfactants may be added. Do not apply preemergence if a preplant application of this product was made.
Early Postemergence	3 to 10 ounces	To control small broadleaf weeds, apply broadcast from spike to 4-leaf stage of crop or up to 8 inches tall, whichever comes first. Avoid spraying just after corn leaves unfold. Postemergence application should not follow a preplant or preemergence application by less than 3 weeks.
Late Postemergence	5 - 10 ounces	Typical timing for this application is when most broadleaf weeds are no more than 4 to 6 inches tall and corn is between 8 and 16 inches tall. The timing can extend until corn is 36 inches tall or to tasseling, whichever comes first, but weeds usually become too large and hard to control. Perennial weeds should be in the bud to bloom stage for best results. Apply as a directed spray using drop nozzles to keep spray off crop foliage. Do not apply from tasseling to hard dough stage.

RESTRICTIONS AND LIMITATIONS FOR USE ON 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.

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

- Maximum Use rate per acre per crop cycle is 41 ounces.
 - Preplant or Preemergence:
 - Limited to one preplant or preemergent application per crop cycle.
 - Maximum of 27 ounces per acre per application.
 - Postemergence:
 - Limited to one postemergent application per crop cycle.
 - Maximum of 13.6 ounces per acre per application.
 - Due to the lower rate, partial weed control may result on coarse soils.

SORGHUM (Milo)

WEEDS IN CROPS	AMOUNT OF BARRAGE® HF PER ACRE	DIRECTIONS FOR USE
Postemergence	When crop is 6 to 8 inches tall use as an over-the-top broadcast spray by ground or air at 3 to 10 fluid ounces per acre. When crop reaches 8 to 13.6 inches tall, use as a directed spray using drop nozzles with application by ground only at 5 to 10 fluid ounces per acre.	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

RESTRICTIONS AND LIMITATIONS FOR USE ON SORGHUM (Milo)

- Preharvest Interval (PHI) is 30 days.
- Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.
- Postemergence:
 - Limited to one application per crop cycle.
 - Maximum of 13.6 ounces per acre per application.
- Do not treat during the boot, flowering or early dough stages.

SORGHUM-SUDAN GRASS HYBRIDS (Forage Crop Only)

WEEDS IN CROPS	AMOUNT OF BARRAGE® HF PER ACRE	DIRECTIONS FOR USE
Postemergence	6 to 13 ounces	To control small broadleaf weeds, apply when sorghum-sudan has at least 6 leaves, is well established, and is 5 to 10 inches tall. Do not treat crop over 10 inches tall through maturity Plant Response: Even when sprayed at the proper stage, some crop injury is likely, including reduced seed production. If risk of crop injury is unacceptable, do not use this product. The lower rate may reduce the risk of crop injury, but will result in reduced weed control.

RESTRICTIONS AND LIMITATIONS FOR USE ON SORGHUM-SUDAN GRASS HYBRIDS (Forage Crop Only)

- Preharvest Interval (PHI) is 30 days.
- Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.
- Postemergence:
 - Limited to one application per crop cycle.
 - Maximum of 13.6 ounces per acre per application.
- Do not treat during the boot, flowering or early dough stages.

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

WEEDS IN CROPS	AMOUNT OF BARRAGE® HF PER ACRE	DIRECTIONS FOR USE
Not underseeded with legumes Postemergence Annual and biennial broadleaf weeds	6-10 fl. oz.*	Spring Wheat Onset of Tillering Stage: Apply when grain has 1 or more tillers as well as 3 or more leaves. 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

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Perennial broadleaf weeds	6-13 fl. oz.*	injury is unacceptable. Do not apply from boot to dough stage. Winter Wheat, Barley, Millet, and Rye Full Tillering Stage: Apply when grain has 3 or more tillers and the flag leaf is not visible. Emergency Weed Control: To control difficult weed problems in certain area, such as under dry conditions especially in Western areas, higher rates. 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 nor from boot to dough stage.
	6 fl. oz.	Spring Seeded Oats Full Tillering Stage: Apply when grains have 3 or more tillers and the flag leaf is not visible. Oats are less tolerant to BARRAGE® HF 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. Do not apply before the tiller stage nor from boot to dough stage.
	6-13 fl. oz.	Fall Seeded Oats Grown for Grain Apply after full tillering, but prior to joints forming in the stem. Do not apply until after full tillering nor from jointing to dough stage. Oats are less tolerant to BARRAGE® HF than wheat or barley and present a greater risk of crop injury. The severity of the weed problem should be balanced against the possibility of crop injury, especially at higher rates. Avoid spraying during or immediately following cold weather.

*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 **BARRAGE® HF** to grain in the seedling stage.

RESTRICTIONS AND LIMITATIONS FOR USE ON SMALL GRAINS (Wheat, Oats, Barley, Millet, Rye)

- Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.
- **Postemergence:**
 - Limited to one postemergent application per crop cycle.
 - Maximum of 34 ounces per acre per application.
- **Preharvest:**
 - Limited to one Preharvest application to crop cycle.
 - Maximum of 13.6 ounces per acre per application
- Preharvest interval (PHI) is 14 days.
- Limited to 48 ounces per acre per crop cycle

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

Tank Mixtures: **BARRAGE® HF** 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:
- BARRAGE® HF + Ally®** (Use on Wheat & Barley only)
 - BARRAGE® HF + Amber®** (Use on Wheat & Barley only)
 - BARRAGE® HF + Canvas®** (Use on Wheat & Barley only)
 - BARRAGE® HF + Express®** (Use on Wheat & Barley only)

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

- BARRAGE® HF + Finesse®** (Use on Wheat & Barley only)
- BARRAGE® HF + Glean®** (Use on Wheat, Oats & Barley only)
- BARRAGE® HF + Harmony Extra®** (Use on Wheat, Oats & Barley only)
- BARRAGE® HF + Peak®** (Use on Wheat, Oats, Barley & Rye)
- BARRAGE® HF + Bromoxynil** (Use on Wheat, Oats, Barley & Rye)
- BARRAGE® HF + Dicamba** (Use on Wheat, Oats & Barley only)
- BARRAGE® HF + Diuron** (Use on Wheat, Oats & Barley only)
- BARRAGE® HF + Metribuzin** (Use on Wheat & Barley only)

*Suggested 3-way tank mixes include:

- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Ally**
- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Amber**
- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Canvas**
- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Express**
- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Finesse**
- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Glean**
- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Harmony Extra**
- BARRAGE® HF + Bromoxynil or Dicamba or Diuron or Metribuzin + Peak**
- BARRAGE® HF + Diuron + Metribuzin**
- BARRAGE® HF + Diuron + Dicamba**
- BARRAGE® HF + Diuron + Bromoxynil**
- BARRAGE® HF + Dicamba + Metribuzin**
- BARRAGE® HF + Dicamba + Bromoxynil**
- BARRAGE® HF + 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 which may be treated.

Ally®, Canvas®, Express®, Finesse®, Glean®, and Harmony® are registered trademarks of E. I. DuPont de Nemours & Co., Inc.
 Amber® and Peak® are registered trademarks of Novartis.
 Induce® and Dyne-Amic® are registered trademarks of Helena Chemical Company.

FALLOW LAND

Weeds in Crop	Amount of BARRAGE® HF per acre	Directions for Use
Annual broadleaf weeds	6-13 fl. oz.	Fallowland or land idle between crops may be subject to unwanted weed growth.
Perennial and biennial broadleaf weeds	12 - 20 fl. oz.	To aid in suppressing certain perennial or biennial broadleaf weeds (including cotton regrowth), this product may be applied 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. BARRAGE® HF 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 FOR USE IN FALLOWLAND

- Plant only labeled crops within 29 days after application.
- Limited to 2 applications per year.
- Maximum of 54 pints per acre per application.
- Minimum of 30 days between applications.

SOYBEANS (Preplant Only)

Weeds in Crop	Amount of BARRAGE HF per acre	Directions for Use
Pre-plant burndown (Before 7 days of planting)	1/2 to 2/3 pint	For use in crop residue management systems: For best weed control, apply to postemergent weeds when small, actively growing, and free

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Pre-plant burndown
(Before 15 days of planting)

2/3 to 1-1/3 pints

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of stress caused by extremes in climatic conditions, diseases, or insect damage. The response of individual weed species is variable. Consult your local county agent or state Agricultural Extension Service or crop consultant for advice. Use the higher rate on larger weeds when perennials are present.

Apply in 2 or more gallons of water per acre in aerial equipment and 10 or more gallons of water per acre in ground equipment.

After applying, plant soybean seed as deep as practical or at least 1-1/2 to 2 inches deep. Adjust the planter press wheel, if necessary, to ensure that planted seed is completely covered.

If desired, this product may be applied preplant to soybeans in tank mixtures with other herbicides such as Poast®, Poast® Plus, Roundup®, Roundup® D-Pak, Honcho®, Gramoxone® Extra, Prowl®, Pursuit® Plus, Scepter® 70DG, Squadron®, and others that are registered for preplant soybean use.

Compatible crop oil concentrates, nonionic surfactants, and fluid fertilizers approved for use on growing crops may increase the herbicidal effectiveness of 2,4-D on certain weeds and may be added to the spray tank. Read and follow all directions and precautions on this label and on all labels of adjuvants or fertilizers mixed with this product.

NOTE: Unacceptable injury to soybeans planted in treated fields may occur. Whether or not soybean injury occurs and the extent of the injury will depend on weather (temperature and rainfall) from herbicide application until soybean emergence and agronomic factors such as the amount of weed vegetation and previous crop residue present. Injury is more likely under cool, rainy conditions and where there is less weed vegetation and crop residue present.

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 13.6 ounces per acre per preplant application.
 - Apply not less than 7 days prior to planting soybeans.
 - Preplant for Single (1) application per crop cycle
 - Limited to 1 preplant application per crop cycle.

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

- Maximum of 27 ounces per acre per preplant application.
- Apply not less than 15 days prior to planting soybeans

- Do not apply BARRAGE HF when weather conditions such as temperature, air inversions, or wind favor drift from treated areas to susceptible plants.
- Do not apply BARRAGE HF 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 BARRAGE HF 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 BARRAGE HF as poor control may result.
- Do not cut for feed treated hay, forage, or fodder or graze treated soybeans to livestock.
- Do not apply BARRAGE HF pre-plant to soybeans in fields having a coarse-textured soil where the percent organic matter is <1.0%.
- Only one application of BARRAGE HF may be made prior to planting soybeans per growing season.
- 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.

GRASS PASTURES

Weeds in Crop	Amount of BARRAGE® HF per acre	Directions for Use
Annual broadleaf weeds	6 to 19 ounces	Apply 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 up to 26 fluid ounces per acre. Several seasons of spring plus fall treatments may be necessary to control certain perennials. Addition of a nonionic surfactant, such as Induce® or Dyne-Amic®, usually improves weed control.
Biennial and perennial broadleaf weeds	26 ounces	

RESTRICTIONS AND LIMITATIONS FOR USE IN PASTURES AND RANGELANDS

- Do not graze (dairy) cattle in treated areas for 7 days after application.
- Do not cut forage for hay within 30 days of application.
- Do not permit dairy animals or meat animals being finished for slaughter to forage treated fields within 3 days of slaughter.
- Postemergence:
 - Limited to 2 applications per year.
 - Preharvest interval (PHI) is 7 days (cut forage for hay).
 - Maximum of 108 pints per acre per year
 - Minimum of 30 days between applications.
 - If grass is to be cut for hay, agricultural use requirements for the worker protection standards are applicable.
 - For program lands, such as the Conservation Reserve Program, consult the 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 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.

GRASS SEED CROPS

Weeds in Crop	Amount of BARRAGE® HF per acre	Directions for Use
Cool season grass seed crops, such as bentgrass, bluegrass, fine fescue, tall fescues, orchard grass, annual ryegrass, and perennial ryegrass	6-19 fl. oz.	Apply to established stands in spring from tiller to early boot stage. Do not spray in boot stage. New spring seedings may be treated with the lower rate after grass seedlings have at least 5 leaves. Perennial weed regrowth may be treated in the fall. Make applications in the spring from the tiller to early boot stage. Do not spray in boot stage. New spring seedings 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 26 fluid ounces per acre.

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

RESTRICTIONS AND LIMITATIONS FOR USE ON GRASS SEED CROPS

- Do not graze dairy animals on treated areas for 7 days after application.
- Do not cut forage for hay within 30 days of application.
- Do not graze meat animals on treated fields within 3 days of slaughter.
- Limited to 2 applications per year.
- Maximum of 54 ounces per acre per application.
- Minimum of 21 days between applications.

SOD FARMS

For best results, do not mow turf 1 to 2 days before or after application. Turf watering should be delayed until the day after application. 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. Seeding a small area and observing response is recommended before large scale seeding.

RESTRICTIONS AND LIMITATIONS FOR USE ON SOD FARMS

- Limited to 2 applications per year.
- Maximum of 54 ounces per acre per application.
- Minimum of 21 days between applications.

Cool Season Grasses: To control many emerged broadleaf weeds in cool season turfgrasses such as tall fescue, bluegrass, or perennial ryegrass, apply 6 to 19 fluid ounces per acre. Apply when weeds are small and actively growing under good moisture conditions. Do not use on centipede, carpetgrass, St. Augustine, bentgrass, or Dichondra turf, or where desirable clovers are present.

RANGELAND PASTURES AND PERENNIAL GRASSLANDS NOT IN AGRICULTURAL PRODUCTION

Turf maturity	Amount of BARRAGE® HF per acre	Directions for Use
Newly seeded pastures	6 to 13 ounces	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. Injury to legumes, bentgrass, 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. Addition of a surfactant may increase the risk of injury at this stage of growth.
Established stands	13 to 19 ounces per acre and up to 26 ounces per acre for biennial or perennial weeds	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. 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. Treat biennial when they are in the seedling to rosette stage and before flower stalks become apparent. Treat perennial weeds in the bud to bloom stage. Repeat applications in the same or subsequent year may be needed to control brush species.

RESTRICTIONS AND LIMITATIONS FOR USE IN PASTURES AND GRASSLANDS NOT IN AGRICULTURAL PRODUCTION

- Do not graze (dairy) cattle in treated areas for 7 days after application.
- Do not cut forage for hay within 30 days of application.
- Do not permit dairy animals or meat animals being finished for slaughter to forage treated fields within 3 days of slaughter.
- Treated grass cut for hay should not be cut within 30 days of application.
- Postemergence:
 - Limited to 2 applications per year.
 - Maximum of 45 ounces per acre per application.
 - Minimum of 30 days between applications.
 - If grass is to be cut for hay, agricultural use requirements for the worker protection standards are applicable.
 - For program lands, such as the Conservation Reserve Program, consult the 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.

FOREST MANAGEMENT

Forest Site Preparation

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

Weeds in Crop	Amount of Barrage®HF	Directions for Use
Alder, Susceptible broadleaf weeds and Susceptible Woody plants	Up to 96 fl. oz per acre in a minimum of 10 gallons spray mixture per acre Up to 51 fl. oz per acre in a minimum of 10 gallons spray mixture per acre	Budbreak Spray: 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. Foliage Spray: To control alder and susceptible woody plants before planting forest seedlings, apply up to 96 fluid ounces 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. Conifer Release: 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.
Tanoak, madrone, ceanothus, canyon live oak, and manzanita, and to release Douglas fir, hemlock, Sitka spruce and grand fir	Up to 77 fluid ounces 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
Susceptible woody species such as alder, willow, poplars, cherry, vine maple, ceanothus, tanoak, madrone, and manzanita	Up to 77 fluid ounces per acre in a minimum of 10 gallons spray mixture per acre	This dormant treatment should be applied in late winter or early spring 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.
Hazel brush in the Lake states	Up to 51 fluid ounces 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).
Conifer species such as white pine, ponderosa pine, jack pine, red pine, black spruce, white spruce, red spruce, and balsam fir Competing hardwoods such as alder, aspen, birch, hazel and willow	Up to 74 fluid ounces per acre in a minimum of 10 gallons spray mixture per acre.	Apply after growth has ceased and hardened off and brush is still actively growing in late summer. If possible injury cannot be tolerated, do not use, since this treatment may cause conifer injury.
Susceptible broadleaf weeds and woody plants on forest roadsides	26 to 77 fluid ounces per acre in a minimum of 10 gallons spray mixture per acre	Forest Roadsides 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)
Susceptible broadleaf weeds	up to 51 fluid ounces per 100 gallons of water 96 fluid ounces per 100 gallons of water	Directed Spray or Spot Spray Apply to emerged weeds in the spring with ground equipment. Avoid contacting conifer foliage with spray or drift as injury may result. For brush Thoroughly spray brush in full foliage, but avoid contacting conifer foliage with spray or drift. Do not apply more than the equivalent of 96 fluid ounces per acre.
Susceptible broadleaf weeds	26 fluid ounces per acre in a minimum of 10 gallons spray mixture	Over-the-Top Broadcast Application To decrease the potential for injury to firs, apply only before budbreak in the spring and/or

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per acre

after complete bur and hardening in the late summer or fall.
Avoid treatment during the year of intended harvest.

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RESTRICTIONS AND LIMITATIONS FOR USE IN FOREST MANAGEMENT

- Limit 1 broadcast application per year.
- Maximum of 109 ounces per acre per broadcast application.

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

Weeds in Crop	Amount of BARRAGE® HF per acre	Directions for Use
Annual broadleaf weeds	13 to 51 ounces	Apply 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. Use the high rate for woody plants. Applications may be as broadcast sprays, small area sprays or spot treatments. For small areas or spot spraying, use 3 fluid ounces per gallon of water and spray weeds to runoff. Regardless of the method of application, use adequate spray volume for full coverage of weeds. Several seasons of spring plus fall treatments may be necessary to control certain perennials. Use of oil sprays or the addition of spray adjuvants improves weed control, but also increases the risk of damage to desirable ground covers.
Biennial and perennial broadleaf weeds	26 ounces	

RESTRICTIONS AND LIMITATIONS FOR USE ON 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

- Postemergence (annual and perennial weeds):
 - Limited to 2 applications per year
 - Maximum of 54 ounces per acre per application
 - Minimum of 30 days between applications.
- Postemergence (woody plants):
 - Limited to 1 application per year
 - Maximum of 108 ounces per acre per year
- Do not graze dairy animals for 7 days following application.
- Use sufficient spray volume for thorough and uniform coverage.
- 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.

SPOT TREATMENT IN NON-CROP AREAS

Mix 2 to 3 fluid ounces of BARRAGE® HF in 3 gallons of water. Wet all weeds and stems thoroughly. For best results, treat when weeds are actively growing.

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.

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

Weeds in Crop	Amount of BARRAGE® HF per acre	Directions for Use
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Disclaimer: Always refer to the label on the product before using Helena or any other product.

Annual Broadleaf weeds Biennial and perennial broadleaf weeds	13 to 19 ounces	<p>Use sufficient spray volume for thorough and uniform coverage. 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, flower 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.</p> <p>For cool season grasses: 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 factor 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.</p>
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RESTRICTIONS AND LIMITATIONS ON ORNAMENTAL AND RECREATIONAL TURFGRASSES, LAWNS, GOLF COURSES (Fairways, Aprons, Tees, and Roughs), PARKS AND CEMETERIES

- Postemergence (annual and perennial weeds):
 - Limited to 2 applications per year
 - Maximum of 41 ounces per acre per application
 - The maximum seasonal rate is 82 ounces per acre
- Do not allow people (other than the applicator) or pets on treatment area during application.
- Do not enter treatment areas until sprays have dried.

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

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

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