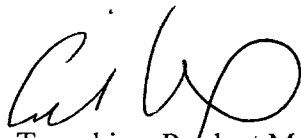
 <p>U.S. ENVIRONMENTAL PROTECTION AGENCY Office of Pesticide Programs Registration Division (7505P) 1200 Pennsylvania Ave., N.W. Washington, D.C. 20460</p>	EPA Reg. Number: 5905-580	Date of Issuance: 4-21-09
	Term of Issuance: Conditional	
Name of Pesticide Product: HM-0413A Specialty Herbicide		
<p>NOTICE OF PESTICIDE:</p> <p><input checked="" type="checkbox"/> Registration <input type="checkbox"/> Reregistration</p> <p>(under FIFRA, as amended)</p>		
Name and Address of Registrant (include ZIP Code):  Helena Chemical Company 225 Schilling Boulevard, Suite 300 Collierville, Tennessee 38017		
<p>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.</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>This product is conditionally registered in accordance with FIFRA provided you agree in writing to:</p> <ol style="list-style-type: none"> <li>1. Submit the results of the one year storage stability study and corrosion characteristics studies within 18 months from the date of this registration.</li> </ol>		
Signature of Approving Official:   James Tompkins, Product Manager (25) Herbicide Branch, Registration Division (7505P)	Date:  4-21-09	

2. On page 1, change "such as ponds" to "including ponds".
3. To the Agricultural Use Requirements box change "IREI" to "REI".
4. To page 4, under General Info. Change "may include" to "include" and "such as marshes" to "include marshes".
5. Page 6, change "applicator should be familiar" to "applicator must be familiar". Application height, change "applications should not be made" to "applications must not be made". Wind section, change "Applications should be avoided" to "Applications must be avoided". Temperature Inversions section, change "Applications should not occur" to "Applications must not occur".
6. Page 7, Sensitive Areas, change "The pesticide should only be" to "The pesticide must only be".
7. To the Warranty section add "to the extent consistent with applicable law" in front of "Helena Chemical Company makes no other" and "the company makes no other warranties".
8. To page 7, add "Maximum of 9 lb. ae of triclopyr per acre per year." to the purple loosestrife section.
9. To all uses where grazing may occur add "specify a maximum single application rate of 1 lb. ae/A and only one application per growing season" (such as page 22). To all forestry applications you must specify a maximum of 6 lbs/ae/A/year for that site. For all other uses you must specify a maximum of 9 lbs/ae/A/year.
10. To page 9 and 23, low volume foliage treatment, reduce 15 lb ae to 9 lb ae/acre. To page 10, mesquite and prickly pear, change "treatment recommendations" to "treatment directions".
11. Change the Hazards to Humans and Domestic Animals statements to "Corrosive. Causes irreversible eye damage. Harmful if absorbed through skin. Harmful if inhaled. Harmful if swallowed. Do not get in eyes or on clothing. Avoid breathing spray mist."

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 labeling is enclosed for your records. If you have any questions please contact Erik Kraft at 703-308-9358 or kraft.erik@epa.gov.

3/27

# HM-0413A

Specialty Herbicide

For the control of woody plants, broadleaf weeds in forests and industrial non-crop areas, including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings; including application to grazed areas, and establishment and maintenance of wildlife openings on these sites, and in Christmas tree plantations. Use within production forests and industrial non-crop sites (including those listed above) may include applications to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes. Aquatic Sites: For control of immersed, submersed and floating aquatic plants in aquatic sites such as ponds, lakes, reservoirs, non-irrigation canals, seasonal irrigation waters and ditches which have little or no continuous outflow, marshes and wetlands, including broadleaf and woody vegetation on banks and shores within or adjacent to these and other aquatic sites.

**Active Ingredient:**

triclopyr: 3,5,6-trichloro-2-pyridinyloxyacetic acid.....	29.4%
Inert Ingredients.....	70.6%
Total.....	100.0%

Acid equivalent: 2.87 lb/gal

Keep Out of Reach of Children

## DANGER PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)

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 for treatment advice.
If on skin or clothing:	Take off contaminated clothing. Rinse skin 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 treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-824-9300 for emergency medical treatment information.	
<b>Note to Applicator:</b> Allergic skin reaction is not expected from exposure to spray mixtures of HM-0413A herbicide when used as directed.	
<b>Note to Physician:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	

SN \_\_\_\_\_ LIN  
EPA Reg. No. 5905-XXXX

Net Contents: \_\_\_\_\_  
EPA Est. No. \_\_\_\_\_

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

**ACCEPTED**  
**with COMMENTS**  
**In EPA Letter Dated:**  
4-27-09  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
5905-580

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## Precautionary Statements

### Hazards to Humans and Domestic Animals

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

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Protective eyewear
- Chemical resistant gloves (14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may contribute to fish suffocation. This loss can cause fish suffocation. Therefore, to minimize this hazard, do not treat more than one-third to one-half of the water area in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State agency for fish and game before applying to public water to determine if a permit is needed.

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.

### Physical or Chemical Hazards

Combustible. Do not use or store the product near heat or open flame.

### Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

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

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label

**Agricultural Use Requirements (cont)**

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 (IREI) 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
- Shoes plus socks
- Protective eyewear
- Chemical-resistant gloves (14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

Refer to label booklet for Directions for Use including Storage and Disposal.

Notice: Read the entire label. Use only according to label directions. Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.

In case of emergency endangering health or the environment involving this product, call 1-800-824-9300. If you wish to obtain additional product information, visit our web site at [www.helenachemical.com](http://www.helenachemical.com).

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

**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.

Entry Restrictions for Non-WPS Uses: For applications to non-cropland areas, do not allow entry into areas until sprays have dried, unless applicator and other handler PPE is worn.

**General Information for Production Forests and Industrial Non-Crop Areas**

Use HM-0413A specialty herbicide for the control of woody plants and broadleaf weeds in forests and industrial non-crop areas including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings, including application to grazed areas, and establishment and maintenance of wildlife openings on these sites, and in Christmas tree plantations. Use within production forests and industrial non-crop sites (including those listed above) may include applications to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes.

**Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

**General Use Precautions and Restrictions**

In Arizona: The state of Arizona has not approved HM-0413A for use on plants grown for commercial production, specifically forests grown for commercial timber production, or on designated grazing areas.

When applying this product in tank mix combination, follow all applicable use directions, precautions and limitations on each manufacturer's label.

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

Do not apply HM-0413A directly to, or otherwise permit it to come into direct contact with, grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants. Do not permit spray mists containing HM-0413A to drift onto such plants.

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs) and transitional areas between upland and lowland sites.

Water treated with HM-0413A may not be used for irrigation purposes for 120 days after application or until residue levels of HM-0413A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Seasonal Irrigation Waters:** HM-0413A may be applied during the off-season to surface waters that are used for irrigation on a seasonable basis provided that there is a *minimum* of 120 days between applying HM-0413A and the first use of treated water for irrigation purposes, or until residue levels of HM-0413A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Grazing and Haying Restrictions**

Except for lactating dairy animals, there are no grazing restrictions following application of this product.

- Grazing Lactating Dairy Animals: Do not allow lactating dairy animals to graze treated areas until the next growing season following application of this product.
- Do not harvest hay for 14 days after application.
- Grazed areas of non-cropland and forestry sites may be spot treated if they comprise no more than 10% of the total grazable area.

**Slaughter Restrictions:** During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

**Avoiding Injurious Spray Drift**

Make applications only when there is little or no hazard from spray drift. Small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants that are near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

**Aerial Application Instructions**

For aerial application on rights-of-way or other areas near susceptible crops, apply through a Microfoil or Thru-Valve boom<sup>+</sup>, or use an agriculturally labeled drift control additive. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing agriculturally labeled thickening agents or applications made with the Microfoil or Thru-Valve boom. Keep spray pressures low enough to provide coarse spray droplets. Spray boom should be no longer than 3/4 of the rotor length. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid application during air inversions. If a spray thickening agent is used, follow all use recommendations and precautions on the product label.

\*Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Helena Chemical Company is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Helena Chemical Company, in selecting and determining how to use its equipment.

**Spray Drift Management**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

**Aerial Drift Reduction Advisory**

Information on Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

**Controlling Droplet Size:**

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.



**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non- target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Ground Equipment:** To aid in reducing spray drift, HM-0413A should be used in thickened (high viscosity) spray mixtures using an agriculturally labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low (follow state regulations). In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine-droplet spray.

**High Volume Leaf-Stem Treatment:** To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle and keep sprays no higher than brush tops. An agriculturally labeled thickening agent may be used to reduce drift.

WEEDS / PLANTS CONTROLLED		
alder	Douglas fir	salt-brush ( <i>Baccharis</i> spp.)
arrowwood	dogwood	salt cedar
ash	elderberry	salmonberry
aspen	elm	sassafras
Australian pine	gallberry	scotch broom
bear clover (bearmat)	hazel	sumac
beech	hornbeam	sweetbay magnolia
birch	kudzu	sweetgum
blackberry	locust	sycamore
blackgum	madrone	tanoak
Brazilian pepper	Maleleuca (seedlings)	thimbleberry
cascara	maples	tulip poplar
ceanothus	mulberry	waxmyrtle
cherry	oaks	western hemlock
Chinese tallow	persimmon	white titi
chinquapin	pine	wild rose
choke cherry	poison ivy	willow
cottonwood	poison oak	winged elm
crataegus (hawthorn)	poplar	

ANNUAL AND PERENNIAL BROADLEAF WEEDS		
bindweed	field bindweed	spanishneedles/common beggarticks
burdock	lambsquarters	tansy ragwort
Canada thistle	Mexican petunia	tropical soda apple
chicory	plantain	vetch
curly dock	purple loosestrife*	wedelia
dandelion	ragweed	wild lettuce
elephant ear	smartweed	

\*For complete control, re-treatment may be necessary.  
 \*\*Use cut surface treatments for best results.

**Purple Loosestrife (*Lythrum salicaria*)**  
 Purple loosestrife can be controlled with foliar applications of HM-0413A. For broadcast applications, use a minimum of 4 1/2 to 6 lb ae of triclopyr (6 to 8 quarts of HM-0413A) per acre. Apply HM-0413A when purple loosestrife is at the bud to mid-flowering stage of growth. Follow-up applications for control of re-growth should be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant should be added to the

spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is recommended for ground broadcast applications.

If using a backpack sprayer, a spray mixture containing 1% to 1.5% HM-0413A or 5 to 7.6 fl oz of HM-0413A per 4 gallons of water should be used. All purple loosestrife plants should be thoroughly wetted.

**Application Methods**

Use HM-0413A specialty herbicide at rates of 3/4 to 9 lb ae of triclopyr (1/4 to 3 gallons of HM-0413A) per acre to control broadleaf weeds and woody plants. In all cases, use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. Use only water suitable for spraying. Use an agriculturally labeled non-ionic surfactant for all foliar applications. When using surfactants, follow the use directions and precautions listed on the surfactant manufacturer's label. Use the higher concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. The order of addition to the spray tank is water, spray thickening agent (if used), additional herbicide (if used), and HM-0413A. Surfactant should be added to the spray tank last or as recommended on the product label. It combined with emulsifiable concentrate herbicides, moderate continuous adequate agitation is required.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels.

For best results, apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, elm, maples, oaks, pines, or winged elm are prevalent and during applications made in late summer when the plants are mature and during drought conditions, use the higher rates of HM-0413A alone or in combination with Tordon® 101 Mixture specialty herbicide. (Tordon 101 Mixture is a restricted use pesticide. See product label.) Tordon 101 Mixture is not registered for use in the states of California and Florida.

When using HM-0413A in combination with 2,4-D 3.8 lb amine, such as Opti-Amine, or low volatile ester herbicides such as Barrage HF, generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, re-sprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those listed may be effective. Consult State or Local Extension personnel for such information.

**Foliage Treatment With Ground Equipment**

**High Volume Foliage Treatment**

For control of woody plants, use HM-0413A at the rate of 3 to 9 lb ae of triclopyr (1 to 4 gallons of HM-0413A) per 100 gallons of spray solution, or HM-0413A at 3/4 to 3 lb ae of triclopyr (1 to 6 quarts of HM-0413A) may be tank mixed with 1/4 to 1/2 gallons of 2,4-D 3.8 lb amine such as Opti-Amine®, or low volatile ester such as Barrage HF or Tordon 101 Mixture and diluted to make 100 gallons of spray solution. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars. (See General Use Precautions and Restrictions) Do not exceed maximum allowable use rates per acre (see table below). Tordon 101 Mixture is not registered for use in the states of California and Florida.

Maximum Labeled Rate versus Spray Volume per Acre

Total Spray Volume (gal/acre)	Maximum Rate of HM-0413A		
	Rangeland and Pasture Sites* (gal/100 gal of spray)	Forestry Sites** (gal/100 gal of spray)	Other Non-Cropland Sites*** (gal/100 gal of spray)
400	Do not use	0.5	0.75
300	Do not use	0.67	1
200	Do not use	1	1.5
100	0.67	2	3
50	1.33	4	6
40	1.67	5	7.5

30	2.33	6.65	10
20	3.33	10	15
10	6.67	20	30

\*Do not exceed the maximum use rate of 2 lb ae of triclopyr (2/3 gal of HM-0413A)/acre/year.

\*\*Do not exceed the maximum use rate of 6 lb ae of triclopyr (2 gal of HM-0413A)/acre/year.

\*\*\*Do not exceed the maximum use rate of 9 lb ae of triclopyr (3 gal of HM-0413A)/acre/year on non-crop Land use sites other than rangeland, pasture, forestry, and grazed areas.

**Low Volume Foliage Treatment**

To control susceptible woody plants, up to 15 lb ae of triclopyr (5.25 gallons of HM-0413A) in 10 to 100 gallons of finished spray. The spray concentration of HM-0413A and total spray volume per acre should be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see General Use Precautions and Restrictions). For best results, a surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

**Tank Mixing:** As a low volume foliar spray, up to 9 lb ae of triclopyr (3 gallons of HM-0413A) may be applied in tank mix combination with 1/2 to 1 gallon of Tordon K or 2 gallons of Tordon 101 Mixture in 10 to 100 gallons of finished spray. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

**Broadcast Applications With Ground Equipment**

Apply using equipment that will assure uniform coverage of the spray volumes applied. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described later under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

**Woody Plant Control**

**Foliage Treatment:** Use 6 to 9 lb ae of triclopyr (2 to 3 gallons of HM-0413A) in enough water to make 20 to 100 gallons of total spray per acre or 1 1/2 to 3 lb ae of triclopyr (1/2 to 1 gallon of HM-0413A) may be combined with 1 to 2 gallons of 2,4-D 3.8 lb amine like Opti-Amine®, or low volatile esters or Tordon 101 Mixture in sufficient water to make 20 to 100 gallons of total spray per acre. Tordon 101 Mixture is not registered for use in the states of California and Florida.

**Broadleaf Weed Control**

Use HM-0413A at rates of 1 to 4 1/2 lb ae of triclopyr (1/3 to 1 1/2 gallons of HM-0413A) in a total volume of 20 to 100 gallons of water per acre. Apply any time during the growing season. HM-0413A at 1 to 3 lb ae of triclopyr (1/3 to 1 gallon of HM-0413A) may be tank mixed with 1/2 to 1 gallon of Tordon K, Tordon 101 Mixture or 2,4-D 3.8 lb amine, such as Opti-Amine® or low volatile herbicides to improve the spectrum of activity. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

**Aerial Application (Helicopter Only)**

Aerial sprays should be applied using suitable drift control. (See General Use Precautions and Restrictions.) Add an agriculturally labeled non-ionic surfactant as described under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

**Foliage Treatment (Non-Grazed Rights-of-Way)**

**Non-grazed areas:** Use 6 to 9 lb ae of triclopyr (2 to 3 gallons HM-0413A) or 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of HM-0413A) in a tank mix combination with 2 gallons of 2,4-D 3.8 lb amine such as Opti-Amine®, or low volatile esters such as Barrage HF or Tordon 101 Mixture, and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions. Barrage HF or Tordon 101 Mixture

is not registered for use in the states of California and Florida.

Interspersed areas in non-grazed rights-of-ways that may be subject to grazing may be spot treated if the treated area comprises no more than 10% of the total grazable area.

**Mesquite Control Using High Volume Foliage Treatment:** For control of mesquite infestations of low to moderate density, apply HM-0413A specialty herbicide and Reclaim in a tank mixture to individual plants with backpack or hand-held sprayers or a vehicle-mounted sprayer with hand-held spray wand or spray gun. For individual plant treatment, use 2.5 quarts of HM-0413A in combination with 2 quarts of Reclaim per 100 gallons of total spray solution (1/2% v/v of each product). Apply in water or as an oil-water emulsion as described in Mixing Directions. If using an oil-water emulsion, add the oil at a rate of 5% of the total spray volume. Apply as a complete-spray-to-wet foliar application, including all leaves. Thorough coverage is necessary for good results, but do not spray to the point of runoff. Do not apply when mesquite foliage is wet. The total amount of Reclaim applied should not exceed 1 1/3 pints per acre. For best results, follow information given elsewhere in this label concerning effect of environmental conditions and application timing on control. This application method works best for brush less than 8 feet tall since efficient treatment and thorough coverage of taller brush is difficult to achieve with this method. To minimize drift, select a spray nozzle and pressure that provides good coverage while forming a coarse spray. Additionally, drift may be reduced by using the minimum pressure necessary to obtain plant coverage without forming a mist and by directing sprays no higher than the top of target plants. If desired, a spray dye may be added to the spray mixture to mark the treated plants.

#### **Broadcast Application With Aerial or Ground Equipment**

Environmental conditions and application timing influence brush and weed control results. For best results, apply when woody plants and weeds are actively growing: For woody species, apply after the rapid growth period of early spring when leaf tissue is fully expanded and terminal growth has slowed.

Brush re-growth should be at least 4 ft high prior to treatment to insure adequate foliage for herbicide absorption.

Adequate soil moisture before and after treatment, as well as, the presence of healthy foliage at the time of application are important factors contributing to optimal herbicidal activity.

Use sufficient spray volume to completely and uniformly cover foliage. For ground application, apply 10 gallons or more of total spray volume per acre. For aerial application, apply at least 2 gallons of total spray volume per acre. Use higher spray volumes for ground or aerial applications to ensure adequate coverage with increased depth and density of foliage, particularly for treatment of woody plants.

**Mesquite:** The herbicidal response of mesquite is strongly influenced by foliage condition, growth stage and environmental conditions. For best results, apply when new growth foliage has turned from light to dark green, when the soil temperature is above 75°F at a depth of 12 to 18 inches, and soil moisture is adequate for plant growth. Apply within 60 days after the 75°F minimum soil temperature at the 12- to 18- inch depth has been reached. Product performance may be adversely affected if application is made before mesquite foliage has turned from light to dark green or if foliage has been injured or removed by late frost, insects, hail or plant diseases. Do not treat if mesquite exhibits new (light green) terminal growth in response to recent heavy rainfall during the growing season. Rate of soil warm-up at the 12- to 18-inch depth may vary with soil texture and drainage. Coarse-textured (sandy) soils warm up sooner than fine-textured (clay) soils and dry soils warm up more quickly than wet soils. Mesquite re-growth should be at least 4 ft high prior to treatment to insure adequate foliage for herbicide absorption.

#### **Mesquite Only**

Apply 12 to 24 ounces of HM-0413A per acre in combination with 2/3 to 1 1/3 pint per acre of Reclaim. See label for Reclaim for additional treatment recommendations and information on mesquite control. Apply aerially as an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 10 gallons or more total volume per acre. Use a maximum of 1 gallon of oil per acre for aerial or ground application.

#### **Mesquite and Pricklypear Cactus**

If prickly pear cactus is a target species in association with mesquite, apply a tank mix of 12 to 24 ounces of HM-0413A with 1 to 2 pints of Tordon 22K per acre. (The 2 pint per acre rate of Tordon 22K provides a higher and more uniform plant kill of pricklypear.) Tordon 22K may also be applied in combination with Reclaim to control prickly pear while providing improved control of mesquite. See labels for Tordon 22K and Reclaim for additional information and treatment recommendations. Apply aerially as an oil:water emulsion in 4 gallons or more total volume per acre or with ground

equipment in 10 gallons or more total volume per acre. If mesquite canopy is dense, use higher spray volumes. Use a maximum of 1 gallon of oil per acre for aerial or ground application.

**South Texas Mixed Brush (Mesquite, Pricklypear Cactus, Blackbrush, Twisted Acacia and Granjeno)**

Use 12 to 24 ounces of HM-0413A in a tank mix with 2 pints of Tordon 22K per acre if pricklypear is a problem or with 2/3 to 1 1/3 pints of Reclaim per acre if mesquite is the prevalent species. HM-0413A contributes to the control of non-legume species such as granjeno and oaks. However, if woody legume species are predominate, apply 2 pints of Tordon 22K per acre in combination with 2/3 to 1 1/3 pints of Reclaim per acre for improved control. See labels for Tordon 22K and Reclaim for additional information 2nd treatment recommendations. Apply aeriaily in an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 15 gallons or more total volume per acre. Use a maximum of 1 gallon of oil per acre for aerial or ground application. The use of an oil:water emulsion is critical and good spray coverage is essential for acceptable brush control.

**Sand Shinnery Oak Suppression**

In Texas, New Mexico and Oklahoma, apply HM-0413A alone at a rate of 12 to 24 ounces per acre for suppression of shinnery oak growing on sandy soils. Grass response following suppression may be impressive where rainfall is adequate. Grazing deferment following application together with proper grazing management is recommended to allow for the reestablishment of grass stands.

**Post Oak and Blackjack Oak – Re-growth Stands**

Apply in the late spring (May) to early summer (June-July) when oak leaves are fully developed (expanded). Use 2.5 quarts of HM-0413A alone or in tank mix combination with 0.5 to 1 pints of 2,4-D low-volatile ester herbicide such as Barrage HF per acre. Apply in an oil:water emulsion or water surfactant dilution in sufficient total volume per acre to assure thorough coverage, usually 5 gallons or more per acre by fixed-wing aircraft or helicopter or 15 to 25 gallons per acre by ground equipment. Use a maximum of 1 gallon of oil per acre for aerial or ground application. Lower rates may be used for suppression only. Control will require at least 3 consecutive treatments. **Note:** Re-growth plants have a large root mass relative to top growth when compared to undisturbed plants. In order for top growth to intercept and translocate enough herbicide to control the roots, delay broadcast treatment until top growth is at least 4 ft tall.

**High Volume Foliage Treatment:** For re-growth less than 4 ft tall, apply 2.5 quarts of HM-0413A per 100 gallons of water and 2 quarts of surfactant alone or in tank mix combination with 1 gallon of Grazon P+D or 1 quart of Tordon 22K. Apply as a high volume leaf-stem treatment to individual plants using ground equipment.

**Post Oak and Blackjack Oak - Mature Stands**

For control of mature stands (greater than 5 ft tall), apply 2.5 quarts of per acre in late spring (May) to early summer (June-July) when oak leaves are fully developed (expanded). Understory species such as winged elm, buckbrush, tree huckleberry and ash occurring in some areas will not be controlled (only suppressed or defoliated) by using Remedy Ultra alone. Where these understory species occur, control may be improved by tank mixing 2.5 quarts of HM with 1 quart of Tordon 22K or 4 quarts of Grazon P+D per acre. For best results, apply as an oil:water emulsion in a total volume of 5 gallons per acre or more by fixed-wing aircraft or helicopter.

**Other Susceptible Woody Plants**

Apply 2.5 to 5.25 pints of HM-0413A alone or in combination with 2 to 3 quarts of 3.8 lb/gal 2,4-D low volatile ester or amine such as Opti-Amine® formulation per acre. If difficult to control species such as ash, choke cherry, elm, maple or oaks are prevalent, and during applications made when plants are mature late in the summer or during drought conditions, use the higher rates of Remedy Ultra, alone or with 2,4-D. Remedy Ultra may also be applied in a tank mixture with Grazon P+D or Tordon 22K for increased control of certain species. See labels for Grazon P+D and Tordon 22K for additional information and treatment recommendations. Apply aeriaily in 4 gallons or more total volume per acre or with ground equipment in 10 gallons or more total volume per acre. For best results on blackberry, apply during or after bloom. For management of kudzu, apply 1 quart of Remedy Ultra per acre. Repeat application may be necessary to achieve desired level of control.

**Susceptible Broadleaf Weeds**

Use 2.5 pints of HM-0413A per acre in a water spray. Apply as a broadcast spray in a total volume of 10 gallons or more per acre by ground equipment or aeriaily in a total volume of 2 gallons or more per acre. Apply anytime the weeds are

actively growing. HM-0413A at 1/2 to 4 pints may be tank mixed with 1 to 2 quarts of 3.8 lb/gal 2,4-D amine such as Opti-Amine® or low volatile ester such as Barrage HF.

**Forest Management Applications**

For best control from broadcast applications of HM-0413A, use a spray volume which will provide thorough plant coverage. Recommended spray volumes are usually 10 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. To improve spray coverage of spray volumes less than 50 gallons per acre, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. Application systems should be used to prevent hazardous drift to off-target sites, Nozzles or additives that produce larger droplets of spray may require higher spray volumes to maintain brush control.

**Forest Site Preparation (Not for Conifer Release)**

Use up to (2 gallons of HM-0413A) and apply in a total spray volume of 10 to 30 gallons per acre or HM-0413A at 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of HM-0413A) may be used with 1 to 2 gallons of Tordon 101 Mixture or 2,4-D 3.8 lb low volatile ester in a tank mix combination in a total spray volume of 10 to 30 gallons per acre. Use a non-ionic agricultural surfactant for all foliar applications as described under Directions for Use. Tordon 101 Mixture is not registered for use in the states of California and Florida.

**Note:** Conifers planted sooner than one month after treatment with HM-0413A at less than 4 lb ae of triclopyr (1 1/3 gallons of HM-0413A) per acre or sooner than two months after treatment at 4 to 9 lb ae of triclopyr (1 1/3 to 3 gallons of HM-0413A) per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture should be consulted and the longest recommended waiting period before planting observed.

**Directed Spray Applications for Conifer Release**

To release conifers from competing hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, and pin cherry, mix 3 to 6 lb ae of triclopyr (1 to 2 gallons of HM-0413A) in enough water to make 100 gallons of spray mixture. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. The spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration. The majority of treated hardwoods should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray away from contact with conifer foliage, particularly foliage of desirable pines.

**Note:** Spray may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

**Broadcast Applications for Conifer Release In the Northeastern United States**

To release spruce, fir, red pine and white pine from competing hardwoods, such as red maple, sugar maple, striped maple, alder, birch (white, yellow or gray), aspen, ash, pin cherry and *Rubus* spp. and perennial and annual broadleaf weeds, use HM-0413A at rates of 1 1/2 to 3 lb ae of triclopyr (2 to 4 quarts of HM-0413A) per acre alone or with 2,4-D amine, like Opti-Amine®, or 2,4-D ester such as Barrage HF to provide no more than 4 lb ae per acre from both products. Apply in late summer or early fall after conifers have formed their over wintering buds and hardwoods are in full leaf and prior to autumn coloration,

**Broadcast Applications for Douglas Fir Release In the Pacific Northwest and California ( product not currently registered for use in California)**

To release Douglas fir from susceptible competing vegetation such as broadleaf weeds, alder, blackberry or Scotch broom, apply HM-0413A at 1 to 1 1/2 lb ae of triclopyr (1 1/3 to 2 quarts of HM-0413A) per acre alone or in combination with 4 lb per acre of atrazine. Mix all sprays in a water carrier with a non-ionic surfactant. Apply in early spring after hardwoods begin growth and before Douglas fir bud break ("early foliar hardwood stage) or after Douglas fir seasonal growth has "hardened off" (set winter buds) in late summer, but while hardwoods are still actively growing. When treating after Douglas fir bud set, apply prior to onset of autumn coloration in hardwood foliage. **Note:** Treatments applied during active Douglas fir shoot growth (after spring bud break and prior to bud set) may cause injury to Douglas fir trees.

## Basal Bark and Dormant Brush Treatments

To control susceptible woody plants in rights-of-way, other non-crop areas, and forests, use HM-0413A in oil or oil-water mixtures prepared and applied as described below. When preparing mixtures, use oils as either a commercially available basal oil, diesel fuel. Substitute other oils or diluents only as recommended by the oil or diluents manufacturer. When mixing with a basal oil or other oils or diluents, read and follow the use directions and precautions on the product label prepared by the oil or diluents manufacturer. See Table 1 for relationship between mixing rate, spray volume and maximum application rate.

### Oil Mixture Sprays

Add HM-0413A to the required amount of oil in the spray tank or mixing tank and mix thoroughly. If the mixture stands over 4 hours, re-agitation is required.

**Oil Mixtures of HM-0413A and Tordon K:** Tordon K and HM-0413A may be used in tank mix combination for basal bark treatment of woody plants. These herbicides are incompatible and will not form a stable mixture when mixed together directly in oil. Stable tank mixtures for basal bark application can be made if each product is first combined with a compatibility agent prior to final mixing in the desired ratio. (See product bulletin for mixing instructions.) Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

### Oil-Water Mixture Sprays

First, premix the HM-0413A, oil and surfactant in a separate container. Do not allow any water or mixtures containing water to get into the HM-0413A or the premix. Fill the spray tank about half full with water, then slowly add the premix with continuous agitation and complete filling the tank with water. Continue moderate agitation.

**Note:** If the premix is put in the tank without any water, the first water added may form a thick invert (water in oil) emulsion which will be hard to break.

### Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 1 to 5 gallons of HM-0413A in enough oil to make 100 gallons of spray mixture. Apply with knapsack sprayer or power spraying equipment using low pressure (20-40 psi). Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground. Thorough wetting of the indicated area is necessary for good control. Spray until runoff at the ground line is noticeable. Old or rough bark requires more spray than smooth young bark. Apply anytime, including the winter months, except when snow or water prevent spraying to the ground line.

### Low Volume Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of HM-0413A in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Spray the basal parts of brush and tree trunks in a manner that thoroughly wets the lower stems, including the root collar area, but not to the point of runoff. Herbicide concentration should vary with size and susceptibility of species treated. Apply at any time, including the winter months, except when snow or water prevent spraying to the ground line or when stem surfaces are saturated with water. See Table 1 for relationship between mixing rate, spray volume and maximum application rate.

**HM-0413A Plus Tordon K in Oil Tank Mix:** HM-0413A and a picloram product such as Tordon K may be applied as a low volume basal bark treatment to improve control of certain woody species such as ash, elm, maple, poplar, aspen, hackberry, oak, oceanspray, birch, hickory, pine, tanoak, cherry, locust, sassafras, and multiflora rose. (See product bulletin for mixing instructions.) Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

### Streamline Basal Bark Treatment (Southern States)

To control or suppress susceptible woody plants for conifer release, mix 20 to 30 gallons of HM-0413A in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using equipment that provides a directed straight stream spray. Apply sufficient spray to one side of stems less than 3 inches in basal diameter to form a treated zone that is 6 inches in height. When the optimum amount of spray mixture is applied, the treated zone should widen to encircle the stem within approximately 30 minutes. Treat both sides of stems which are 3 to 4 inches in basal diameter. Direct the spray at bark that is approximately 12 to 24 inches above ground. Pines (loblolly, slash, shortleaf, and Virginia)

up to 2 inches in diameter breast height (dbh) can be controlled by directing the spray at a point approximately 4 feet above ground. Vary spray mixture concentration with size and susceptibility of the species being treated. Best results are achieved when applications are made to young vigorously growing stems that have not developed the thicker bark characteristic of slower growing, understory trees in older stands. This technique is not recommended for scrub and live oak species, including blackjack, turkey, post, live, bluejack and laurel oaks, or big leaf maple. Apply from approximately 6 weeks prior to hardwood leaf expansion in the spring until approximately 2 months after leaf expansion is completed. Do not apply when snow or water prevent spraying at the desired height above ground level.

**Low Volume Stem Bark Band Treatment (North Central and Lake States)**

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of HM-0413A in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Apply the spray in a 6 to 10 inch wide band that completely encircles the stem. Spray in a manner that completely wets the bark, but not to the point of runoff. The treatment band may be positioned at any height up to the first major branch. For best results apply the band as low as possible. Spray mixture concentration should vary with size and susceptibility of species to be treated. Applications may be made anytime, including winter months.

**Thinline Basal Bark Treatment**

To control susceptible woody plants with stems less than 6 inches in diameter, apply HM-0413A either undiluted or mixed at 50-75% v/v with oil in a thin stream to all sides of the lower stems. The stream should be directed horizontally to apply a narrow band around each stem or clump. Use a minimum of 2 to 15 milliliters of HM-0413A or oil mixture with HM-0413A to treat single stems and from 25 to 100 milliliters to treat clumps of stems. Use an applicator metered or calibrated to deliver the small amounts required.

**Dormant Stem Treatment**

Dormant stem treatments will control susceptible woody plants and vines with stems less than 2 inches in diameter. Plants with stems greater than 2 inches in diameter may not be controlled and re-sprouting may occur. This treatment method is best suited for sites with dense, small diameter brush. Dormant stem treatments of HM-0413A can also be used as a chemical side-trim for controlling lateral branches of larger trees that encroach onto roadside, utility, or other rights-of-way. Mix 4.5 to 8.5 quarts of HM-0413A in 2 to 3 gallons of crop oil concentrate such as Agridex or other recommended oil and add this mixture to enough water to make 100 gallons of spray solution. Use continuous adequate agitation. Apply with Radiarc, OC or equivalent nozzles, or handgun using 70 to 100 gallons of spray per acre to ensure uniform coverage of stems. HM-0413A may be mixed with 2-4 quarts of a 2,4-D ester such as Barrage HF to improve the control of black cherry and broaden the spectrum of herbicidal activity. In western states, apply anytime after woody plants are dormant. In other areas apply anytime within 10 weeks of budbreak, generally February through April. Do not apply to wet or saturated bark as poor control may result.

**Cut Surface Treatments**

To control unwanted trees of hardwood species such as elm, maple, oak and conifers in labeled sites, apply HM-0413A specialty herbicide, either undiluted or diluted in a 1 to 1 ratio with water, as directed below.

**With Tree Injector Method**

Apply by injecting 1/2 milliliter of undiluted HM-0413A or 1 milliliter of the diluted solution through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.**

**With Hack and Squirt Method**

Make cuts around the tree trunk at a convenient height with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray 1/2 milliliter of undiluted HM-0413A or 1 milliliter of the diluted solution into the pocket created between the bark and the inner stem/trunk by each cut.

**With Frill Or Girdle Method**

Make a single girdle through the bark completely around the tree at a convenient height. The frill should allow for the herbicide to remain next to the inner stem and absorb into the plant. Wet the cut surface with undiluted or diluted solution.



Both of the above methods may be used successfully at any season except during periods of heavy sap flow of certain species for example, maples.

**Stump Treatment**

Spray or paint the cut surfaces of freshly cut stumps and stubs with undiluted HM-0413A. The cambium area next to the bark is the most vital area to wet.

**Christmas Tree Plantations**

Use HM-0413A for the control of woody plants and annual and perennial broadleaf weeds in established Christmas tree plantations. For best results, apply when woody plants and weeds are actively growing. HM-0413A does not control weeds which have not emerged at the time of application. If lower rates are used on hard to control woody species, re-sprouting may occur the year following treatment. Brush over 8 feet tall is difficult to treat efficiently using hand equipment such as backpack or knapsack sprayers. When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use the higher rates of HM-0413A or use cut surface application methods. For foliar applications, apply in enough water to give uniform and complete coverage of the plants to be controlled. Applications made under drought conditions may provide less than desirable results.

**Use Precautions and Restrictions**

- Do not use on newly seeded grass until well established as indicated by vigorous growth and development of secondary root system and tillering
- Newly seeded turf (alleyways, etc.) should be mowed two or three times before any treatment with HM-0413A.
- Do not reseed Christmas tree areas treated with HM-0413A for a minimum of three weeks after application.
- Do not use HM-0413A if legumes, such as clover, are present and injury cannot be tolerated.

**Spray Preparation**

The order of addition to the spray tank is water, drift control agent (if used), non-ionic agricultural surfactant and HM-0413A. Continue moderate agitation while mixing and spraying. Use a non-ionic agricultural surfactant for all applications. When using surfactants, follow use directions and precautions listed on the manufacturer's label. Use the higher recommended concentrations of surfactant in the spray mixture when applying lower spray volumes per acre.

**Application**

Apply In late summer or early autumn after terminal growth of Christmas trees has hardened of, but before leaf drop of, target weeds. Apply at a rate of 3/4 to 1 3/4 lb ae of triclopyr (2 to 5 pints of HM-0413A) per acre as a foliar spray directed toward the base of Christmas trees. Use sufficient spray volume to provide uniform coverage of target plants (20 to 100 gallons per acre). Do not apply with 2,4-D. Application rates of HM-0413A recommended for Christmas trees will only suppress some well established woody plants that are greater than 2 to 3 years old (see table below). Broadcast sprays may also be applied in bands between the rows of planted trees. Use spray equipment that will assure uniform coverage of the desired spray volume.

**Spray solution from HM-0413A can cause needle and branch injury to Christmas trees.** To minimize injury to Christmas trees, direct sprays so as to minimize contact with foliage. Blue spruce, white spruce, balsam fir and Fraser fir are less susceptible to injury than white pine and Douglas fir.

**Restriction:** Apply HM-0413A only to established Christmas trees that were planted at least one full year prior to application.

Application Rates and Species Controlled In Established Christmas Tree		
2 pints/acre (3/4 lb ae of triclopyr)	3 to 4 pints/acre (1 1/2 lb ae of triclopyr)	5 pints/acre (1 3/4 lb ae of triclopyr)

clover	bindweed, field (TG)	arrowwood (SDL)
dandelion	blackberry*	aspen _____
dock, curly	chicory (s)	beech (SDL)
lambsquarters	fireweed	birch (SDL)
lespedeza	ivy, ground	chinquapin
plantain, broadleaf	lettuce, wild	cottonwood (SDL)
plantain, buckhorn	oxalis	elderberry
ragweed, common	poison ivy	grape, wild
vetch	smartweed (TO)	mulberry (SDL)
	thistle, Canada (TG)	poplar (SDL)
	violet, wild	sassafras (SDL)
	Virginia creeper*	sumac (SDL)
		sycamore (SDL)

(TG) Top growth control, retreatment may be necessary (5) Suppression

(SDL) Seedlings less than 2 to 3 years old

\*Use 4 pint per acre rate

**Directed Applications**

To control hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, alder, birch, aspen, and pin cherry, mix 5 to 28 fl oz of HM-0413A in enough water to make 3 gallons of spray mixture. For directed applications, do not exceed 6 lb ae of triclopyr (2 gallons of HM-0413A) per acre per year. To improve coverage, add a non-ionic agricultural surfactant to the spray. This spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn *coloration* (when plants are actively growing). The majority of treated hardwoods should be less than 8 feet in height to ensure adequate spray coverage. **Note:** To prevent Christmas tree injury, care should be taken to direct spray away from contact with Christmas tree foliage.

**Cut Surface Treatments**

When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks, salt cedar or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use cut surface treatments. (See directions for *Cut Surface Treatments* in preceding section of this label.)

**Wetland Sites in Production Forests and Industrial Non-Crop Areas**

HM-0413A specialty herbicide may be used within production forests and industrial non-crop sites to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes and transition areas between upland and lowland sites.

For control of woody plants and broadleaf weeds in these sites, follow use directions and application methods on this label for forestry and non-cropland sites.

**Use Precautions**

Minimize overspray to open water when treating target vegetation in and around non-flowing, quiescent or transient water. When making applications to control unwanted plants on banks or shorelines of flowing water, minimize overspray to open water. **Note:** Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

**General Information for Aquatic and Wetland Sites**

Use HM-0413A specialty herbicide for control of immersed, submersed and floating aquatic plants in aquatic sites such as ponds, lakes, reservoirs, non-irrigation canals, and ditches which have little or no continuous outflow, marshes and wetlands, including broadleaf and woody vegetation on banks and shores within or adjacent to these and other aquatic

sites.

**Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

### General Use Precautions and Restrictions

In Arizona: The state of Arizona has not approved HM-0413A for use on plants grown for commercial production, specifically forests grown for commercial timber production, or on designated grazing areas.

When applying this product in tank mix combination, follow all applicable use directions, precautions and limitations on each manufacturer's label.

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

**Irrigation:** Do not use treated water for irrigation for 120 days following application. As an alternative to waiting 120 days, treated water *may* be used for irrigation once the triclopyr *level* in the intake water is determined to be non-detectable by laboratory analysis (immunoassay). There is no restriction on use of water from the treatment area to irrigate established grasses.

Water treated with HM-0413A may not be used for irrigation purposes for 120 days after application or until residue levels of HM-0413A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Seasonal Irrigation Waters:** HM-0413A may be applied during the off-season to surface waters that are used for irrigation on a seasonable basis provided that there is a minimum of 120 days between applying HM-0413A and the first use of treated water for irrigation purposes, or until residue levels of HM-0413A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

### Aquatic Weed Control

**(Irrigation Canals/Ditches:** Do not apply HM-0413A to irrigation canals/ditches unless the 120-day restriction on irrigation water usage can be observed or residue levels of HM-0413A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less. Do not apply HM-0413A directly to, or otherwise permit it to come into direct contact with grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants, and do not permit spray mists containing it to drift into them.

- Do not apply to salt water bays or estuaries.
- Do not apply directly to un-impounded rivers or streams.
- Do not apply on ditches or canals currently being used to transport irrigation water or that will be used for irrigation within 4 months following treatment. It is permissible to treat irrigation and non-irrigation ditch banks.
- Do not apply where runoff water may flow onto agricultural land as injury to crops may result.
- When making applications to control unwanted plants on banks or shorelines of moving water sites, minimize overspray to open water.
- The use of a mistblower is not recommended.
- Apply no more than 2 lb ae of triclopyr (2/3 gallon of HM-0413A) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting is allowed.
- On forestry sites, HM-0413A may be used at rates up to 6 lb ae of triclopyr (2 gallons of HM-0413A) per acre per year.
- For all terrestrial use sites other than range, pasture, forestry sites, and grazed areas, the maximum application rate is 9 lb ae of triclopyr (3 gallons of HM-0413A) per acre per year.

### Precautions for Potable Water Intakes for Emerged Aquatic Weed Control

See chart below for specific setback distances near functioning potable water intakes. **Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are

not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

Area Treated (acre)	HM-0413A Application Rate, qt/acre			
	2qt./acre	4 qt./acre	6 qt./acre	8 qt./acre
	Setback Distance (ft)			
4	0	200	400	500
>4-8	0	200	700	900
>8-16	0	200	700	1000
>16	0	200	900	1300

**Precautions for Potable Water Intakes for Submerged Aquatic Weed Control**

For applications of HM-0413A to control submerged weeds in lakes, reservoirs or ponds that contain a functioning potable water intake for human consumption, see the chart below to determine the minimum setback distances of the application from the functioning potable water intakes.

Area Treated (acres)	Concentration of Triclopyr Acid in Water (ppm ae)				
	0.75 ppm	1.0 ppm	1.5 ppm	2.0 ppm	2.5 ppm
	Required Setback Distance (ft) from Potable Water Intake				
<4	300	400	600	800	1000
>4—8	420	560	840	1120	1400
>8—16	600	800	1200	1600	2000
>16-32	780	1040	1560	2080	2600
>32 acres, calculate a setback using the formula for the appropriate rate	Setback (ft) = $(800 * \text{In (acres)} - 160) / 3.33$	Setback (ft) = $(800 * \text{In (acres)} - 160) / 2.50$	Setback (ft) = $(800 * \text{In (acres)} - 160) / 1.67$	Setback (ft) = $(800 * \text{In (acres)} - 160) / 1.25$	Setback (ft) = $(800 * \text{In (acres)} - 160)$

**Example Calculation 1:** to apply 2.5 ppm HM-0413A to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= (800 \times \text{In (50 acres)} - 160) \\ &= (800 \times 3.912) - 160 \\ &= 2970 \text{ feet} \end{aligned}$$

**Example Calculation 2:** to apply 0.75 ppm HM-0413A to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= \frac{(800 \times \text{In (50 acres)} - 160)}{3.33} \\ &= \frac{(800 \times 3.912) - 160}{3.33} \\ &= 892 \text{ feet} \end{aligned}$$

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

To apply HM-0413A around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.

- Livestock Use of Water from Treatment Area: There are no restrictions on livestock consumption of water from the treatment area.

**Aquatic Weeds**

alligatorweed	nuphar (spatterdock)	waterhyacinth
American lotus	parrotfeather*	waterlily
American frogbit	phragmites	waterprimse
aquatic sodaapple	pickerelweed	watershield
Eurasian watermilfoil	pennywort	
milfoil species	purple loosestrife	

\*Re-treatment may be needed to achieve desired level of control.

**Application Methods**

**Floating and Emerged Weeds**

For control of waterhyacinth, alligatorweed (see specific directions below), and other susceptible emerged and floating herbaceous weeds and woody plants, apply 1 1/2 to 6 lb ae of triclopyr (2 to 8 quarts of HM-0413A specialty herbicide) per acre as a foliar application using surface or aerial equipment. Use higher rates in the rate range when plants are mature, when the weed mass is dense, or for difficult to control species. Repeat as necessary to control regrowth and plants missed in the previous operation, but do not exceed a total of 6 lb ae of triclopyr (8 quarts of HM-0413A) per acre per annual growing season.

Use a non-ionic surfactant in the spray mixture to improve control. Follow all directions and use precautions on the aquatic surfactant label.

Apply when plants are actively growing.

**Surface Application**

Use a spray boom, handgun or other similar suitable equipment mounted on a boat or vehicle. Thorough wetting of foliage is essential for maximum effectiveness. Use 20 to 200 gallons per acre of spray mixture. Special precautions such as the use of low spray pressure, large droplet producing nozzles or addition of a labeled thickening agent may minimize spray drift in areas near sensitive crops.

**Aerial Application (Helicopter Only)**

Apply with a helicopter using a Microfoil or Thru-Valve boom, or a drift control additive in the spray solution. Apply in a minimum of 10 gallons of total spray mix per acre. Do not apply when weather conditions favor drift to sensitive areas. See label section on aerial application directions and precautions.

**Waterhyacinth (*Elchhornia crassipes*)**

Apply HM-041 3A at 1 1/2 to 6 lb ae of triclopyr (2 to 8 quarts of HM-0413A) per acre to control water hyacinth. Apply when plants are actively growing. Use the higher rate in the rate range when the weed mass is dense. It is important to thoroughly wet all foliage with the spray mixture. Use a non-ionic surfactant in the spray mixture. A repeat treatment may be needed to control regrowth or plants missed in the previous treatment.

**Alligatorweed (*Alternanthera philoxeroides*)**

Apply HM-041 3A at 2 to 6 lb ae of triclopyr (3 to 8 quarts of HM-0413A) per acre to control alligatorweed. It is important to thoroughly wet all foliage with the spray mixture. For best results, add an approved non- ionic aquatic surfactant to the spray mixture. Alligatorweed growing outside the margins of a body of water can be controlled with this treatment. However, alligatorweed growing in water will only be partially controlled. Top growth above the water will be controlled, but the plant will likely regrowth from tissue below the water surface.

**Precautions for Potable Water Intakes — Lakes, Reservoirs, Ponds: \_\_\_\_\_**

For applications of HM-0413A to control floating and emerged weeds in lakes, reservoirs or ponds that contain a functioning potable water intake for human consumption, see chart below to determine the minimum setback distances of the application from the functioning potable water intakes.

Area Treated (acres)	HM-0413A Application Rate, qt/acre			
	2 qt/acre	4 qt/acre	6 qt/acre	8 qt/acre
<4	0	200	400	500
>4 – 8	0	200	700	900
>8 – 16	0	200	700	1000
>16	0	200	900	1300

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent 10 potable water intakes.

To apply HM-0413A around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.
- **Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

**Submerged Weeds**

**For control of Eurasian watermilfoil (*Myriophyllum spicatum*) and other susceptible submerged weeds** in ponds, lakes, reservoirs, and in non-irrigation canals or ditches that have little or no continuous outflow, apply HM-0413A as either a surface or subsurface application. Rates should be selected according to the rate chart below to provide a triclopyr concentration of 0.75 to 2.5 ppm ae in treated water. Use higher rates in the rate range in areas of greater water exchange. These areas may require a repeat application. However, total application of HM-0413A must not exceed an application rate of 2.5 ppm of triclopyr for the treatment area *per* annual growing season.

Apply in spring or early summer when Eurasian watermilfoil or other submersed weeds are actively growing.

Areas near susceptible crops or other desirable broadleaf plants may be treated by subsurface injection applied by boat to avoid spray drift.

**Subsurface Application**

Apply desired amount of HM-0413A per acre directly into the water through boat-mounted distribution systems. When treating target plants that are 6 feet below the surface of the water, trailing hoses should be used along with an aquatic approved sinking agent (except California).

**Surface Application**

Apply the desired amount of HM-0413A as either a concentrate or a spray mixture in water. However, use a minimum spray volume of 5 gallons per acre. Do not apply when weather conditions favor drift to sensitive areas.

Average water depth (feet) x 0.905 x target concentration (ppm) = gallons of HM-0413A per surface acre treated.

**Example:** to achieve a 2 ppm concentration of triclopyr in water averaging 4 feet deep  
 $4 \times 0.905 \times 2 \text{ ppm} = 7.2$  gallons of HM-0413A per surface acre treated

Concentration of Triclopyr Acid in Water (ppm ae)					
	0.75 ppm	1 ppm	1.5 ppm	2 ppm	2.5 ppm

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Water Depth (ft)	Gallons of HM-0413A per Surface Acre at Specified Depth				
	0.7	0.9	1.4	1.8	2.3
1	0.7	0.9	1.4	1.8	2.3
2	1.4	1.8	2.7	3.6	4.6
3	2.1	2.7	4.1	5.4	6.8
4	2.7	3.6	5.4	7.2	9.1
5	3.4	4.5	6.8	9	11.3
6	4.1	5.4	8.1	10.9	13.6
7	4.8	6.3	9.5	12.7	15.8
8	5.5	7.2	10.9	14.5	18.1
9	6.1	8.1	12.2	16.3	20.4
10	6.8	9	13.6	18.1	22.6
15	10.2	13.6	20.4	27.2	33.9
20	13.6	18.1	27.2	36.2	45.3

**Precautions for Potable Water Intakes — Lakes, Reservoirs, Ponds:**

For applications of HM-0413A to control submerged weeds in lakes, reservoirs or ponds that contain a functioning potable water intake for human consumption, see the chart below to determine the minimum setback distances of the application from the functioning potable water intakes.

Area Treated (acres)	Concentration of Triclopyr Acid in Water (ppm ae)				
	0.75 ppm	1 ppm	1.5 ppm	2 ppm	2.5 ppm
	Require Setback Distance (ft) from Potable Water Intake				
<4	300	400	600	800	1000
>4 – 8	420	560	840	1120	1400
>8 – 16	600	800	1200	1600	2000
>16 – 32	780	1040	1560	2080	2600
>32 acres, calculate a setback using the formula for the appropriate rate	Setback (ft) = $(800 * In (acres)) - 160 / 3.33$	Setback (ft) = $(800 * In (area)) - 160 / 2.50$	Setback (ft) = $(800 * In (area)) - 160 / 1.67$	Setback (ft) = $(800 * In (area)) - 160 / 1.25$	Setback (ft) = $(800 * In (area)) - 160 / 3.33$

**Example Calculation 1:** to apply 2.5 ppm HM-0413A to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= (800 \times In (50 \text{ acres})) - 160 \\ &= (800 \times 3.912) - 160 \\ &= 2970 \text{ feet} \end{aligned}$$

**Example Calculation 2:** to apply 0.75 ppm HM-0413A to 50 acres:

$$\begin{aligned} \text{Setback in feet} &= \frac{(800 \times In (50 \text{ acres})) - 160}{3.33} \\ &= \frac{(800 \times 3.912) - 160}{3.33} \\ &= 892 \text{ feet} \end{aligned}$$

**Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

To apply HM-0413A around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.

- **Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

**Wetland Sites**

Wetlands include flood plains, deltas, marshes, swamps, bogs, and transitional areas between upland and lowland sites. Wetlands may occur within forests, wildlife habitat restoration and management areas and similar sites as well as areas adjacent to or surrounding domestic water supply reservoirs, lakes and ponds.

For control of woody plants and broadleaf weeds in these sites, follow use directions and application methods on this label for terrestrial sites associated with wetland areas.

**Use Precautions**

Minimize overspray to open water when treating target vegetation in and around non-flowing, quiescent or transient water. When making applications to control unwanted plants on banks or shorelines of flowing water, minimize overspray to open water. Note: Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

**Purple Loosest rife (*Lythrum salicaria*)**

Purple loosestrife can be controlled with foliar applications of HM-0413A. For broadcast applications, use a minimum of 4 1/2 to 6 lb ae of triclopyr (6 to 8 quarts of HM-0413A) per acre. Apply HM-0413A when purple loosestrife is at the bud to mid-flowering stage of growth. Follow-up applications for control of regrowth should be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant labeled for aquatics should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control, a minimum spray volume of 50 gallons per acre is recommended for ground broadcast applications.

If using a backpack sprayer, a spray mixture containing 1% to 1.5% HM-0413A or 5 to 7.6 fl oz of HM-0413A per 4 gallons of water should be used. All purple loosestnife plants should be thoroughly wetted.

**Phragmites (*Phragmites australls*)**

Phragmites can be selectively controlled with foliar applications of HM-0413A. For broadcast applications, a minimum of 2 1/4 lb ae of triclopyr (3 quarts of HM-0413A) per acre should be used. For optimum control, apply HM-0413A when phragmites is in the early state of growth, 1/2 to 3 feet in height, prior to seed head development. Follow-up applications for control of regrowth may be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant labeled for aquatics should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is recommended for ground broadcast applications.

If a backpack sprayer is used, a spray mixture containing 1% to 1.5% of HM-0413A or 5 to 7.6 fl oz of HM-0413A per 4 gallons of water should be used. All phragmites foliage should be thoroughly wetted.

Aerial application by helicopter may be needed when treating restoration sites that are inaccessible, remote, difficult to traverse, isolated, or otherwise unsuited to ground application, or in circumstances where invasive exotic weeds dominate native plant populations over extensive areas and efforts to restore native plant diversity are being conducted. By air, apply in a minimum spray volume of 30 gallons per acre using Thru-Valve or Microfoil boom only.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.
- **Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

**Terrestrial Sites Associated With Wetland Areas**

- Apply no more than 2 lb ae of triclopyr (2/3 gallon of HM-0413A) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting is allowed.



- On forestry sites, HM-0413A may be used at rates up to 6 lb ae of triclopyr (2 gallons of HM-0413A) per acre per year.

Use HM-0413A specialty herbicide at rates of 3/4 to 6 lb ae of triclopyr (1/4 to 2 gallons of HM-0413A) per acre to control broadleaf weeds and woody plants. In all cases use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. Use only water suitable for spraying. Use a labeled non-ionic surfactant for all foliar applications. When using surfactants, follow the use directions and precautions listed on the surfactant manufacturer's label. Use the higher recommended concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. The order of addition to the spray tank is water, spray thickening agent (if used), additional herbicide (if used), and HM-0413A. A labeled aquatic surfactant should be added to the spray tank last or as recommended on the product label. If combined with emulsifiable concentrate herbicides, moderate continuous adequate agitation is required.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels.

For best results, apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, maples, or oaks are prevalent and during applications made in late summer when the plants are mature and during drought conditions, use the higher rates of HM-0413A.

When using HM-0413A in combination with a 2,4-D herbicide approved for aquatic use, such as Hardball, generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, re-sprouting may occur the year following treatment.

**High Volume Foliage Treatment**

For control of woody plants, use HM-0413A at the rate of 3 to 6 lb ae of triclopyr (1 to 2 gallons of HM-0413A) per 100 gallons of spray solution, or HM-0413A at 3/4 to 3 lb ae of triclopyr (4 quarts of HM-0413A) may be tank mixed with 1/4 to 1/2 gallons of 2, 4-D 3.8 lb amine, like Opti-Amine, diluted to make 100 gallons of spray solution. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars. (See General Use Precautions and Restrictions.) Do not exceed the maximum allowable use rate of 6 lb ae of triclopyr (2 gallons of HM-0413A) per acre per growing season.

**Low Volume Foliage Treatment**

To control susceptible woody plants, apply up to 15 lb ae of triclopyr (5.25 gallons of HM-0413A) in 10 to 100 gallons of finished spray. The spray concentration of HM-0413A and total spray volume per acre may be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see General Use Precautions and Restrictions). For best results, a labeled aquatic surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

**Cut Surface Treatments (Woody Plants)**

To control unwanted trees and other listed woody plants, apply HM-0413AA, either undiluted or diluted in a 1 to 1 ratio with water as directed below.

**With Tree Injector Method**

Apply by injecting 1/2 milliliter of undiluted HM-0413A or 1 milliliter of the diluted solution through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.**

**With Hack and Squirt Method**

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Make cuts at a convenient height around the tree trunk with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray 1/2 milliliter of undiluted HM-0413A or 1 milliliter of the diluted solution into each cut.

**With Frill or Girdle Method**

Make a single girdle through the bark completely around the tree at a convenient height. Wet the cut surface with undiluted or diluted solution.

Both of the above methods may be used successfully at any season except during periods of heavy sap flow of certain species for example, maples.

**Stump Treatment**

Spray or paint the cut surfaces of freshly cut stumps and stubs with undiluted HM-0413A. The cambium area next to the bark is the most vital area to wet.

**Storage and Disposal**

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited. Pesticide Storage: Store above 28°F or agitate before use.

**Pesticide Disposal:** Wastes resulting from the use of this *product* may be disposed of on site or at an approved waste disposal facility.

**Container Disposal for Refillable Containers:** Seal all openings which have been opened during use. Return the empty container to a collection site designated by Helena Chemical Company. If the container has been damaged and cannot be returned according to the recommended procedures, contact Helena Chemical Company Customer Service Center at 1-800-258-1470 to obtain proper handling instructions.

**Container Disposal (Metal):** Do not reuse container. 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.

**Container Disposal (Plastic):** Do not reuse container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**General:** Consult federal, state, or local disposal authorities for approved alternative procedures.

**Terms and Conditions of Use**

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable return unopened package at once to the seller for a full refund of purchase price paid.

Otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitations of Remedies.

**Warranty Disclaimer**

Helena Chemical Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. Helena Chemical Company **MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

**Inherent Risks of Use**

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Helena Chemical Company or the seller. All such risks shall be assumed by buyer.

**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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