

30-MAR-1998

ESTEMINE (R) 2,4-D

LIQUID HERBICIDE

AGRICULTURAL

NON-VOLATILE

PROTECT FROM FREEZING

SHAKE WELL BEFORE USE

NET CONTENTS: 10L

GUARANTEE:

2,4-D (isomer specific) 470 g/L
(present as mixed amine salts)

READ THE LABEL AND PAMPHLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

REGISTRATION NO.: 10,970

PEST CONTROL PRODUCTS ACT

WARNING POISON

Novartis Crop Protection Canada Inc.
140 Research Lane
Research Park, University of Guelph
Guelph, Ontario
N1G 4Z3

SLEEVE

NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offence under the PEST CONTROL PRODUCTS ACT to use a control product under unsafe conditions.

NOTICE TO BUYER

Seller's guarantee shall be limited to the terms set out on the label and subject thereto, the buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition.

FIRST AID:

If swallowed, induce vomiting by touching the back of the throat with a finger or blunt object; repeat until vomit fluid is clear. Rush patient to nearest hospital taking this label with you or contact a poison control centre. Never give anything by mouth to an unconscious person. In case of skin contact, remove contaminated clothing and wash skin thoroughly with soap and water. In case of eye contact, flush with plenty of water for 15 minutes and get medical attention or contact a poison control centre. If inhaled, remove to fresh air and get medical attention or contact a poison control centre.

PROTECTIVE CLOTHING AND EQUIPMENT:

HANDLING THE CONCENTRATE (MIXING AND LOADING):

Wear long-sleeved shirt, long pants, chemical resistant gloves, socks and shoes, and protective eye wear (face shield or safety glasses). Rinse gloves before removal.

Coveralls or a chemical resistant apron should also be worn when open pouring from containers greater than 5 L.

Handling the dilute spray solution (during application or repairing or cleaning equipment): wear a long-sleeved shirt, long pants, chemical resistant gloves, socks and shoes. Rinse gloves before removal.

Gloves are not required during application when applicator is in an enclosed tractor, or in an enclosed airplane cockpit.

OPERATOR USE PRECAUTIONS:

- . Wear freshly laundered clothing and clean protective equipment daily.
- . Rinse gloves before removal.

- . Wash hands before eating, drinking, using tobacco or using the toilet.
- . If herbicide penetrates clothing remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.
- . After using this product, remove clothing and launder separately, and promptly and thoroughly wash hands and exposed skin with soap and water. Follow manufacturer's instructions for cleaning personal protective equipment. If no such instructions for washables are provided, use detergent and hot water. Keep and wash personal protective equipment separate from household laundry.
- . After work, remove all clothing and shower using soap and water.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Avoid contact with skin, eyes and clothing. Do not inhale fumes. Avoid breathing spray mist. Keep in original container during storage. Destroy empty container. Do not allow spray, spray mist, visible or invisible vapours, or air containing mist or vapours, to contact plants other than those being sprayed. If 2,4-D susceptible plants are growing within a distance of 400 metres from the area being sprayed, spray only when there is a light breeze away from the susceptible plants. Spray drift can be reduced by using low pressure, coarse sprays and drop nozzles. Susceptible crops include grapes, tomatoes, tobacco, sugar beets, sunflowers, beans, turnips, cauliflower and cabbages, as well as many other field, vegetable, ornamental and fruit crops. Do not contaminate streams, lakes, ponds, irrigation water, water used for livestock or for domestic purposes. Store container tightly closed away from seeds, feeds, fertilizers, or plants and food stuffs, and other insecticides, fungicides and weedkillers other than those containing 2,4-D, MCPA or brushkiller. Store at temperatures above 0E C. If subjected to freezing temperatures, warm to at least 5°C and mix thoroughly. Sprayers which have contained 2,4-D or MCPA should not be used to apply other pesticides to 2,4-D or MCPA susceptible crops. Use dugout water wherever possible. Avoid use of very hard water such as deep well water, which may cause nozzle blocking sediment to form. Do not mix Estemine with oil for aircraft or other applications.

DECONTAMINATION AND DISPOSAL:

1. Rinse the emptied container thoroughly and add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product, and the cleanup of spills, contact the Provincial Regulatory Agency or the manufacturer.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-800-267-6351

(R) Estemine is a registered trademark of Novartis Crop Protection Canada Inc.

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PROTECTIVE CLOTHING & EQUIPMENT

Handling the concentrate (mixing and loading): wear long-

sleeved shirt, long pants, chemical resistant gloves, socks and shoes, and protective eye wear (face shield or safety glasses). Rinse gloves before removal.

Coveralls or a chemical-resistant apron should also be worn when open pouring from containers greater than 5L.

Handling the dilute spray solution (during application or repairing or cleaning equipment): wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes. Rinse gloves before removal.

Gloves are not required during application when applicator is in an enclosed tractor or in an enclosed airplane cockpit.

OPERATOR USE PRECAUTIONS:

- . Wear freshly laundered clothing and clean protective equipment daily.
- . Rinse gloves before removal.
- . Wash hand before eating, drinking, using tobacco or using the toilet.
- . If herbicide penetrates clothing remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.
- . After using this product, remove clothing and launder separately, and promptly and thoroughly wash hands and exposed skin with soap and water. Follow manufacturer's instructions for cleaning personal protective equipment. If no such instructions for washables are provided, use detergent and hot water. Keep and wash personal protective equipment separate from household laundry.
- . After work, remove all clothing and shower using soap and water.

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invisible vapours, or air containing mist or vapours, to contact plants other than those being sprayed. If 2,4-D susceptible plants are growing within a distance of 400 metres from the area being sprayed, spray only when there is a light breeze away from the susceptible plants. Spray drift can be reduced by using low pressure, coarse sprays and drop nozzles. Susceptible crops include grapes, tomatoes, tobacco, sugar beets, sunflowers, beans, turnips, cauliflower and cabbages, as well as many other field, vegetable, ornamental and fruit crops. Do not contaminate streams, lakes, ponds, irrigation water, water used for livestock or for domestic purposes. Store container tightly closed away from seeds, feeds, fertilizers, or plants and food stuffs, and other insecticides, fungicides and weedkillers other than those containing 2,4-D, MCPA or brushkiller. Store at temperatures above 0° C. If subjected to freezing temperatures, warm to at least 5° C and mix thoroughly. Sprayers which have contained 2,4-D or MCPA should not be used to apply other pesticides to 2,4-D or MCPA susceptible crops. Use dugout water wherever possible. Avoid use of very hard water such as deep well water, which may cause nozzle blocking sediment to form. Do not mix Estemine with oil for aircraft or other applications.

DISPOSAL:

1. Rinse the emptied container thoroughly and add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
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DIRECTIONS FOR USE:

Transfer System:

Containers larger than 20 Litres. Use a transfer system that avoids open pouring when transferring the liquid concentrate from such containers into the spray tank.

USE PRECAUTIONS FOR AERIAL APPLICATION (to cereal crops, pasture rangeland, stubble and non-crop land)

- . Avoid direct applications to any body of water. Do not contaminate water through spray drift or by cleaning of equipment or disposal of wastes.
- . Use a minimum volume of 30L per hectare, depending on the type of application system and the target site. Use boom pressure of 234 kPa or less. Avoid placing nozzles where spray will enter wing tip vortices.
- . Do not apply this product directly to, or otherwise permit it to come into direct contact with desirable crops or other desirable broadleaf plants or non-target species and do not permit spray mists to drift onto them.
- . Coarse sprays are less likely to drift, use only nozzles or nozzle configuration which minimize the production of fine spray drops. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. When spraying, avoid a combination of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift. A spray thickening agent or drift retardant may be used with the product to aid in reducing spray drift.
- . Do not use human flaggers.
- . Avoid Spray Drift: Apply only when there is little or no hazard from spray drift. Small quantities of the spray, which may not be visible, may seriously injure susceptible crops and damage sensitive non-target habitat. A method must be used to detect air movement, lapse conditions, or temperature inversions (stable air) such as the use of balloons or a continuous smoke column at or near the spray site or a smoke generator on the spray equipment. If the smoke develops into layers or indicates a potential for hazardous spray drift, do not spray.
Buffer Zones: Appropriate buffer zones should be established between treatment areas and aquatic systems and treatment areas and significant wildlife habitat.

LITRES OF ESTEMINE 2,4-D PER HECTARE (not underseeded to legumes)		
CROP	SUSCEPTIBLE WEEDS*	MORE RESISTANT WEEDS**
Wheat, Barley, Rye	700 mL - 1.1 L	1.25 -1.75 L
Corn	700 mL - 1.1 L	1.1 L

*Susceptible Weeds:

Mustards, prostrate pigweed, Russian pigweed, wild radish, ragweeds, shepherd's-purse, thyme-leaved spurge, stinkweed, common burdock, bluebur, cocklebur, flixweed, goat's-beard, Kochia, lambsquarters, prickly lettuce.

**More Resistant Weeds:

Hairy galinsoga, goosefoot, dog mustard, common pepper-grass, redroot pigweed, tumble pigweed, pineappleweed, purslane, Russian thistle, annual sow-thistle, biennial wormwood.

DOSAGE: The amount of Estemine to use within any of the ranges suggested above will be influenced by the following factors:

- a) Stage of Weed Growth:
Annual plants are generally more susceptible when young and resistance increases with advancing maturity. Perennial plants are usually less susceptible than annuals and are most successfully controlled at the bud or very early bloom stage.
- b) Growing Conditions:
Plants are usually more susceptible to 2,4-D when they are growing rapidly. Adequate soil moisture assists the action of 2,4-D.
- c) Species of Weed:
Various weeds react differently to 2,4-D.

HIGHER RATES: The higher rates given above are recommended under drier conditions, for weeds that are partially resistant to 2,4-D and for crops that are heavily infested with weeds. Under certain conditions these higher rates may cause injury to the crop, but this will frequently be offset by a higher relative yield from a less weedy crop.

STAGE OF GROWTH TO TREAT CROPS:

SPRING WHEAT AND BARLEY: Should not be treated until expansion of the fourth leaf or approximately when the plants are 15 cm in height. Treatments can then be safely made until early boot stage and again from soft-dough stage to hard-dough stage.

Pre-Harvest Intervals:

- . Do not permit lactating dairy animals to graze fields within 7 days after application.
- . Do not harvest forage or cut hay within 30 days after application.
- . Withdraw meat animals from treated fields at least 3 days before slaughter.

WINTER WHEAT AND RYE: Can be treated in dosages that will control most annual and winter annual broad-leaved weeds in the spring from the time the crop commences growth to early boot stage.

Pre-Harvest Intervals:

- . Do not permit lactating dairy animals to graze fields within 7 days after application.
- . Do not harvest forage or cut hay within 30 days after application.
- . Withdraw meat animals from treated fields at least 3 days before slaughter.

CORN: Spray corn over the top (non-directed) up to the 15 cm stage (leaf-extended). If corn is taller than 15 cm use drop pipes to direct spray away from corn leaves.

Pre-Harvest Intervals:

- . Do not permit lactating dairy animals to graze fields within 7 days after application.
- . Do not harvest as forage within 30 days after application.
- . Withdraw meat animals from treated fields at least 3 days before slaughter.

TANK MIX:

Consult the product labels to be tank mixed with Estemine 2,4-D for detailed information regarding weeds controlled, precautions, warnings, restrictions, tank mixing and spraying instructions.

GRAZING RESTRICTIONS: When tank mixing, the more restrictive statement for the Estemine 2,4-D partner should be observed.

ESTEMINE 2,4-D PLUS TCA

For control of both green foxtail and 2,4-D susceptible broadleaf weeds in barley, a tank mix of Estemine 2,4-D plus TCA may be used.

CROP	RATE OF APPLICATION (PRODUCT/HA) ESTEMINE 2,4-D + TCA*	MINIMUM WATER VOLUME (LITRES/HA)	CROP LEAF STAGE
Barley	700 mL - 1.1 L + 1.3 kg	100	4-leaf

* TCA containing 83% active ingredient.

NOTE:

- (1) Do not apply TCA to barley seeded less than 5 - 7.0 cm deep.
- (2) Application of TCA should be made at the 1 to 3-leaf stage of green foxtail.

ESTEMINE 2,4-D PLUS BANVEL (R) LIQUID

For control of wild buckwheat, tartary buckwheat, cow cockle, annual smartweeds, corn spurry and Estemine 2,4-D susceptible broadleaf weeds in spring and winter wheat and barley, a tank mix of Estemine 2,4-D plus Banvel Liquid may be used.

CROP	RATE OF APPLICATION (PRODUCT/HA) ESTEMINE 2,4-D + BANVEL L.H.	MINIMUM WATER VOLUME (LITRES/HA)	CROP LEAF STAGE
Spring Wheat	700 - 850 mL + 275 - 350 mL	100	2-5 leaf
Winter Wheat	700 - 850 mL + 275 - 350 mL	100	Apply in the spring when crop is 15 - 25 cm tall (or before shot blade stage).
Barley	700 - 850 mL + 275 mL	100	2 - 3 leaf

(R) Banvel is a registered trademark of Sandoz Crop Protection Corp.

ESTEMINE 2,4-D PLUS PARDNER (R)

For control of wild buckwheat, tartary buckwheat, annual smartweeds, cow cockle, volunteer sunflowers, common groundsel and Estemine 2,4-D susceptible broadleaf weeds in spring wheat and barley, a tank mix of Estemine 2,4-D plus Pardner may be used.

CROP	RATE OF APPLICATION (PRODUCT/HA) ESTEMINE 2,4-D + PARDNER	MINIMUM WATER VOLUME (LITRES/HA)	CROP LEAF STAGE
Spring Wheat, Barley	550 - 850 mL + 1.25 L	100	4-leaf to early flag leaf

(R) Pardner is a registered trademark of Rhone-Poulenc

ESTEMINE 2,4-D PLUS SENCOR 500F (R)

For control of hempnettle, chickweed, corn spurry, annual

smartweeds, volunteer rapeseed, nightflowering catchfly, tartary buckwheat, common groundsel, henbit and Estemine 2,4-D susceptible broadleaf weeds in spring wheat and barley, a tank mix of Estemine 2,4-D plus Sencor 500F may be used.

CROP	RATE OF APPLICATION (PRODUCT/HA) ESTEMINE 2,4-D + SENCOR 500F	MINIMUM WATER VOLUME (LITRES/HA)	CROP LEAF STAGE
Spring Wheat	850 mL - 1.1 L + 275 mL - 425 mL	100	3-5 leaf (mid tillering)
Barley	850 mL - 1.1 L + 275 mL - 550 mL	100	3-5 leaf (mid tillering)

Note: Do not apply Estemine 2,4-D plus Sencor tank mix combinations to Klondike barley.

(R) Sencor is a registered trademark of Bayer Ag.

ESTEMINE 2,4-D PLUS TORCH D.S. (R)

For control of wild buckwheat, tartary buckwheat, annual smartweeds, cow cockle, knawel, nightflowering catchfly, common groundsel and Estemine 2,4-D susceptible broadleaf weeds in spring wheat and barley, a tank mix of Estemine 2,4-D plus Torch D.S. may be used.

CROP	RATE OF APPLICATION (PRODUCT/HA) ESTEMINE 2,4-D + TORCH D.S.	MINIMUM WATER VOLUME (LITRES/HA)	CROP LEAF STAGE
Spring Wheat Barley	550 mL - 850 mL + 625 mL	100	4-leaf to early flag leaf

(R) Torch D.S. is a registered trademark of Union Carbide Agricultural Products Company Inc., U.S.A.

OTHER USES:

Established Pastures (without legumes):

Use 1.5 - 2.75 L/ha in late summer/early fall or early spring.

Pre-Harvest Intervals:

- . Do not permit lactating dairy animals to graze fields within 7 days after application.
- . Do not harvest forage or cut hay within 30 days after application.
- . Withdraw meat animals from treated fields at least 3 days before slaughter.

On Lawns, Fairways, Parks, Estates:

Use 1.5 - 2.75 L of Estemine in the amount of water required to cover one hectare to control dandelion, plantain and other 2,4-D susceptible weeds. Spray when weeds are actively growing. Bent grasses and clovers may be damaged by the treatment. For small areas use 30 mL per 100 square metres in sufficient water to ensure thorough coverage. Do not spray newly seeded grass until after the third mowing.

Re-entry Interval:

Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treated areas until spray has thoroughly dried.

Maximum Application Frequency to Turf:

For good turf/lawn management, normally two applications per year per treatment site are adequate. This does not include spot treatments.

Perennial Weeds, Roadsides, Fence Lines, Irrigation ditches, etc.:

Use 2.75 - 4.25 L of Estemine in the amount of water required to cover 1 hectare. Spray early before the weeds are mature.

(R) Estemine is a registered trademark of NOVARTIS Crop

Protection Canada Inc.

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