



62719-48

06/14/2001

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Ms. Kimberly S. Gilbert
Regulatory Manager
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

JUN 14 2001

Dear Ms. Gilbert:

Subject: Curtail®

EPA Registration No. 62719-48
Application and Your Letter Dated December 13, 2000,
Request To Amend Registration by Changes Described in
Your Letter; and in Your Letter Dated May 25, 2001:
Resubmission of Labeling with Amendments To Labeling
Changes Following Agency' Review of the Proposed
Labeling, (Your List of Requested Changes Is Enclosed
with This Letter)

The proposed labeling changes described in your May 25, 2001 letter have been reviewed and found to be acceptable amendments to the registration of the subject pesticide product under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as amended, provided that you:

1. Add the New York State restrictions for the use of clopyralid pesticide products that reads:

"Sale and use of this product in Suffolk and Nassau counties in the state of New York is prohibited. Use of this product in the state of New York is limited to post emergence application with a maximum use rate of 7.84 fl. ozs. (0.062 lb of clopyralid) per acre per crop year; and providing that no other product containing clopyralid has been applied pre-plant or post-plant.

This statement must follow the violation statement under the "Directions of Use" section.

2. In the two tables of "Crop Rotation Intervals" on pages 9 and 10 revise the rotation intervals for all crops that have no tolerances for residues of clopyralid to 10.5 months or more (note this is based on you confined rotational crop data for clopyralid). In these tables canola (rapeseed) and flax, must have a 10.5 months crop rotational interval, instead of 5 months as written.

- 3. Submit one (1) copy of your final printed labeling prior to your shipment of the subject pesticide product under the enclosed stamped label.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA, section 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the proposed label is enclosed for your records.

Sincerely yours,

for Eugene W. Wilson
 Joanne I. Miller
 Product Manager (23)
 Herbicide Branch
 Registration Division (7505C)

Enclosures (2)

(Base Label):

(Logo) Dow AgroSciences

Curtail*

For selective control of broadleaf weeds in wheat and barley not underseeded with a legume, fallow cropland, grasses grown for seed, rangeland and permanent grass pastures, conservation reserve program (CRP) acres and non-cropland

Active Ingredients:

clopyralid MEA salt: 3,6-dichloro-2-pyridinecarboxylic acid, monoethanolamine salt	5.1%
2,4-dichlorophenoxyacetic acid, triisopropanolamine salt†	39.0%
Inert Ingredients	55.9%
Total	100.0%

Acid Equivalents:

clopyralid: 3,6-dichloro-2-pyridinecarboxylic acid - 3.9% - 0.38 lb/gal
2,4-dichlorophenoxyacetic acid - 20.9% - 2.0 lb/gal

†Isomer Specific by AOAC Method No. 978.05 (15th Ed.)

**ACCEPTED
with COMMENTS
In EPA Letter Dated**

JUN 14 2001

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

62719-48

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.)

Precautionary Statements

Hazards to Humans and Domestic Animals

Causes Eye Damage And Skin Irritation • Harmful If Swallowed

Do not get in eyes, on skin, or on clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear
- **For containers of over 1 gallon, but less than 5 gallons:** Mixers and loaders who do not use a mechanical system (such as probe and pump) to transfer the contents of this container must wear coveralls or a Chemical-resistant apron in addition to other required PPE.

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

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PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

Engineering Controls Statements

For containers of 5 gallons or more: A mechanical system (such as probe and pump) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

When handlers use enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (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.

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.

Environmental Hazards

Drift or runoff may adversely affect non-target plants. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Clopyralid is a chemical which can travel (seep or leach) through soil and under certain conditions contaminate groundwater which may be used for irrigation or drinking purposes. Users are advised not to apply clopyralid where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow, or to soils that would allow direct introduction into an aquifer. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to label booklet for additional precautionary information including Personal Protective Equipment (PPE), Engineering Controls Statements and User Safety Recommendations, and 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 1-800-992-5994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

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

EPA Reg. No. 62719-48
*Trademark of Dow AgroSciences LLC
Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

EPA Est. 464-MI-1

Herbicide

Net Contents XXX

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(Label Booklet Cover):

(Logo) Dow AgroSciences

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(Page 1 through end):

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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, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

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

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

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

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Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.

Storage: Store above 40°F or warm and agitate before use.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal (Metal): Do not reuse container. Triple rinse (or equivalent). 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). 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.

General Information

Curtail* herbicide is recommended for selective, postemergence control of broadleaf weeds in wheat and barley not underseeded with a legume, fallow cropland (including summer fallow, post-harvest, and set-aside acres) rangeland and permanent grass pastures, land in the Conservation Reserve Program (CRP) and non-cropland.

General Use Precautions and Restrictions

Use directions in Dow AgroSciences supplemental labeling may supersede directions or limitations in this labeling.

Do not exceed a cumulative amount of 0.25 lb active ingredient (a.i.) of clopyralid per acre per single crop year.

Do not contaminate irrigation ditches or water used for irrigation or domestic purposes.

Do not use in greenhouses.

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

Advisory: Many forbs (desirable broadleaf forage plants) are susceptible to Curtail. Do not spray pastures containing desirable forbs, especially legumes, unless injury can be tolerated. However, the stand and growth of established perennial grasses is usually improved after spraying, especially when rainfall is adequate and grazing is deferred.

Do not use on newly seeded areas until grass is well established as indicated by vigorous growth and development of tillers and secondary roots.

Do not use on bentgrass.

Apply only once per crop cycle, except for grasses grown for seed (see specific use directions). An application to fallow cropland preceding or following an application to small grains (wheat or barley) is allowed.

Do not transfer livestock from treated grazing areas to sensitive broadleaf crop areas without first allowing 7 days of grazing on an untreated pasture. Otherwise, urine may contain enough clopyralid to cause injury to sensitive broadleaf plants.

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Residues in Plants or Manure: Do not use plant residues, including hay or straw from treated areas, or manure from animals that have grazed or consumed forage from treated areas for composting or mulching where susceptible plants may be grown the following season. Do not spread manure from animals that have grazed or consumed forage or hay from treated areas on land used for growing susceptible broadleaf crops. To promote herbicidal decomposition, plant residues should be evenly incorporated or burned. Breakdown of clopyralid in crop residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.

Advisory (Avoid Movement of Treated Soil): Avoid conditions under which soil from treated areas may be moved or blown to areas containing susceptible plants. Wind-blown dust containing clopyralid may produce visible symptoms, such as epinasty (downward curving or twisting of leaf petioles or stems), when deposited on susceptible plants, however, serious injury is unlikely. To minimize potential movement of clopyralid on wind-blown dust, avoid treatment of powdery dry or light sandy soils until soil is settled by rainfall or irrigation or irrigation shortly after application.

Pasture/Grazing/Haying Restrictions

Do not graze lactating dairy cattle in treated areas for 14 days after application.

Remove meat animals from freshly treated areas 7 days before slaughter. Withdrawal is not needed if 2 weeks or more have elapsed since application.

Do not cut treated grass for hay within 30 days after application.

Crop Rotation Intervals

Residues of Curtail in treated plant tissues, including the treated crop or weeds, which have not decayed may affect succeeding susceptible crops.

Crop Rotation Intervals for All States, Except Idaho, Nevada, Oregon, Utah and Washington

Note: Numbers in parenthesis and † refer to footnotes following tables.

Rotation Crops (1)	Rotation Interval † (Soils greater than 2% organic matter AND rainfall more than 15 inches during 12 months following application)	Rotation Interval † (Soils less than 2% organic matter AND rainfall less than 15 inches during 12 months following application)
barley, field corn, grasses, oats, wheat	30 days	30 days
canola (rapeseed), flax, sugar beets	5 months	5 months
alfalfa, asparagus, cole crops, dry beans, grain sorghum, mint, onions, popcorn, safflower, soybeans, strawberries, sunflowers, sweet corn	10.5 months	18 months (2)
lentils, peas, potatoes (including potatoes grown for seed), and broadleaf crops grown for seed (excluding <i>Brassica</i> species)	18 months (2, 3)	18 months (2, 3)

1. A field bioassay is recommended prior to planting any broadleaf crops that are not listed. Do not rotate to unlisted crops prior to 10.5 months following application.
2. An 18-month crop rotation is recommended due to the potential for crop injury. **Note:** For these crops, a minimum 10.5 month rotation interval must be observed to avoid illegal residues in the harvested crop.

- The potential for injury may be reduced by burning, removal, or incorporation of treated crop residues followed by a minimum of 2 supplemental fall irrigations.

Crop Rotation Intervals for Idaho, Nevada, Oregon, Utah and Washington Only

Rotation Crop	Rotation Interval † (Soils greater than 2% organic matter AND rainfall more than 15 inches during 12 months following application)	Rotation Interval † (Soils less than 2% organic matter AND rainfall less than 15 inches during 12 months following application)
barley, field corn, grasses, oats, wheat	30 days	30 days
canola (rapeseed), flax, sugar beets	5 months	5 months
asparagus, <i>Brassica</i> species grown for seed, cole crops, grain sorghum, mint, onions, popcorn, strawberries, sweet corn	12 months	12 months
alfalfa, dry beans, soybeans, sunflowers	12 months	18 months (2)
lentils, peas, potatoes (including potatoes grown for seed), safflower, and broadleaf crops grown for seed (excluding <i>Brassica</i> species)	18 months (2)	18 months (2, 3)

- A field bioassay is recommended prior to planting any broadleaf crops that are not listed. Do not rotate to unlisted crops prior to 12 months following application.
- An 18-month crop rotation is recommended due to the potential for crop injury. **Note:** For these crops, a minimum 12 month rotation interval must be observed to avoid illegal residues in the harvested crop.
- Crop injury and/or yield loss may occur up to 4 years after application. A field bioassay is also recommended prior to planting these sensitive crops. See instructions below.

† **Note:** The above intervals are based on average annual precipitation, regardless of irrigation practices. Observance of recommended crop rotation intervals should result in adequate safety to rotational crops. However, Curtail is dissipated in the soil by microbial activity and the rate of microbial activity is dependent on several interrelating factors including soil moisture, temperature and organic matter. Therefore, accurate prediction of rotational crop safety is not possible. In areas of low organic matter (<2.0%) and less than 15 inches average annual precipitation, potential for crop injury may be reduced by burning or removal of plant residues, supplemental fall irrigation and deep moldboard plowing prior to planting the sensitive crop.

Field Bioassay Instructions: In fields previously treated with this product, plant short test rows of the intended rotational crop across the original direction of application. The test area should sample field conditions such as soil texture, soil pH, drainage, and any other variable that could affect the seed bed of the new crop. The field bioassay can be initiated at any time between harvest of the treated crop and the planting of the rotational crop. Observe the test crop for herbicidal activity, such as poor stand (effect on seed germination), chlorosis (yellowing), and necrosis (dead leaves or shoots), or stunting (reduced growth). If herbicidal symptoms do not occur, the test crop can be grown. If there is apparent herbicidal activity, do not plant the field to the test rotational crop; plant only a labeled crop or crop listed in the table above for which the rotational interval has clearly been met.

Advisory Statements

Avoiding Injury to Non-target Plants

This product can affect susceptible broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Therefore, do not apply Curtail directly to or allow spray drift to come in contact with flowers, grapes, tomatoes, potatoes, beans, lentils, peas, alfalfa, sunflowers, soybeans, safflower, or other desirable broadleaf crops and ornamental plants or soil where these sensitive crops will be planted the same season.

Avoid Spray Drift: Avoid spray drift since very small quantities of the spray, which may not be visible, may severely injure susceptible crops during active growth or dormant periods. Use coarse sprays to minimize drift. A drift control or deposition agent suitable for agricultural use may be used with this product to aid in reducing spray drift. If used, follow all use recommendations and precautions on the product label.

Ground Application: To minimize spray drift, apply Curtail in a total spray volume of 10 or more gallons per acre as a large-droplet, low pressure spray. Refer to spray equipment manufacturer's recommendations for additional information on spray volume, spray pressure, sprayer speed, type and arrangement of nozzles, height of nozzles above the target canopy, etc. Spray drift can be lessened by keeping the spray boom as low as possible; by using no more than 30 pounds per square inch (psi) spraying pressure with large droplet-producing nozzle tips; by using larger nozzle tips rather than increasing pressure to increase spray volume; and by spraying when wind velocity is low. Do not apply with hollow cone-type insecticide or other nozzles that produce a fine-droplet spray. Keep operating spray pressures at the lower end of the manufacturer's recommended pressure range for the specific nozzle type used. Low pressure nozzles are available from spray equipment manufacturers. Select nozzles and pressures that provide adequate plant coverage but minimize the production of fine spray particles. Avoid application under completely calm conditions which may be conducive to air inversions.

Aerial Application: With aircraft, drift can be lessened by applying a coarse spray; by using no more than 30 psi spray pressure at the nozzles; by using straight-stream nozzles directed straight back; by using a spray boom no longer than 3/4 the wing span of the aircraft; and by spraying only when wind velocity is low.

Avoid application by aircraft when an air temperature inversion exists. Such a condition is characterized by little or no wind and lower air temperature near the ground than at higher levels. The use of a smoke device on the aircraft or continuous smoke column at or near site of application will indicate air direction and velocity, and whether a temperature inversion is present, as indicated by horizontal layering of the smoke.

Sprayer Clean-Out

To avoid injury to desirable plants, equipment used to apply Curtail should be thoroughly cleaned before re-using to apply any other chemicals.

1. Rinse and flush application equipment thoroughly after use at least three times with water. Dispose of all rinse water by application to treatment area or apply to non-cropland area away from water supplies.
2. During the second rinse, add 1 qt of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15-20 min). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Remove nozzles and screens and clean separately.

Mixing and Loading

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-dichlorophenoxyacetic acid have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-dichlorophenoxyacetic acid pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

Mixing Instructions

1. Add 3/4 of the required spray volume to the spray tank and start agitation.
2. Add the required amount of Curtail.
3. Add any surfactants, adjuvants or drift control agents according to manufacturer's label.
4. Agitate during final filling of the spray tank and maintain sufficient agitation during application to ensure uniformity of the spray mixture.

Tank Mixing: This product may be applied in tank mix combination with labeled rates of other products provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product.

Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed recommended application rates. Do not tank mix with another pesticide product that contains the same active ingredient as this product unless the label of either tank mix partner specifies the maximum dosages that may be used.
- For products packaged in water soluble packaging, do not tank mix with products containing boron or mix in equipment previously used to apply a product mixture containing boron unless the tank and spray equipment has been adequately cleaned. (See instructions for Sprayer Clean-Out.)
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

Tank Mix Compatibility Testing: A jar test is recommended prior to tank mixing to ensure compatibility of Curtail and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Application Directions

Timing: Apply to actively growing weeds. Extreme growing conditions such as drought or near freezing temperatures prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. **Only weeds that have emerged at the time of application will be affected.** If foliage is wet at the time of application, control may be decreased. The Curtail treatment will be rainfast within 6 hours after application.

Application Rate Ranges: Generally, lower labeled application rates will be satisfactory for young, succulent growth of susceptible weed species. Higher labeled rates will generally be required for more tolerant species, perennials, weeds in dense stands or in advanced stages of growth, or under conditions of plant stress such as drought or extreme temperatures. Weeds in fallow land or other areas where competition from crops is not present will generally require higher rates for control or suppression.

Spray Coverage:

Use sufficient spray volume to provide thorough and uniform spray coverage of target weeds. Do not broadcast apply in less than 2 gallons of total spray volume per acre. For best results and to minimize

spray drift, apply in a spray volume of 10 or more gallons per acre. In general, spray volume must be increased as crop canopy, height and weed density increase in order to obtain equivalent weed control. Use only nozzle types and spray equipment designed for herbicide application. To reduce spray drift, follow precautions under "Avoiding Injury to Non-target Plants" in "Advisory Statements" section of this label.

Use of Surfactants: Addition of wetting and/or penetration agents is not usually necessary when using Curtail; however, if a surfactant will be added to the spray solution, use a non-ionic surfactant suitable for use in growing crops of at least 80% active ingredient and **do not exceed 4 pints per 100 gallons of spray solution (0.5% v/v)**. Use of a surfactant in the spray mixture may increase weed control effectiveness but may reduce crop safety, particularly under conditions of plant stress.

Use With Sprayable Liquid Fertilizer Solutions: Curtail is compatible with most non-pressurized liquid fertilizer solutions; however, if liquid fertilizer solutions are to be applied with Curtail, a compatibility test (jar test) should be made prior to mixing. Jar tests are particularly important when a new batch of fertilizer or pesticide is used, when the water source changes, or when tank mixture ingredients or concentrations are changed. A compatibility test is performed by mixing the spray components (in the desired order and proportions) into a clear glass jar before mixing in the spray tank. Use of a compatibility aid such as Unite or Compex may help obtain and maintain a uniform spray solution during mixing and application. Agitation in the spray tank must be vigorous to compare with jar test agitation. For best results, liquid fertilizer should not exceed 50% of the total spray volume. Premix Curtail with water and add to the liquid fertilizer/water mixture while agitating contents of the spray tank. Apply the spray the same day it is prepared while maintaining continuous agitation.

Advisory: Foliar-applied liquid fertilizers can cause yellowing or leaf burn of crop foliage.

Spot Treatments: To prevent misapplication, spot treatments should be applied only with a calibrated boom or with hand sprayers according to directions provided below.

Hand-Held Sprayers: Hand-held sprayers may be used for spot applications of Curtail if care is taken to apply the spray uniformly and at a rate equivalent broadcast application. Application rates in the table are based on an area of 1,000 sq ft. Mix the amount of Curtail (fl oz or ml) corresponding to the desired broadcast rate in one or more gallons of spray. To calculate the amount of Curtail required for larger areas, multiply the table value (fl oz or ml) by the area to be treated in "thousands" of square feet, e.g., if the area to be treated is 3,500 sq ft, multiply the table value by 3.5 (calc. $3,500 \div 1,000 = 3.5$). An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size.

Amount of Curtail per gallon of spray to Equal Specified Broadcast Rate				
1 pt/acre	2 pt/acre	2 2/3 pt/acre	3 pt/acre	4 pt/acre
3/8 fl oz (11 ml)	3/4 fl oz (22 ml)	1 fl oz (30 ml)	1 1/8 fl oz (33 ml)	1 1/2 fl oz (44 ml)

[†] 1 fl oz = 29.6 (30) ml

Broadleaf Weeds Controlled

Note: The letter in parentheses (-) after the listed weed indicates if life cycle is annual (a), biennial (b), or perennial (p).

alfalfa (from seed only) (p)	mustard, tumble (Jim Hill) (a)
artichoke, Jerusalem (p)	mustard, wild (a)
buckwheat, wild (a)	nightshade, black (a)
buffalobur (a) [†]	nightshade, cutleaf (a)
burdock, common (b)	nightshade, eastern black (a)
chamomile, false (scentless) (a)	nightshade, hairy (a)
chamomile, mayweed (dogfennel) (a)	pennycress, field (fanweed) (a)
clover, black medic (a)	pigweed, redroot (a)
clover, hop (a)	pineappleweed (a)
clover, sweet (b)	plantain (p)
clover, red (p)	radish, wild (a)
clover, white (p)	ragweed, common (a)
cocklebur, common (a)	ragweed, giant (a)
coffeeweed (a)	salsify, meadow (goatsbeard) (b)
cornflower (bachelor button) (a)	shepherdspurse (a)
dandelion (p)	sicklepod (a)
dock, curly (p)	smartweed, Pennsylvania (a)
flixweed (a) [†]	sorrel, red (p)
groundsel, common (b)	sowthistle, annual (a)
hawksbeard, narrowleaf (a)	sowthistle, perennial (p) [†]
hawkweed, orange (p)	starthistle, yellow (a)
hawkweed, yellow (p)	sunflower, common (a)
horseweed (a)	teasel, common (b)
jimsonweed (a)	thistle, bull (b)
knapweed, diffuse (b)	tansymustard, pinnate (a) [†]
knapweed, Russian (p) [†]	thistle, Canada (p)
knapweed, spotted (b)	thistle, musk (b)
kochia (2-4 leaf) (a) [†]	thistle, Russian (1-3 leaf) (a)
ladysthumb (a)	velvetleaf (a)
lambsquarters, common (a)	vetch (a)
lettuce, prickly (a)	volunteer beans (a)
locoweed, Lambert (p)	volunteer lentils (a)
locoweed, white (p)	volunteer peas (a)
marshelder (a)	wormwood, biennial (a, b)

[†] These weeds may only be suppressed. Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. The degree and duration of weed control will vary with weed size and density, application rate and coverage, and growing conditions before, during and after the time of treatment. **For perennial weeds**, Curtail will control the initial top growth and inhibit regrowth during the season of application (season-long control). At higher rates shown on this label, Curtail may cause a reduction in shoot regrowth in the season following application; however, plant response may be inconsistent due to inherent variability in shoot regrowth from perennial root systems.

Crop Uses

Agricultural Use Requirements for Crops: For the following crop uses, follow PPE and Reentry instructions in the "Agricultural Use Requirements" section of this label.

Barley and Wheat

Timing: Apply Curtail in the spring to actively growing wheat or barley once 4 leaves have unfolded on the main stem and tillering has begun up to the jointing stage (first node of main stem detectable). To control or suppress listed weeds, make application after maximum emergence of the target weeds but before they exceed 3 inches in height or diameter (for rosettes). To obtain season-long control of perennial weeds such as Canada thistle, apply after the majority of the weed's basal leaves have emerged from the soil up to bud stage. A later timing of application when the crop is between the jointing and boot stage of growth may be used to control later-emerging weeds; however, do not apply unless the risk of injury is acceptable. Do not apply after the boot stage.

Rate: Apply 2 to 2 2/3 pints per acre of Curtail. The higher rate may be used when the condition of the weeds and/or crop at the time of treatment may prevent optimum control.

Note: Higher rates of Curtail or any application of Curtail following a spring postemergence treatment with 2,4-D or MCPA, may increase the risk of crop injury.

Restrictions:

- Do not permit lactating dairy animals or meat animals being finished for slaughter to forage or graze treated grain fields within 1 week after treatment.
- Do not harvest hay from treated grain fields.

Tank Mixtures for Wheat and Barley

Curtail may be applied in tank mix combination with labeled rates of other products registered for postemergence application in wheat, barley, and oats. See "Tank Mixing Precautions" under "Mixing Instructions". When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

Precautions:

Buctril or Banvel tank mixes with Curtail may be useful in broadening the annual weed control spectrum but may reduce control of perennials, such as Canada thistle.

Do not tank mix Curtail with 2,4-D or dicamba unless the risk of crop injury is acceptable.

Fallow Cropland

Timing: Curtail may be applied either post-harvest or in the spring/summer (during fallow period), or to set-aside acres to control or suppress listed weeds (refer to rotation restrictions). Apply to young, emerged weeds under conditions that promote active growth. For best results on tough perennial weeds such as Canada thistle, apply after the majority of the basal leaves have emerged up to bud stage. Later applications may result in less consistent control. Extreme growing conditions (such as drought or near freezing temperatures) prior to, at, or following the time of application may reduce weed control.

For best results, wait 14 to 20 days after application before cultivating or fertilizing with shank-type applicators to allow for thorough translocation. To avoid potential phytotoxicity, allow at least 30 days after application before seeding to wheat, barley or grasses.

Rate: Apply 2-4 pints per acre of Curtail. Applications of Curtail to fallow cropland made either before or after an application to small grains in a 12 month period are restricted to 2 pints per acre. The lower rate should not be used in fallow cropland unless it is a part of a planned sequential treatment.

Tank Mixtures For Fallow Cropland

To improve control of certain broadleaf weeds, Curtail at 2 pints per acre may be applied with up to 1.5 lb acid equivalent per acre additional 2,4-D. See "Tank Mixing Precautions" under "Mixing Instructions". When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

Grasses Grown for Seed

Timing: Apply only to established grasses before the boot stage of growth. Applications in the boot stage and beyond will result in increased potential for injury. Do not apply to bentgrass unless injury can be tolerated. For control of late-emerging Canada thistle, a preharvest treatment may be made after grass seed is fully developed. Treatment of Canada thistle in the bud stage and later may result in less consistent control. Post-harvest fall treatments may be made to actively growing Canada thistle after the majority of basal leaves have emerged.

Rate: Use 2 to 4 pints per acre of Curtail for control of annual weeds and Canada thistle. The potential for crop injury exists due to the 2,4-D component of this product and must be balanced against the benefits of improved weed control. Potential for crop injury increases with higher rates. Re-treat as necessary, but do not exceed 4 pints per acre of Curtail per season.

Tank Mixtures for Grasses Grown for Seed

Curtail at 1 3/4 pints per acre may be tank mixed with Banvel or Buctril to improve the control of certain weeds. See "Tank Mixing Precautions" under "Mixing Instructions". When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

Rangeland, Pasture and Non-crop Uses

Use Requirements for Rangeland, Pasture and Non-cropland Areas: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is applied to rangeland, pasture or non-cropland areas.

Rotation to Broadleaf Crops: Do not plant broadleaf crops in treated areas until an adequately sensitive bioassay shows that no detectable clopyralid is present in the soil (see field bioassay instructions).

Rangeland and Permanent Grass Pastures

Apply 2 to 4 quarts per acre of Curtail when weeds are actively growing. For weeds such as biennial thistles, spotted and diffuse knapweed, yellow starthistle and Canada thistle apply the 2 quart per acre rate on light to moderate infestations under good growing conditions. Use 3 quarts per acre for dense infestations or under poor growing conditions such as drought. For control of Russian knapweed, apply 3-4 quarts per acre at the early bud to mid-flowering stage or on fall regrowth.

Note: Review "Pasture/Haying/Grazing/Restrictions" under "General Use Precautions".

Conservation Reserve Program (CRP) For Seeding To Permanent Grasses Only

Do not use Curtail if legumes or bentgrass are a desired cover crop during CRP.

Conditions of plant stress, such as drought, will increase potential for injury to grasses at all stages of growth. Do not apply to newly seeded areas until grass is established.

Timing: Curtail can be applied when perennial grasses are well established as indicated by vigorous growth and development of tillers and secondary roots. For control of weeds such as musk thistle, Canada thistle and knapweed (diffuse, spotted and Russian), apply to actively growing weeds after the majority of the basal leaves have emerged up to bud stage. Later applications may result in less consistent control.

In fields with heavy weed density which are to be planted to CRP grasses, a pre-seeding application may be made. In general, cropland to be planted to CRP in the spring should be treated during the previous fall and cropland to be planted to CRP in the fall should be treated during the previous spring or summer. A pre-seeding treatment with Curtail may cause visible injury and reduced seed production in some newly planted grass stands, however, grass stand establishment should be improved because of reduced weed competition. Wait at least 30 days after treatment with Curtail before seeding grasses.

Rate: Apply 2 to 4 quarts per acre of Curtail. Do not exceed 2 quarts per acre for pre-seeding treatment.

Non-Cropland

Apply 2 - 4 quarts per acre of Curtail when weeds are actively growing. Where Canada thistle or knapweed (spotted or diffuse only) is the primary pest, best results are obtained by applying Curtail when the majority of basal leaves have emerged up to bud stage. Later applications may result in less consistent control.

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