



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

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

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Dear Ms. Gilbert:

Subject: Curtail<sup>®</sup> M

APR 13 2000

EPA Registration No. 62719-86  
Application and Letter Dated March 3, 2000 and  
Application and Letter Dated April 5, 2000  
Request to Amend Registration: Precautionary  
Statements, Directions for Use, Add Use Directions  
for Rangeland and Permanent Pastures, Grazing  
and Haying Restrictions for Permanent Grass Pastures  
as Described in the April 5, 2000 Letter

The proposed labeling amendments described in your letter dated April 5, 2000 have been reviewed and found acceptable under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, provided that you:

1. Under Grazing and Haying Restrictions (Permanent Grass Pastures) delete the restriction: "Do not forage or graze livestock on treated areas within seven days of treatment. After deleting the restriction, correct the heading to reflect "Grazing Restriction for Rangeland and Grass Pastures". The required residue chemistry data to support grazing and feeding hay from the sites rangeland and grass pastures have not been reviewed by this Agency, You may propose appropriate restrictions for these use-sites that reflects the data you have submitted in response to the 1989 EPA Registration Standard (EPA Document 540/RS-89-069). Additional restrictions to reflect data submitted to this Agency is presently optional.
2. Submit one (1) copy of the final printed label prior to 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



Recycled/Recyclable  
Printed with Soy/Canola Ink on paper that  
contains at least 50% recycled fiber

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,

*Eugene P. Wilson*

*for*

Joanne I. Miller  
Product Manager (23)  
Herbicide Branch  
Registration Division (7505C)

Enclosure

3/19

(Base label):

(Logo) Dow AgroSciences LLC

# Curtail\* M

**For selective control of broadleaf weeds in wheat and barley not underseeded with a legume, fallow cropland, grasses grown for seed, rangeland, permanent grass pastures, and Conservation Reserve Program (CRP) acres.**

**Active Ingredient(s):**

clopypalid: 3,6-dichloro-2-pyridinecarboxylic acid .....	5.0%
MCPA: 2-methyl-4-chlorophenoxyacetic acid, 2-ethylhexyl ester .....	43.4%
Inert Ingredients .....	51.6%
Total .....	100.0%

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated**

**APR 13 2000**

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

62719-86

Contains Petroleum Distillates

**Acid Equivalents:**

- 3,6-dichloro-2-pyridinecarboxylic acid - 5.0% (0.42 lb/gal)
- 2-methyl-4-chlorophenoxyacetic acid - 27.8% (2.35 lb/gal)

**Keep Out of Reach of Children**

## CAUTION                      PRECAUCION

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.)

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### Precautionary Statements

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#### Hazards to Humans and Domestic Animals

**Causes Moderate Eye Irritation • Harmful If Swallowed, Inhaled, Or Absorbed Through Skin**

**Avoid contact with eyes, skin, or clothing. Avoid breathing spray mist.**

#### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category B on an EPA chemical resistance category selections chart.

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate or Butyl Rubber
- Shoes plus socks

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.

## Engineering Controls Statements

When handlers use enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protections 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.

## 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. Call a poison control center or doctor for treatment advice.

**If on skin:** 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 by a poison control center or doctor.

**If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

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

## Environmental Hazards

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 or rinsate.

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.

## Physical or Chemical Hazards

Do not use or store near heat or open flame.

## Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to 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), User Safety Recommendations and Directions for Use including Storage and Disposal.**

**Notice:** Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.**

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](http://www.dowagro.com).

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

EPA Reg. No. 62719-86

EPA Est. 464-MI-1

\*Trademark of Dow AgroSciences LLC

**Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.**

## **Herbicide**

**Net Contents XXX**

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(Datapack cover):

(Logo) **Dow AgroSciences LLC**

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MCPA: 2-methyl-4-chlorophenoxyacetic acid, 2-ethylhexyl ester .....	43.4%
<b>Inert Ingredients</b> .....	51.6%
<b>Total</b> .....	100.0%

Contains Petroleum Distillates

**Acid Equivalents:**

- 3,6-dichloro-2-pyridinecarboxylic acid - 5.0% (0.42 lb/gal)
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# Herbicide

Net Contents XXX

(Page 1 through end):

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## Precautionary Statements

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### Hazards to Humans and Domestic Animals

# CAUTION

**Causes Moderate Eye Irritation • Harmful If Swallowed, Inhaled, Or Absorbed Through Skin**

**Avoid contact with eyes, skin, or clothing. Avoid breathing spray mist.**

### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category B on an EPA chemical resistance category selections chart.

#### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate or Butyl Rubber
- Shoes plus socks

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.

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When handlers use enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protections 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.

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Users should:

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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.

### Physical or Chemical Hazards

Do not use or store near heat or open flame.

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### Directions for Use

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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
- Chemical-resistant gloves such as Barrier Laminate or Butyl Rubber
- Shoes plus socks

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Entry Restrictions for Non-WPS Uses:** When applied to rangeland, permanent pastures, and non-cropland areas, keep unprotected persons out of treated areas until sprays have dried.

**Storage and Disposal**

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

Store above 10°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). Then offer for recycling, 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, 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 Information**

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

**General Use Precautions**

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

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 M. 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.

**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 crop residues including straw from treated areas or manure from animals that have grazed 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 treated forage on land used for growing susceptible broadleaf crops. To promote herbicidal decomposition, crop 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.

**Grazing and Haying Restrictions (Permanent Grass Pastures)**

Do not forage or graze livestock on treated areas within seven days of treatment.  
Do not graze dairy animals on treated areas until seven days after treatment.

**Rotational Crop Restrictions**

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

(All States Except Idaho, Nevada, Oregon, Utah and Washington)

Rotation Crop	Rotation Crop Interval	Comments, Conditions and Limitations
barley, grasses, field corn, grasses, oats, wheat	30 days	Listed crops may be planted 30 days following application of Curtail M.
Sugar beets	5 months	Do not plant in the same growing season following application of Curtail M
alfalfa, asparagus, canola (rapeseed), cole crops, dry beans <sup>1</sup> , grain sorghum, mint, onions, popcorn, safflower, soybeans <sup>1</sup> , sunflowers <sup>1</sup> , sweet corn, strawberries	10.5 months	Do not plant listed crops for 10.5 months following application of Curtail M.  <sup>1</sup> If soils contain less than 2% organic matter and natural precipitation is less than 15 inches during the 10.5 months following application, these (footnoted) crops should not be planted until 18 months after application unless the risk of crop injury is acceptable. 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.
Lentils, peas, potatoes and broadleaf crops grown for seed	18 months	Do not plant listed crops for 18 months after application unless the risk of crop injury is acceptable. 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.

**(Idaho, Nevada, Oregon, Utah and Washington Only)**

<b>Rotation Crop</b>	<b>Rotation Crop Interval<sup>†</sup></b>	<b>Comments, Conditions and Limitations</b>
barley, grasses, field corn, oats, sugar beets, wheat	30 days	Listed crops may be planted 30 days following application of Curtail M.
sugar beets	5 months	Do not plant in the same growing season following application of Curtail M
alfalfa, asparagus, Brassica species grown for seed, broadleaf crops grown for seed (excluding Brassica species) <sup>1</sup> , canola (rapeseed), cole crops <sup>1</sup> , dry beans, grain sorghum, lentils <sup>1</sup> , mint, onions, peas <sup>1</sup> , popcorn, potatoes (including potatoes grown for seed) <sup>1</sup> , safflower <sup>1</sup> , soybeans, sunflower, sweet corn, strawberries	12 months	<b>In areas receiving greater than 18 inches of rainfall (not including irrigation)</b> , listed crops may be planted 12 months after an application of Curtail M.  <sup>1</sup> Unless risk of injury is acceptable, these (footnoted) crops should not be planted until 18 months after application.
alfalfa, dry beans, soybeans, sunflowers, lentils, peas, potatoes (including potatoes grown for seed) and broadleaf crops grown for seed (excluding <i>Brassica</i> species)	18 months	<b>In areas receiving less than 18 inches of rainfall (not including irrigation)</b> : Listed crops should not be planted until 18 months after an application of Curtail M. However, crop injury and/or yield loss may occur up to 4 years after application. In such cases, a field bioassay may be useful to determine suitability for planting a given crop.

<sup>†</sup>**Note:** The above restrictions are based on average annual precipitation, regardless of irrigation practices. Use of Curtail M in accordance with the rotational crop restrictions stated, if followed, is not expected to result in crop injury; however, because Curtail M is dissipated in the soil by microbial activity and the rate of microbial activity is dependent on soil moisture, temperature and organic matter, accurate prediction of potential rotational crop injury is impossible. 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 in a manner to sample field conditions such as soil texture, soil pH, drainage, and any other variable that could affect the seed bed of the new crop. Field bioassay 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 M directly to or allow spray drift to come in contact with vegetables, 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 M 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 arrangements 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 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 is present, as indicated by horizontal layering of the smoke.

**Sprayer Clean-Out**

To avoid injury to desirable plants, equipment used to apply Curtail M 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 Instructions**

1. Add 3/4 of the required spray volume to the spray tank and start agitation.
2. Add the required amount of Curtail M.
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 M 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. Curtail M 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.

**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 M; 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 M is compatible with most non-pressurized liquid fertilizer solutions; however, if liquid fertilizer solutions are to be applied with Curtail M, 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.

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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 M 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, used as a carrier for Curtail M, 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 M 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 M (fl oz or ml) corresponding to the desired broadcast rate in one or more gallons of spray. To calculate the amount of Curtail M 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 M per gallon of spray to Equal Specified Broadcast Rate						
1/3 pt/acre	1/2 pt/acre	3/4 pt/acre	1 pt/acre	2 pt/acre	3 pt/acre	4 pt/acre
1/8 fl oz (4 ml)	1/5 fl oz (6 ml)	1/4 fl oz (8 ml)	3/8 fl oz (11 ml)	3/4 fl oz (22 ml)	1 1/8 fl oz (33 ml)	1.5 fl oz (44 ml)

<sup>†</sup>1 fl oz = 29.6 (30) ml

**Note:** For a rate such as 1 3/4 pt/acre, add together the values for 3/4 pt/acre and 1 pt/acre.

### 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)	Nightshade, cutleaf (a)
Artichoke, Jerusalem (p)	Nightshade, hairy (a)
Buckwheat, wild (a)	Pennycress, field (fanweed) (a)
Buffalobur (a) <sup>1</sup>	Pigweed, redroot (a)
Burdock, common (b)	Pineappleweed (a)
Chamomile, false (scentless) (a)	Plantain (p)
Chamomile, mayweed (dogfennel) (a)	Radish, wild (a)
Clover, black medic (a)	Ragweed, common (a)
Clover, hop (a)	Ragweed, giant (a)
Clover, sweet (b)	Salsify, meadow (goatsbeard) (b)
Clover, red (p)	Shepherdspurse (a)
Clover, white (p)	Sicklepod (a)
Cocklebur, common (a)	Smartweed, Pennsylvania (a)
Coffeeweed (a)	Sorrel, red (p)
Cornflower (bachelor button) (a)	Sowthistle, annual (a)
Dandelion (p)	Sowthistle, perennial (p) <sup>1</sup>
Dock, curly (p)	Starthistle, yellow (a)
Flixweed (a) <sup>1</sup>	Sunflower, common (a)
Groundsel, common (b)	Teasel, common (b)
Hawksbeard, narrowleaf (a)	Thistle, bull (b)
Hawkweed, orange (p)	Tansymustard, pinnate (a) <sup>1</sup>
Hawkweed, yellow (p)	Thistle, Canada (p)
Horseweed (a)	Thistle, musk (b)
Jimsonweed (a)	Thistle, Russian (1-3-leaf) (a) <sup>1</sup>
Knapweed, diffuse (b)	Velvetleaf (a)
Knapweed, Russian (p) <sup>1</sup>	Vetch (a)
Knapweed, spotted (b)	Volunteer beans (a)
Kochia (2-4 leaf) (a) <sup>1</sup>	Volunteer lentils (a)
Ladysthumb (a)	Volunteer peas (a)
Lambsquarters, common (a)	Wormwood, biennial (a)
Lettuce, prickly (a)	
Mustard, tumble (Jim Hill) (a)	
Mustard, wild (a)	

<sup>1</sup>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 M 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 M 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

### **Barley, Oats and Wheat**

**Timing:** Apply Curtail M in the spring to actively growing wheat, barley or oats once 3 leaves have unfolded on the main stem up to the jointing stage (first node of main stem detectable). To control or suppress weeds listed above, 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 grain is between the jointing and boot stages) may be used to treat later-emerging weeds; however, do not apply unless the risk of injury is acceptable. Do not apply after the boot stage.

**Note:** 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.

**Rate:** Apply 1 3/4 to 2 1/3 pints per acre of Curtail M. 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 M, or any application of Curtail M following a spring post-emergence treatment with 2,4-D or MCPA, may increase the risk of crop injury.

### **Tank Mixtures**

Curtail M 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:**

Tank mixes of Banvel and Curtail M 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 M with 2,4-D or dicamba unless the risk of crop injury is acceptable.

### **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 injury. Do not apply to bentgrass unless injury can be tolerated. Potential for crop injury increases with higher rates. Re-treat as necessary but do not exceed 3 1/2 pints per acre of Curtail M per season. For control of late-emerging Canada thistle, a pre-harvest 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 1 3/4 to 3 1/2 pints per acre of Curtail M for control of annual weeds and Canada Thistle. The potential for crop injury exists due to the MCPA component of this product and must be balanced against the benefits of improved weed control.

**Tank Mixtures for Grasses Grown for Seed:** Curtail M 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

**For Rangeland, Pasture and Non-cropland Areas:** See the "Non-Agricultural Use Requirements" box under "Directions for Use".

**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 M 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:** For pasture use follow "Grazing and Haying Restrictions" under "General Use Precautions".

### **Conservation Reserve Program (CRP) For Seeding to Permanent Grasses Only**

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

**Timing:** Curtail M 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 M 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 a treatment with Curtail M before seeding grasses.

After CRP, do not plant broadleaf crops in treated areas until an adequately sensitive bioassay shows that no detectable clopyralid is present in the soil.

**Rate:** Apply 1 3/4 to 4 3/4 quarts per acre of Curtail M. Do not exceed 1 3/4 quarts per acre for pre-seeding treatment.

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**Warranty Disclaimer**

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Dow AgroSciences 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. Dow AgroSciences **MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

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**Inherent Risks of Use**

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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 Dow AgroSciences or the seller. All such risks shall be assumed by buyer.

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**Limitation of Remedies**

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The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used

Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. In no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

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