

67760-80

2/19/2008

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
 Office of Pesticide Programs  
 Registration Division (7505C)  
 1200 Pennsylvania Ave., N.W.  
 Washington, D.C. 20460

EPA Reg. Number:  
 67760-80

Date of Issuance:  
 FEB 19 2008

NOTICE OF PESTICIDE:

Registration  
 Reregistration

(under FIFRA, as amended)

Term of Issuance:  
 Conditional

Name of Pesticide Product:  
 Chisum Herbicide

Name and Address of Registrant (include ZIP Code):

Cheminova, Inc  
 Oak Hill Park  
 1700 Route 23, Suite 300  
 Wayne, NJ 07470

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A) provided that you:

1. Submit the results of the one-year storage stability (830.6317) and corrosion characteristics (830.6320) studies once they are available.
2. Submit and/or cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.
3. Make the labeling changes listed below before you release the product for shipment:
  - a. Add the phrase "EPA Registration No. 67760-80".

Signature of Approving Official:

James A. Tompkins, Product Manager (25)  
 Herbicide Branch, Registration Division (7505P)

Date:

2-19-08

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b. Add the statement "Harmful if absorbed through skin or if swallowed" to your Precautionary Statements before the statement "Causes moderate eye irritation." Refer to enclosed acute toxicology review for details.

c. . Add the following statements to your First Aid Statements.

If Swallowed"

- Call a poison control center or doctor immediately for treatment advice.
- Have a person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

4. Submit one (1) copy of your final printed label before you release the product for shipment.

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

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

Enclosure

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# CHISUM™ herbicide

For Use on Pastures, Rangeland or Established Grasses on Acres Enrolled in the Conservation Reserve Program

**ACTIVE INGREDIENT:**

Metsulfuron Methyl Methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]amino]sulfonyl]benzoate 48.0%

Chlorsulfuron 2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl]benzenesulfonamide 15.0%

Other Ingredients: 37.0%

Total: 100.0%

EPA Reg. No. 67760-*IN 80*

EPA EST NO.:

**KEEP OUT OF REACH OF CHILDREN  
CAUTION CAUTION**

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.)

**IN CASE OF A MEDICAL EMERGENCY INVOLVING THIS PRODUCT, CALL TOLL FREE,  
DAY OR NIGHT, 1-866-303-6950**

Read the entire label before using this product.

Use only according to label instructions.

Read the WARRANTY DISCLAIMER, INHERENT RISKS OF USE, and LIMITATION OF REMEDIES before buying or using.

If terms are not acceptable, return product unopened without delay.

SEE BELOW FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND USE DIRECTIONS

Manufactured for:  
CHEMINOVA INC.  
1700 Route 23  
Suite 300  
Wayne, NJ 07470  
[www.cheminova.us.com](http://www.cheminova.us.com)

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated:**

**FEB 19 2008**

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

67760-80

CHISUM™ is a trademark of Cheminova

<b>FIRST AID</b>	
<b>IF IN EYES:</b>	-Hold eye open and rinse slowly and gently with water for 15 to 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.
<b>IF ON SKIN OR CLOTHING:</b>	-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.
Have a product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency call toll free 1-866-303-6950.	

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION**

Causes moderate eye irritation. Avoid contact with eyes or clothing. Avoid contact with skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

**PERSONAL PROTECTIVE EQUIPMENT**

Some materials that are chemical resistant to this product are listed below. If you want more options follow the instructions for Category A on the EPA chemical resistance category selection chart.

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants.
- Chemical Resistant Gloves Category A (such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber), all ≥14 mils.
- 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 closed systems, 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.

**ENVIRONMENTAL HAZARDS**

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or when disposing of equipment washwaters.

## IMPORTANT INFORMATION

### PESTICIDE HANDLING

- Calibrate sprayers only with clean water away from the well site.
- Make scheduled checks of spray equipment.
- Assure accurate measurement of pesticides by all operation employees.
- Mix only enough product for the job at hand.
- Avoid overfilling of spray tank.
- Do not discharge excess material on the soil at a single spot in the field or mixing/loading station.
- Dilute and agitate excess solution and apply at labeled rates/uses.
- Avoid storage of pesticides near well sites.

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### 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 4 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 Category A (such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber), all  $\geq 14$  mils.
- Shoes plus socks.

### STORAGE AND DISPOSAL

**PESTICIDE STORAGE:** Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage.

**Pesticide Disposal:** Do not contaminate water, food, or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal: For Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. **For Fiber Sacks:** Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CHISUM should be used only in accordance with recommendations on this label or in separate published Cheminova recommendations. Cheminova will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by Cheminova.

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

**GENERAL INFORMATION**

CHISUM is recommended for use on land primarily dedicated to the production of pasture, rangeland, or established grasses in the Conservation Reserve Program (CRP). This product may also be used on selected uncultivated areas (fence rows, farmyards, and rights-of-way) directly adjacent to, or which transect or pass through, treated pastures, rangeland, or CRP, where grazing or harvesting for animal feed of those uncultivated areas may occur.

CHISUM is a dispersible granule that controls or suppresses broadleaf weeds and brush in pasture, rangeland and CRP. CHISUM is mixed in water or can be pre-slurried in water and added to liquid nitrogen carrier solutions and applied as a uniform broadcast spray. A spray adjuvant must be used in the spray mix unless otherwise specified on this label.

CHISUM is a broad-spectrum herbicide recommended for use on pastures, rangeland or CRP in most states. Check with your state extension or Department of Agriculture before use to be certain CHISUM is registered in your state. Do not use CHISUM in the following counties of Colorado: Alamosa, Conejos, Costilla, Rio Grande, and Saquache.

CHISUM controls weeds by preemergence and postemergence activity. For best results, apply CHISUM to young, actively growing weeds. Weeds hardened off by cold weather or drought stress may not be controlled. The use rate depends upon the weed spectrum and size of weeds at application. The degree and duration of control may depend on the following factors:

- weed spectrum and infestation intensity
- weed size at application
- environmental conditions at and following treatment

It is permissible to apply CHISUM to floodplains where surface water is not present, terrestrial areas of deltas, and low lying areas where water is drained but may be isolated in pockets due to uneven or unlevel conditions.

**Environmental Conditions and Biological Activity**

CHISUM is absorbed through the foliage and roots of broadleaf weeds, rapidly inhibiting their growth. Leaves of susceptible plants appear chlorotic from 1 to 3 weeks after application and the growing point subsequently dies. The final effects on annual weeds are evident about 4 to 6 weeks after application. The ultimate effects on perennial weeds and woody plants occur in the growing seasons following application.

One to two inches of rainfall or sprinkler irrigation (enough to wet the top 2-3 inches of soil profile) is needed to move CHISUM into the weed root zone before the next flush of weeds emerge. The amount of moisture required for sufficient activation increases with crop or weed residue and for finer textured soils. Without sufficient rainfall or sprinkler irrigation to move CHISUM into the weed root zone, weeds that germinate after treatment will not be controlled. Application of CHISUM provides the best control in vigorously growing grasses that shade competitive weeds. Weed control in areas of thin grass may not be as satisfactory. However, a grass canopy that is too dense at application can intercept spray and reduce weed control. CHISUM is safe to desirable grass species under normal conditions. However, grasses that are stressed from adverse environmental conditions (such as extremes in temperatures or moisture), abnormal soil conditions, or cultural practices, may be injured by applications of CHISUM. In addition, different species of grass crops may be sensitive to

treatment with CHISUM under otherwise normal conditions. Application of CHISUM to these species may result in injury.

In warm, moist conditions, the expression of herbicide symptoms is accelerated in weeds and brush; in cold and/or dry conditions, expression of herbicide symptoms is delayed. In addition, weeds and brush hardened-off by drought stress are less susceptible to CHISUM. Weed and brush control or suppression may be reduced if rainfall, sprinkler irrigation or snowfall occurs within 4 hours after application.

**APPLICATION INFORMATION FOR PASTURES AND RANGELAND**

**USE RATES FOR PASTURES AND RANGELAND**

**Application Timing—Pastures and Rangeland**

CHISUM may be used on established native grasses such as bluestems, blue grama, buffalograss and other pasture grasses such as bermudagrass, bluegrass, orchardgrass, bromegrass (except Matua bromegrass) and fescue. Specific application information on several of these pasture grasses follows.

Do not use on bentgrass or susceptible grass pastures such as timothy, carpetgrass, Matua bromegrass or St. Augustine grass.

Applications of CHISUM may cause severe injury to and/or loss of Pensacola bahiagrass, ryegrass (Italian or perennial) and Garrison's creeping foxtail pastures.

Pasture Grass	Minimum time from grass establishment to CHISUM application
Bermudagrass	2 months
Bluegrass, bromegrass (except Matua bromegrass and orchardgrass)	6 months
Fescue	24 months

**Buffalograss Precautions:**

Do not use CHISUM on buffalograss that has been established for less than one year or on stands grown for seed production. Do not apply more than 0.625 ounces per acre of CHISUM to buffalograss.

**Fescue Precautions:**

Note that CHISUM may temporarily stunt fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- do not use more than 0.5 ounces per acre of CHISUM
- use a non-ionic surfactant at 1/2 to 1 pint per 100 gallon of spray solution (1/16 to 1/8% v/v). Do not use a spray adjuvant other than non-ionic surfactant.
- make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall
- do not use surfactant when liquid nitrogen is used as a carrier

The first cutting yields may be reduced due to seedhead suppression resulting from treatment with CHISUM.

**Other Pasture and Rangeland Grasses:** Varieties and species of forage grasses differ in their tolerance to herbicides. When using CHISUM on a particular grass for the first time, limit use to a small area. If no injury occurs throughout the season, larger acreage may be treated the following season. Broadleaf pasture species, such as alfalfa and clover, are highly sensitive to CHISUM and will be severely stunted or injured by CHISUM.

**APPLICATION INFORMATION FOR CONSERVATION RESERVE PROGRAM (CRP)**

CHISUM is recommended for the control or suppression of broadleaf weeds in established stands (planted previous year, or earlier) of the following perennial native or improved grasses grown on land enrolled in the Conservation Reserve Program (CRP):

- |                   |                 |
|-------------------|-----------------|
| Blue Grama        | Orchardgrass    |
| Bluestems -       | Sideoats grama  |
| big               | Switchgrass -   |
| little            | blackwell       |
| plains            | Wheatgrasses -  |
| sand              | crested         |
| WW spar           | intermediate    |
| Buffalograss      | pubescent       |
| Green sprangletop | slender         |
| Indiangrass       | streambank      |
| Kleingrass        | tall            |
| Lovegrasses -     | thickspike      |
| atherstone        | western         |
| sand              | Wildrye grass - |
| weeping           | Russian         |
| wilman            |                 |

Because newly planted CRP grass stands do not sufficiently compete with weeds, and because weed pressure in CRP fields is often severe, performance from CHISUM may not always be satisfactory. An additional herbicide application or mowing may be needed.

**Application Timing and Use Rates for CRP**

CHISUM may be applied postemergence at 0.125 to 0.25 ounces per acre to labeled grasses listed above that were planted the previous season and are fully tillered.

**WEEDS AND BRUSH CONTROLLED OR SUPPRESSED IN PASTURES, RANGELAND OR CRP**

Unless otherwise directed in the **Specific Weed Problem** section of this label, treat when weeds are less than 4 inches tall or in diameter and are actively growing. Before using CHISUM, carefully consider your crop rotation plans and options. For rotational flexibility, do not treat all of your pasture, rangeland or CRP acres at the same time.

0.125 ounce per acre

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- |                             |                           |
|-----------------------------|---------------------------|
| Bitter sneezeweed           | Curly dock                |
| Blue/purple mustard*        | Cutleaf eveningprimrose*‡ |
| Broomweed, common           | Dandelion                 |
| Bur buttercup (testiculate) | False chamomile           |
| Buttercup                   | Field pennycress          |
| Canada thistle*‡            | (fanweed)                 |
| Carolina geranium           | Filaree                   |
| Coast fiddleneck            | Flixweed*                 |
| (tarweed)                   | Groundsel (common)        |
| Common chickweed            | Henbit                    |
| Common purslane             | Kochia*                   |
| Conical catchfly            | Lambsquarters             |
| Corn gromwell*‡             | (common, slimleaf)        |
| Cowcockle                   | Marestail (horseweed)     |



Mayweed chamomile  
 Miners lettuce  
 Pigweed (redroot,  
 smooth, tumble)  
 Plains coreopsis  
 Plantain  
 Prickly lettuce\*  
 Prostrate knotweed\*‡  
 Russian thistle\*  
 Shepherd's purse  
 Smallseed falseflax  
 Smartweed (green,  
 ladythumb, pale)

Snow speedwell  
 Tansymustard\*  
 Treacle mustard  
 (Bushy Wallflower)  
 Tumble/Jim Hill mustard  
 Volunteer sunflower\*  
 Waterpod  
 Wild buckwheat\*‡  
 Wild garlic\*  
 Wild mustard  
 Wild sunflower\*‡  
 Woolly croton\*

0.25 ounce per acre

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Annual marshelder  
 Blackeyed-Susan  
 Buckbrush‡  
 Burclover  
 Common yarrow  
 Dogfennel

Horsemint (beebalm)  
 Musk thistle\*  
 Purple scabious  
 Scotch thistle\*  
 Western snowberry‡  
 Wild carrot

0.375 to 0.625 ounce per acre

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Annual sowthistle  
 Aster  
 Bittercress  
 Chicory  
 Clover  
 Cocklebur  
 Common mullein  
 Corn cockle  
 Crown vetch  
 Goldenrod  
 Maximillion sunflower  
 Multiflora rose\*‡

Pennsylvania smartweed  
 Pensacola bahiagrass\*  
 Redstem filaree  
 Rough fleabane  
 Seaside arrowgrass  
 Sericea lespedeza\*  
 Silky crazyweed  
 (locoweed)  
 Sweet clover  
 Wild lettuce  
 Wood sorrel  
 Yankeeweed

0.625 to 1.25 ounce per acre

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Black henbane  
 Blackberry  
 Broom snakeweed\*  
 Buckhorn plantain  
 Common crupina  
 Dewberry  
 Dyer's woad  
 Gorse  
 Halogeton

Honeysuckle  
 Multiflora rose and other  
 wild roses\*  
 Plumeless thistle  
 Rosering gaillardia  
 Spotted knapweed\*  
 Teasel  
 Wild caraway  
 Yucca\*‡

1.25 ounce per acre

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Bull thistle

Common tansy

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Field bindweed‡  
Gumweed  
Houndstongue  
Perennial pepperweed  
Poison hemlock  
Purple loosestrife

Salsify  
Scouringrush  
Snowberry (Common,  
Mountain)  
St. Johnswort  
Western salsify  
Whitetop (hoary cress)

Rush skeletonweed\*‡

\* See the **SPECIFIC WEED PROBLEMS** section.

‡ Weed suppression is a reduction in weed competition (reduced population and/or vigor) as visually compared to an untreated area. The degree of suppression varies with the rate used, the size of the weeds, and the environmental conditions following treatment.

### SPECIFIC WEED PROBLEMS

**Note:** For best results, thorough spray coverage of all weed species listed below is very important.

**Blue/Purple Mustard, Flixweed, and Tansymustard:** For best results, apply CHISUM in tank mixtures with 2,4-D or MCPA postemergence to mustards, but before bloom.

**Broom Snakeweed:** For best results, apply CHISUM at 0.625 ounces per acre in the fall. Applications of CHISUM in the spring will provide suppression only.

**Canada Thistle:** For suppression with broadcast applications, apply either CHISUM or CHISUM with 2,4-D or MCPA in the spring after the majority of thistles have emerged and are small (rosette stage to 6 inches elongating stems) and actively growing. The application will inhibit the ability of emerged thistles to compete with grass.  
For suppression with spot applications, apply as a foliar spray once plant is fully leafed.

**Corn Gromwell, Cutleaf Eveningprimrose and Prostrate Knotweed:** Apply CHISUM when weeds are actively growing, are no larger than 2 inches tall, and when crop canopy will allow thorough coverage. Tank mixing 2,4-D or MCPA with CHISUM can improve results.

**Kochia, Russian thistle, Prickly lettuce:** Naturally occurring resistant biotypes of these weeds are known to occur. For best results, use CHISUM in a tank mix with Dicamba (such as "Banvel" or "Clarity") and 2,4-D. CHISUM should be applied in the spring when kochia, Russian thistle, and prickly lettuce are less than 2 inches tall or 2 inches across and are actively growing (refer to the Tank Mixtures section of this label for additional details).

**Multiflora Rose:** For control with broadcast applications, apply CHISUM as a broadcast application when multiflora rose is less than 3 feet tall. Application should be made in the spring, soon after multiflora rose is fully leafed.

**Musk Thistle, Scotch Thistle:** Apply CHISUM at 0.25 ounces per acre in the spring or early summer prior to flowering or in the fall after newly emerged plants have reached the rosette stage of growth. Certain biotypes of musk and scotch thistles are less sensitive to CHISUM and may not be controlled. Use of CHISUM at 0.25 ounces per acre may provide some additional control of these less sensitive biotypes, but may not achieve acceptable control. Consult with your local Cheminova representative, dealer or applicator for specific use rate and tank mix recommendations for your area. Fall applications should be made before the soil freezes.

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**Pensacola bahiagrass control in established Bermudagrass pasture:** Apply CHISUM at 0.375 ounces per acre after greenup in the spring but before bahiagrass seedhead formation. Application should be made when moisture is sufficient to enhance grass growth.

CHISUM is very effective for removal of bahiagrass from bermudagrass pastures. In highly infested pastures, the use of CHISUM can clear the areas of useful forage until the bermudagrass has time to cover the area. Therefore, CHISUM treatments should be spread out over a period of years. Do not apply to an entire farm or ranch in one year. Fertilization (particularly with nitrogen and potassium) and/or replanting may accelerate the process of reestablishment of bermudagrass. Under heavy bahiagrass pressure, grazing pressure, or adverse weather conditions (heat and drought), bahiagrass regrowth may occur.

CHISUM should not be applied in liquid fertilizer solutions for Pensacola bahiagrass control, as poor control and/or regrowth may occur.

CHISUM should not be used for the control of common or Argentine bahiagrass.

**Plumeless Thistle:** For control of plumeless thistle apply CHISUM at 0.625 ounces per acre in the spring or early summer prior to flowering or in the fall after newly emerged plants have reached the rosette stage of growth. Fall applications should be made before the soil freezes.

**Rush skeletonweed:** For best results, apply CHISUM at 1.25 ounces per acre with 8 fluid ounces of dicamba (such as "Banvel" or "Clarity") and 16 fluid ounces of 2,4-D per acre.

**Sericea lespedeza:** For best results, apply CHISUM at 0.625 ounces per acre beginning at flower bud initiation through the full bloom stage of growth. Do not make applications if drought conditions exist at intended time of application.

**Spotted Knapweed:** For best results, apply CHISUM at 0.625 ounces per acre with 8 fluid ounces of dicamba (such as "Banvel" or "Clarity") and 16 fluid ounces of 2,4-D per acre.

**Snowberry (Western, Common, Mountain):** For control of snowberry, apply CHISUM at 1.25 ounces after the plants are actively growing. Applications can be made throughout the growing season but before fall defoliation. Tank mixtures with 2,4-D ester improve control (refer to Tank Mixtures section of this label for additional information):

**Sunflower (wild or volunteer):** Apply CHISUM plus 2,4-D or MCPA after the majority of sunflowers have emerged, are 2 inches to 4 inches tall and are actively growing. Use spray volumes of at least 3 gal by air or 10 gal by ground.

**Wild Buckwheat:** For best results, apply CHISUM plus 2,4-D or MCPA when plants have no more than 3 true leaves (not counting the cotyledons). If plants are not actively growing, delay treatment until environmental conditions favor active weed growth.

**Wild Garlic:** For best results, apply CHISUM at 0.125 to 0.25 ounces per acre in the early spring when wild garlic is less than 12 inches tall with 2 inches to 4 inches of new growth.

**Woolly Croton:** For best results, apply CHISUM at 0.125 to 0.25 ounces per acre in the late spring or early summer from cotyledon through 2 true leaf stage.

**Yucca:** For best results, apply CHISUM at 0.625 to 1 ounce per acre plus 2,4-D, dicamba, dicamba plus 2,4-D, or "Remedy" from two weeks before blooming to two weeks after

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blooming.

### SPRAY ADJUVANTS

Unless otherwise recommended, applications of CHISUM must include either a crop oil concentrate or a nonionic surfactant. Consult Cheminova prior to using other adjuvant systems. If another herbicide is tank mixed with CHISUM, select adjuvants authorized for use with both products. Products must contain only EPA-exempt ingredients (40 CFR 180).

#### **Petroleum Crop Oil Concentrate (COC) or Modified Seed Oil (MSO)**

- Apply at 1% v/v (1 gal per 100 gal spray solution) or 2% under arid conditions.
- Oil adjuvants must contain at least 80% high quality, petroleum (mineral) or modified vegetable seed oil with at least 15% surfactant emulsifiers.

#### **Nonionic Surfactant (NIS)**

- Apply at 0.25% v/v (1 qt per 100 gal spray solution) or 0.5% under arid conditions.
- Surfactant products must contain at least 60% nonionic surfactant with a hydrophilic/lipophilic balance (HLB) greater than 12.

#### **Special Adjuvant Types**

- Combination adjuvant products may be used at doses that provide the required amount of NIS, COC, MSO. Consult product literature for use rates and restrictions.
- In addition to the adjuvants specified above, other adjuvant types may be used if they provide the same functionality and have been evaluated and approved by Cheminova. Consult Cheminova before using adjuvant types not specified on this label.

**Exceptions:** On Fescue pastures use no more than 1/2 to 1 pint non-ionic surfactant per 100 gallons.

Antifoaming agents may be used if needed.

#### **Ammonium Nitrogen Fertilizer**

- Use up to 2% v/v of a high-quality urea ammonium nitrate (UAN), such as 28% N or 32% N, or up to 17 lb/acre of a spray grade ammonium sulfate (AMS).

**Do not use low rates of liquid fertilizer as a substitute for spray adjuvants.**

### GROUND APPLICATION

To obtain optimum spray distribution and thorough coverage, use flat-fan or low-volume flood nozzles. For flat-fan nozzles, use at least 10 GPA for broadcast applications to pasture, rangeland or CRP.

For flood nozzles on 30 inch spacings, use at least 10 gallons per acre (GPA), flood nozzles no larger than TK10 (or equivalent), and a pressure of at least 30 pounds per square inch (psi). For 40 inch nozzle spacings, use at least 13 GPA; for 60 inch spacings, use at least 20 GPA. It is essential to overlap the nozzles 100% for all spacings.

With "Raindrop RA" nozzles, use at least 30 GPA and ensure that nozzle spray patterns overlap 100%.

Use 50-mesh screens or larger.

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### AERIAL APPLICATION

Use nozzle types and arrangements that provide optimum spray distribution and maximum coverage.

Use a minimum of 3 GPA.

When applying CHISUM by air in areas adjacent to sensitive crops, use solid stream nozzles oriented straight back. Adjust the swath to avoid spray drift damage to sensitive crops downwind and/or use ground equipment to treat the border edge of fields. See the **Spray Drift Management** section of this label.

### TANK MIXTURES

When tank mixing CHISUM, use the most restrictive label limitations for each product used in the mix.

#### With Insecticides and Fungicides

CHISUM may be tank mixed or used sequentially with insecticides and fungicides registered for use on pastures, rangeland or CRP. However, under certain conditions (drought stress or cold weather), tank mixes or sequential applications of CHISUM with organophosphate insecticides (such as methyl parathion) may produce temporary grass yellowing or, in severe cases, grass injury. The potential for grass injury is greatest when wide fluctuations in day/night temperatures occur just prior to or soon after application. Test these mixtures in a small area before treating large areas. Do not use CHISUM plus malathion, since grass injury will result.

#### Herbicide Tank Mixtures for Pastures or Rangeland:

CHISUM may be tank mixed with other suitable registered pasture and rangeland herbicides to control weeds listed as **WEEDS SUPPRESSED**, weeds resistant to CHISUM, or weeds not listed under **WEEDS CONTROLLED**. Read and follow all manufacturer's label recommendations for the companion herbicide. If those recommendations conflict with this label, do not tank mix the herbicide with CHISUM.

CHISUM can be applied in a tank mix with one of the following products. Refer to companion herbicide labels to confirm that the product is labeled for control of the weeds listed above and is registered for use in your state.

Product	Rate (oz product/A)
"Grazon" P+D	8 to 32
"Tordon" 22K	4 to 16
"Weedmaster"	8 to 32
"Remedy"	8

  

Product	Rate (oz A.I./A)
2,4-D	8 to 16
Dicamba (such as "Banvel" or "Clarity")	2 to 16
2,4-D + Dicamba	3 + 1 to 12 + 4

#### Herbicide Tank Mixtures for CRP: Preplant

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CHISUM may be tank mixed with glyphosate (such as GLYFOS® X-TRA or "Roundup UltraMax") as a pre-plant (prior to the planting of CRP grasses) treatment to control broadleaf and grass weeds. When using a glyphosate tank mix, allow at least 7 days after application before planting grasses. Refer to glyphosate containing product labels and fact sheets for all use instructions, label rates, weed control claims, warnings and precautions.

**Postemergence**

For best weed control performance in CRP, use CHISUM in a tank mix with 2,4-D (ester formulations perform best) or dicamba (such as "Banvel" or "Clarity").

CHISUM can be tank mixed with 2,4-D at 1/4 pound a.i./A for all labeled grasses larger than the 5-leaf stage. For fully tillered stands, up to 1/2 pound a.i./A of 2,4-D may be used. A spray adjuvant may be added. However, the addition of spray adjuvant may increase the chance of grass injury.

CHISUM can also be tank mixed with dicamba (such as "Banvel" or "Clarity"). Use no more than 1/8 to 1/4 pound a.i./A of dicamba plus CHISUM after majority of grasses are in the 3-leaf stage. In established grasses (2nd year stands), use no more than 1/4 to 1/2 pound a.i./A dicamba plus CHISUM. A spray adjuvant may be added. However, the addition of spray adjuvant may increase the chance of grass injury.

**With Liquid Nitrogen Solution Fertilizer**

Liquid nitrogen fertilizer solutions may be used as a carrier in place of water. Run a tank mix compatibility test before mixing CHISUM in fertilizer solution.

CHISUM must first be slurried with clean water and then added to liquid nitrogen solutions (e.g., 28-0-0, 32-0-0). Ensure that the agitator is running while the CHISUM is added.

Use of this mixture may result in temporary grass yellowing and stunting.

If using low rates of liquid nitrogen fertilizer (between 5 and 50% of the spray solution volume) in the spray solution, the addition of a non-ionic surfactant is necessary. Add surfactant at 1/4 pint per 100 gallon of spray solution (0.03%). Do not use a spray adjuvant other than non-ionic surfactant.

When using high rates of liquid nitrogen fertilizer (equal to or greater than 50% of the spray solution volume) in the spray solution, adding a spray adjuvant increases the risk of grass injury. Consult your agricultural dealer or consultant for a specific recommendation before adding an adjuvant to these tank mixtures.

If 2,4-D or MCPA is included with CHISUM and fertilizer mixture, ester formulations tend to be more compatible (See manufacturer's label). Do not add a spray adjuvant when using CHISUM in tank mix with 2,4-D ester and liquid nitrogen fertilizer solutions greater than 5% of the spray solution volume.

The use of liquid nitrogen fertilizer solutions greater than 5% of the spray solution volume with CHISUM at rates greater than 0.25 ounces may cause grass injury.

Do not use low rates of liquid fertilizer as a substitute for a spray adjuvant.

Do not tank mix CHISUM with liquid fertilizer solutions with a pH less than 3.0.

**MINIMUM ROTATIONAL INTERVALS**

Minimum rotation intervals are determined by the rate of breakdown of CHISUM applied. CHISUM breakdown in the soil is affected by soil pH, presence of soil microorganisms, soil temperature, and soil moisture. Low soil pH, high soil temperature, and high soil moisture increase CHISUM breakdown in soil, while high soil pH, low soil temperature, and low soil moisture slow CHISUM breakdown. Of these 3 factors, only soil pH remains relatively constant. Soil temperature, and to a greater extent, soil moisture, can vary significantly from year to year and from area to area. For this reason, soil temperatures and soil moisture should be monitored regularly when considering crop rotations.

Before using CHISUM, carefully consider your crop rotation plans and options. For rotational flexibility, do not treat all of your pasture, rangeland or CRP acres at the same time.

**SOIL PH LIMITATIONS**

CHISUM should not be used on soils having a pH above 7.9, because soil residual activity could extend crop rotation intervals beyond normal. Under certain conditions, CHISUM could remain active in the soil for 34 months or more, injuring subsequent crops

**Checking Soil pH**

Before using CHISUM, determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0 inch to 4 inch samples from different areas

of the field and analyze them separately. Consult local extension publications for additional information on recommended soil sampling procedures.

**BIOASSAY**

A field bioassay must be completed before rotating to any crop or grass species/variety not listed in the Rotation Intervals Table, or if the soil pH is not in the specified range, or if the use rate applied is not specified in the table. To conduct a field bioassay, grow test strips of the crop(s) or grass(es) you plan to grow in fields previously treated with CHISUM. Crop or grass response to the bioassay will indicate whether or not to rotate to the crop(s) or grass(es) grown in the test strips. If a field bioassay is planned, check with your local Agricultural dealer for information detailing the field bioassay procedure.

**CROP ROTATION**

Rotation Intervals in Pasture, Rangeland or CRP for Overseeding and Renovation

Location	Crop or Grass Species	Maximum Rotation CHISUM Rate on Pasture (ounce/acre)	Minimum Rotation Interval (months)
AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV	Alfalfa, red clover, white clover, sweet clover, bermudagrass, bluegrass, ryegrass, tall fescue	Up to 0.25	4
	Wheat (except durum)	Up to 0.375	1
	Durum, barley, oat	Up to 0.375	10
ALL STATES NOT INCLUDED ABOVE	Red clover, white clover, and sweet clover	Up to 0.25	12

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	Bermudagrass, bluegrass, ryegrass	Up to 0.25	6
	Tall Fescue	Up to 0.25	18
	Wheat (except durum)	Up to 0.25	1
	Durum, barley, oat	Up to 0.25	10
ALL AREAS WITH SOIL PH OF 7.5 OR LESS	Russian wildrye	Up to 0.625	1
	Green needlegrass, switchgrass, sheep fescue	Up to 1.25	1
	Meadow brome, smooth brome, alta fescue, red fescue, meadow foxtail, orchardgrass, Russian wildrye, timothy	Up to 1.25	2
ALL AREAS WITH SOIL PH OF 7.9 OR LESS	Alkali sacaton, mountain brome, blue grama, thickspike wheatgrass	Up to 1.25	1
	Sideoats grama, switchgrass	Up to 0.625	2
	Western wheatgrass	Up to 1.25	2
	Sideoats grama, switchgrass, big bluestem	Up to 1.25	3
	STS™ soybean	Up to 0.25	6
AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV WITH SOIL PH OF 7.0 OR LESS	Field corn, Soybeans	Up to 0.25	12

#### GRAZING/HAYING

There are no grazing or hay harvest restrictions for CHISUM when applied to range, pasture, CRP, and/or undesirable vegetation in uncultivated areas (fence rows, farmyards, and rights-of-way) which are adjacent to, or pass through or transect, treated pastures, rangeland, or CRP.

Coveralls and shoes plus socks must be worn if cutting within 4 hours of treatment.

#### MIXING INSTRUCTIONS

1. Fill the tank 1/4 to 1/3 full of water (If using liquid nitrogen fertilizer solution in place of water, see **Tank Mixtures** sections for additional details).
2. While agitating, add the required amount of CHISUM.
3. Continue agitation until the CHISUM is fully dispersed, at least 5 minutes.
4. Once the CHISUM is fully dispersed, maintain agitation and continue filling tank with water. CHISUM should be thoroughly mixed with water before adding any other material.



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5. As the tank is filling, add tank mix partners (if desired) then add the necessary volume of spray adjuvants. Always add spray adjuvants last.
  6. If the mixture is not continuously agitated, settling will occur. If settling occurs, thoroughly re-agitate before using.
  7. Apply CHISUM spray mixture within 24 hours of mixing to avoid product degradation.
  8. If CHISUM and a tank mix partner are to be applied in multiple loads, pre-slurry the CHISUM in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the CHISUM.

Do not use CHISUM with spray additives that reduce the pH of the spray solution to below 3.0.

### **SPRAY EQUIPMENT**

For specific application equipment, refer to the manufacturer's recommendations for additional information on GPA, pressure, speed, nozzle types and arrangements, nozzle heights above the target canopy, etc.

Be sure to properly calibrate air or ground equipment before application. Select a spray volume and delivery system that will ensure thorough coverage and a uniform spray pattern with minimum drift. Use higher spray volumes to obtain better coverage when the crop canopy is dense. Avoid swath overlapping, and shut off spray booms while starting, turning, slowing, or stopping to avoid crop injury.

Do not make applications using equipment and/or spray volumes or under weather conditions that might cause spray to drift onto nontarget sites. For additional information on spray drift, refer to the **Spray Drift Management** section of the label.

Continuous agitation is required to keep CHISUM in suspension.

### **SPRAYER CLEANUP**

Spray equipment must be clean before CHISUM is sprayed. Follow the cleanup procedures specified on the labels of previously applied products. If no directions are provided, follow the six steps outlined in **After Spraying CHISUM** section of this label.

#### **At the End of the Day**

When multiple loads of CHISUM herbicide are applied, it is recommended that at the end of each day of spraying, the interior of the tank be rinsed with fresh water and then partially filled, and the boom and hoses flushed. This will prevent the buildup of dried pesticide deposits that can accumulate in the application equipment.

#### **After Spraying CHISUM and Before Spraying Crops Other Than Pasture, Rangeland or CRP**

To avoid subsequent injury to desirable crops, thoroughly clean all mixing and spray equipment immediately following applications of CHISUM as follows:

1. Drain tank; thoroughly rinse spray tanks, boom, and hoses with clean water. Loosen and physically remove any visible deposits.
2. Fill the tank with clean water and 1 gal of household ammonia\* (contains 3% active) for every 100 gal of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 min. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank.
3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.

- 4. Repeat step 2.
- 5. Rinse the tank, boom, and hoses with clean water.
- 6. If only Ammonia is used as a cleaner, the rinsate solution may be applied back to the crop(s) recommended on this label. Do not exceed the maximum-labeled use rate. If other cleaners are used, consult the cleaner label for rinsate disposal instructions.  
If no instructions are given, dispose of the rinsate on site or at an approved waste disposal facility.

\* Equivalent amounts of an alternate-strength ammonia solution or a Cheminova-approved cleaner can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions. Consult your agricultural dealer, applicator, or Cheminova representative for a listing of approved cleaners.

**Notes:**

- 1. Attention: Do not use chlorine bleach with ammonia, as dangerous gases will form. Do not clean equipment in an enclosed area.
- 2. Steam-cleaning aerial spray tanks is recommended prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.
- 3. When CHISUM is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.
- 4. In addition to this cleanout procedure, all precleanout guidelines on subsequently applied products should be followed as per the individual labels.
- 5. Where routine spraying practices include shared equipment frequently being switched between applications of CHISUM and applications of other pesticides to CHISUM sensitive crops during the same spray season, it is recommended that a sprayer be dedicated to CHISUM to further reduce the chance of crop injury.

**SPRAY DRIFT MANAGEMENT**

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions.

**AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.**

**IMPORTANCE OF DROPLET SIZE**

The most effective way to reduce drift potential is to apply large droplets (>150 - 200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. **APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS!** See **Wind, Temperature and Humidity, and Temperature Inversions** sections of this label.

**Controlling Droplet Size - General Techniques**

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. **WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.**
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

### Controlling Droplet Size – Aircraft

- **Number of Nozzles** - Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- **Nozzle Type** - Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.
- **Boom Length** - The boom length should not exceed 3/4 of the wing or rotor length - longer booms increase drift potential.
- **Application Height** - Application more than 10 ft above the canopy increases the potential for spray drift.

### BOOM HEIGHT

Setting the boom at the lowest labeled height (if specified) which provides uniform coverage reduces the exposure of droplets to evaporation and wind. For ground equipment, the boom should remain level with the crop and have minimal bounce.

### WIND

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. AVOID GUSTY OR WINDLESS CONDITIONS.

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

### TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

### TEMPERATURE INVERSIONS

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

### SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

### WEED RESISTANCE

When herbicides that affect the same biological site of action are used repeatedly over several years to control the same weed species in the same field, naturally-occurring resistant biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field. Adequate control of these resistant weed biotypes cannot be expected. If

weed control is unsatisfactory, it may be necessary to retreat the problem area using a product affecting a different site of action.

To better manage herbicide resistance through delaying the proliferation and possible dominance of herbicide resistant weed biotypes, it may be necessary to change cultural practices within and between crop seasons such as using a combination of tillage, retreatment, tank-mix partners and/or sequential herbicide applications that have a different site of action. Weed escapes that are allowed to go to seed will promote the spread of resistant biotypes.

It is advisable to keep accurate records of pesticides applied to individual fields to help obtain information on the spread and dispersal of resistant biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative cultural practices or herbicide recommendations available in your area.

**INTEGRATED PEST MANAGEMENT**

This product may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds.

Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop systems in your area.

**PRECAUTIONS**

• CHISUM may cause injury to desirable trees and plants when contacting their roots, stems or foliage. These plants are most sensitive to CHISUM during their development or growing stage. FOLLOW THE PRECAUTIONS IN THIS LABEL WHEN USING CHISUM.

- Injury to or loss of desirable trees or vegetation may result from failure to observe the following:
  - Do not apply CHISUM, or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
  - Do not use on lawns, walks, driveways, tennis courts, golf courses, athletic fields, commercial sod operations, or other high-maintenance, fine turfgrass areas, or similar areas.
  - Do not use on grasses grown for seed.
- Do not contaminate irrigation ditches or water used for domestic purposes.
- Do not apply to irrigated land where the tailwater will be used to irrigate crops.
- Do not apply to frozen ground as surface runoff may occur.
- Do not apply to snow-covered ground.
- Grass species or varieties may differ in their response to various herbicides. Cheminova recommends that you first consult your state experiment station, university, or extension agent as to sensitivity to any herbicide. If no information is available, limit the initial use of CHISUM to a small area. Components in a grass seed mixture will vary in tolerance to CHISUM so the final stand may not reflect the seed ratio.
- Under certain conditions such as heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after CHISUM application, temporary discoloration and/or grass injury may occur. CHISUM should not be applied to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soil, disease, or insect damage, as grass injury may result. Severe winter stress, drought, disease, or insect damage before or following application also may result in grass injury.

- Applications of CHISUM to pastures, rangeland or CRP undersown with legume crops may cause severe injury to the legumes. Legumes in a seeding mixture may be severely injured or killed following an application of CHISUM.
- Treatment of powdery, dry soil or light, sandy soil when there is little likelihood of rainfall soon after treatment may result in off target movement and possible damage to susceptible crops when soil particles are moved by wind or water. Injury to crops may result if treated soil is washed, blown, or moved onto land used to produce crops. Injury may be more severe when the crops are irrigated. Do not apply CHISUM when these conditions are identified and powdery, dry soil or light or sandy soil are known to be prevalent in the area to be treated.
- Applications made where runoff water flows onto agricultural land may injure crops. Applications made during periods of intense rainfall, to soils saturated with water, or soils through which rainfall will not readily penetrate may result in runoff and movement of CHISUM. Treated soil should be left undisturbed to reduce the potential for CHISUM movement by soil erosion due to wind or water.
- For ground applications applied to weeds when dry, dusty field conditions exist, control of weeds in wheel track areas may be reduced.
- Do not apply more than the equivalent of 1 ounce of chlorsulfuron per acre per year.
- Do not apply more than the equivalent of 1 ounce of metsulfuron methyl per acre per year.
- Avoid disturbing (e.g. cultivating or mowing) treated areas for at least 7 days following application.

**WARRANTY DISCLAIMER**

Cheminova 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. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, CHEMINOVA MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

**INHERENT RISKS OF USE**

It is impossible to eliminate all risks associated with use of this product. Crop 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 temperatures, 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 Cheminova or the Seller. All such risks shall be assumed by Buyer and User. Buyer and User agree to hold Cheminova and the Seller harmless for any claims related to such factors.

**LIMITATION OF REMEDIES**

To the extent consistent with applicable law, 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 one of the following, at Cheminova's election:

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

In no case shall Cheminova be liable for consequential, incidental, or special damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Cheminova

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or the Seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

For product information call: 1-800-548-6113  
Internet address: [www.cheminova.us.com](http://www.cheminova.us.com).  
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## Supplemental Label

### CHEMINOVA CHISUM HERBICIDE

EPA REG. NO. 67760-

BROADLEAF WEED CONTROL IN WHEAT AND BARLEY IN  
THE STATES OF COLORADO, KANSAS, NEW MEXICO,  
OKLAHOMA AND TEXAS

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#### DIRECTIONS FOR USE

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CHISUM may be applied alone for control of emerged broadleaf weeds postemergence, or in combination with other suitable registered herbicides for wheat and barley. Read and follow all manufacturers label recommendations for the companion herbicide. If those recommendations conflict with this label, do not tank mix the herbicide with CHISUM. It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Apply CHISUM at 0.125 ounces per acre for control or partial control of the weeds listed on the EPA registered label. Include a nonionic surfactant, petroleum based crop oil concentrate, or vegetable-seed oil-based product (methylated seed oils are considered a vegetable seed-based oil). If another herbicide is tank mixed with CHISUM to increase the broadleaf weed spectrum, select adjuvants based on the adjuvant limitations of the companion herbicide.

#### WHEAT and BARLEY

##### Use Rates

0.125 ounces per acre

##### Application Timing

Do not apply during boot and early heading, as crop injury may result.

Effectiveness may be reduced if rainfall occurs within 4 hours after application. Unless otherwise directed, treat when weeds are less than 4" tall or in diameter and are actively growing.

##### Irrigated Wheat and Barley

Make applications after the crop begins tillering but before boot. First post-treatment irrigation should be delayed for at least 3 days after treatment and should not exceed 1 inch of water.

##### Dryland Wheat and Barley

Make applications after the crop is in the 2-leaf stage but before boot once per use season. Apply 0.125 ounces CHISUM per acre to wheat and barley once per use season.

#### WEEDS CONTROLLED

##### 0.125 ounces per acre

Blue/purple mustard*	Miners lettuce
Bur buttercup (testiculate)	Pigweed (redroot, smooth, tumble)
Coast fiddleneck (tarweed)	Plains coreopsis
Common chickweed	Prickly lettuce*
Common purslane	Russian thistle*
Conical catchfly	Shepherd's purse
Cowcockle	Smallseed falseflax*
False chamomile	Smartweed (green, ladythumb, pale)

Field pennycress (fanweed)	Snow speedwell
Filaree	Tansymustard*
Flixweed*	Treacle mustard* (Bushy Wallflower)
Groundsel (common)	Tumble/Jim Hill mustard
Henbit	Volunteer sunflower
Kochia*	Waterpod
Lambsquarters (common, slimleaf)	Wild mustard II
Mayweed chamomile	

**WEEDS SUPPRESSED †\***

Canada thistle*	Knotweed (prostrate)*
Common sunflower*	Sowthistle (annual)*
Corn gromwell*	Wild buckwheat*

\* See the Specific Weed Problems section.

†Weed suppression is a reduction in weed competition (reduced population and/or vigor) as visually compared to an untreated area. The degree of suppression varies with the rate used, the size of the weeds, and the environmental conditions following treatment.

**SPECIFIC WEED PROBLEMS**

**Blue Mustard, Treacle Mustard, Flixweed, Small seeded falseflax, and Tansymustard:** For best results, apply CHISUM tank mixtures with 2,4-D or MCPA postemergence to mustards, but before bloom. For Tansy mustard, Flixweed, Treacle mustard and Small seeded falseflax control, apply 0.1 ounces of CHISUM plus 114 pound active 2,4-0 ester, If only Tansy mustard, Flixweed or Treacle mustard are present, apply 0.083 ounces of CHISUM plus 1/4 pound active 2,4-0 ester for control.

**Canada Thistle and Sowthistle:** Apply CHISUM plus surfactant or CHISUM plus 2,4-D or MCPA in the spring after the majority of thistles have emerged and are small (rosette stage to 6" elongating stems) and actively growing. The application will inhibit the ability of emerged thistles to compete with the crop.

**Corn Gromwell and Prostrate Knotweed:** Apply Cheminova CHISUM plus surfactant when weeds are actively growing, are no larger than 2" tall, and when crop canopy will allow thorough coverage. Tank mixing 2,4-0 or MCPA with CHISUM can improve results.

**Kochia, Russian thistle, Prickly lettuce:** Naturally occurring resistant biotypes of these weeds are known to occur. For best results, use CHISUM in a tank mix with Dicamba and 2,4-0, or bromoxynil and 2,4-D (such as 3/4 - 1 pint "Buctril" + 1/4 - 3/8 pound active 2,4-D ester). CHISUM should be applied in the spring when kochia, Russian thistle, and prickly lettuce are less than 2" tall or 2" across and are actively growing (refer to the Tank Mixtures section of this label for additional details).

**Sunflower (common/volunteer):** Apply either CHISUM plus surfactant or CHISUM plus 2,4-0 or MCPA after the majority of sunflowers have emerged, are 2" to 4" tall and are actively growing. Use spray volumes of at least 3 gallons by air or 5 gallons by ground.

**Wild Buckwheat:** For best results, apply CHISUM plus 2,4-0 or MCPA when plants have no more than 3 true leaves (not counting the cotyledons). If plants are not actively growing, delay treatment until environmental conditions favor active weed growth.

**SPRAY ADJUVANTS Nonionic Surfactant (NIS)**

Apply at a rate (concentration) of 0.25-0.5% v/v (1-2 qt per 100 gal spray solution). Use the higher rate in hot and dry conditions to enhance control.



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### **Crop Oil Concentrate**

Under dry conditions or during cool weather, a petroleum based crop oil concentrate, or vegetable-seed oil-based product may be used in place of a nonionic surfactant at 1-2 gallon/100 gal of spray solution (1-2% v/v) to enhance weed control. Use a petroleum-based crop oil concentrate with at least 14% emulsifiers/surfactant and 80% oil.

### **Ammonium Nitrogen Fertilizer**

An ammonium nitrogen fertilizer can be added to a surfactant or a crop oil concentrate to enhance control. Alternatively, a highquality, sprayable grade of ammonium sulfate (2 1-0-0) may be used.

## **CROP ROTATION**

### **Minimum Rotational Intervals**

Minimum rotation intervals\* are determined by the rate of breakdown of CHISUM applied. CHISUM breakdown in the soil is affected by soil pH, presence of soil microorganisms, soil temperature, and soil moisture. Low soil pH, high soil temperature, and high soil moisture increase CHISUM breakdown in soil, while high soil pH, low soil temperature, and low soil moisture slow CHISUM breakdown. Of these 3 factors, only soil pH remains relatively constant. Soil temperature, and to a greater extent, soil moisture, can vary significantly from year to year and from area to area. For this reason, soil temperatures and soil moisture should be monitored regularly when considering crop rotations.

\* The minimum rotation interval represents the period of time from the last application to the anticipated date of the next planting.

### **Soil pH Limitations**

CHISUM should not be used on soils having a pH above 7.9, as extended soil residual activity could extend crop rotation intervals beyond normal. Under certain conditions, CHISUM could remain in the soil for 34 months or more, injuring wheat and barley. In addition, other crops planted in high-pH soils can be extremely sensitive to low concentrations of CHISUM

### **Checking Soil pH**

Before using CHISUM, determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0" to 4" samples from different areas of the field and analyze them separately. Consult local extension publications for additional information on recommended soil sampling procedures.

## **BIOASSAY**

A field bioassay must be completed before rotating to any crop not listed (See the Rotation Intervals table), or if the soil pH is not in the specified range, or if the use rate applied is not specified in the table, or if the minimum cumulative precipitation has not occurred since application.

### **Field Bioassay**

To conduct a field bioassay, grow test strips of the crop or crops you plan to grow the following year in fields previously treated with CHISUM. Crop response to the bioassay will indicate whether or not to rotate to the crop(s) grown in the test strips. If a field bioassay is planned, check with your local Agricultural dealer for information detailing the field bioassay procedure. Before using CHISUM, carefully consider your crop rotation plans and options. For rotational flexibility, do not treat all of your wheat or barley acres at the same time.

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**Rotational Intervals for Cereals**

All Areas - Following Use of Cheminova CHISUM at 0.125 ounces per Acre

Crop	Soil pH	Minimum Cumulative Precipitation (inches)	Minimum Rotational Interval (months)
Winter and spring wheat	7.9 or lower	No restrictions	1
Durum wheat, barley, spring/winter oat	7.9 or lower	No restrictions	10

**Rotation Intervals For Crops in Non-Irrigated Land**

Following Use of CHISUM at 0.125 ounces per Acre on Wheat and Barley

Location		Crop	Soil pH	Minimum Cumulative Precipitation (inches)	Minimum Rotational Interval (months)
State	County or Area	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
Colorado	Statewide	Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
		Field corn	7.9 or lower	15	12
		IR Corn	7.9 or lower	No restrictions	4
		STS Soybeans	7.9 or lower	No restrictions	4
Kansas	Central & Western Kansas (West of the Flint Hills)	Field Corn	7.9 or lower	15	12
		IR Corn	7.9 or lower	15	4
	Western Kansas W. of Hwy. 183	Soybeans	7.5 or lower	22	22
			7.6 - 7.9	33	34
	Central Kansas, Generally E. of Hwy. 183 and W. of the Flinthills	Soybeans	7.9 or lower	15	12
STS Soybeans		7.9 or lower	15	4	
New Mexico	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower Sunflower	7.9 or lower	No restrictions	22
	Eastern New Mexico	Cotton (dryland only)	7.9 or lower	30	22
Oklahoma	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower Sunflower	7.9 or lower	No restrictions	22
		Field corn	7.9 or lower	15	12
		IR Corn STS Soybean	7.9 or lower	No restrictions	4
	Panhandle	Cotton (dryland only)	7.9 or lower	30	22
	E. of the Panhandle	Cotton (dryland only)	7.9 or lower	25	14

Texas	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower, Soybean, Sunflower	7.9 or lower	No restrictions	22
	Panhandle	Field corn	7.9 or lower	15	12
		Cotton (dryland only)	7.9 or lower	30	22
	N. Central Texas*	Field corn	7.9 or lower	15	12
		Cotton (dryland only)	7.9 or lower	25	14

\* The counties of N. Central Texas are: Archer, Baylor, Bell, Bosque, Bowie, Callahan, Camp, Cass, Clay, Collin, Cooke, Coryell, Dallas, Delta, Demon, Eastland, Ellis, Falls, Fannin, Foard, Franklin, Grayson, Hardeman, Haskell, Hill, Hood, Hopkins, Hunt, Jack, Johnson, Kaufman, Knox, Lamar, Limestone, McLennan, Milam, Montague, Morris, Nafarro, Palo Pinto, Parker, Rains, Red River, Robertson, Rockwall, Shackelford, Somervell, Stephens, Tarrant, Throckmorton, Titus, Upshur, Van Zandt, Wilbarger, Wichita, Williamson, Wise, Wood, Young.

**GRAZING**

There are no grazing restrictions on Cheminova CHISUM.

**IMPORTANT PRECAUTIONS**

Treated vegetation may be cut for forage or hay. Coveralls, shoes plus socks must be worn if cutting within 4 hours of treatment.

**IMPORTANT BEFORE USING CHISUM, READ AND FOLLOW ALL APPLICABLE DIRECTIONS, RESTRICTIONS AND PRECAUTIONS ON THE EPA-REGISTERED LABEL.**

This bulletin contains new or supplemental instructions for use of this product which do not appear on the EPA-registered package label. Follow the instructions carefully. This labeling must be in the possession of the user at the time of pesticide application.

Read the Limitation of Warranty and Liability on the Section 3 Federal product label before buying or using THIS product. If terms are not acceptable, return the unopened package at once to Seller for full refund of purchase price paid. Otherwise, use by Buyer or any other User constitutes acceptance of the terms of the Limitation of Warranty and Liability on the Section 3 Federal product label.

**CHISUM™ is a trademark of Cheminova**

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