



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

December 17, 2021

Carrie M. Tackema  
Regulatory Manager  
Nufarm Americas, Inc.  
4020 Aerial Center Parkway  
Morrisville, NC 27560

Subject: Registration Review Label Mitigation for Clethodim  
Product Name: NUFARM IVM CLETHODIM 2E  
EPA Registration Number: 228-735  
Application Date: March 17, 2016  
Decision Number: 580701

Dear Ms. Tackema:

The Agency, in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Clethodim Interim Decision, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

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If you have any questions about this letter, please contact DeMariah Koger by phone at (202)-566-2288, or via email at [koger.demariah@epa.gov](mailto:koger.demariah@epa.gov) .

Sincerely,

A handwritten signature in blue ink, appearing to read 'Linda Arrington', with a long horizontal flourish extending to the right.

Linda Arrington, Branch Chief  
Risk Management and Implementation Branch 4  
Pesticide Re-Evaluation Division  
Office of Pesticide Programs

Enclosure

CLETHODIM	GROUP	1	HERBICIDE
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NUFARM IVM CLETHODIM 2E

ACTIVE INGREDIENT:  
 Clethodim\* .....26.4%  
 OTHER INGREDIENTS: .....73.6%  
 TOTAL: .....100.0%

Contains Petroleum Distillates

\*(E)-2-[1-[[[(3-chloro-2-propenyl)oxy]imino]propyl]-5-[2-(ethylthio)propyl]-3-hydroxy-2-cyclohexen-1-one

CLETHODIM 2E contains 2.0 lbs. clethodim per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID	
IF IN EYES:	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
IF SWALLOWED:	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give any liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
IF INHALED:	<ul style="list-style-type: none"> <li>• Move person to fresh air</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.	
NOTE TO PHYSICIAN - Contains petroleum distillate – vomiting may cause aspiration pneumonia.	

See inside label booklet for additional PRECAUTIONARY STATEMENTS.

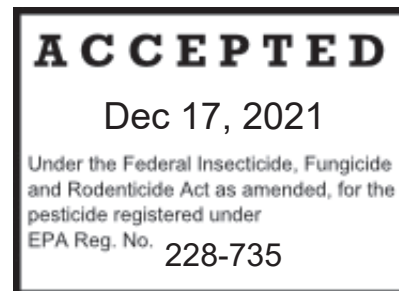
EPA Reg. No. 000228-735

EPA Est. No.

NET CONTENTS:

MANUFACTURED FOR:  
 Nufarm Americas, Inc.  
 11901 S. Austin Avenue  
 Alsip, IL 60803

000228-00735.20211210



PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Causes moderate eye irritation. Harmful if swallowed. Avoid contact with eyes, skin or clothing.

PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate or Viton > 14 mils
- Shoes plus socks
- Protective eyewear

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

USER SAFETY RECOMMENDATIONS

Users should:

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

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Do not apply where weather conditions favor drift from areas treated. Do not contaminate water when disposing of equipment washwater or rinsate.

NON-TARGET ORGANISM ADVISORY STATEMENT: This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated area. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

The use of this product may pose a hazard to the federally designated endangered species of Solano Grass and Wild Rice. Use of this product is prohibited in the following areas where the species are known to exist.

Solano Grass: Solano County, California: the vernal lakes area bounded by the Union Pacific Railroad and Hastings Road to the North, Highway 113 to the east, Highway 12 to the south, and Travis Air Force Base to the west.

Wild Rice: Hays County, Texas.

## PHYSICAL OR CHEMICAL HAZARDS

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

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

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.

## USE RESTRICTIONS

- Maximum annual application rate is 1.04 lbs. ai/A.
- Maximum number of applications is 4.

### 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 24 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 Viton > 14 mils
- Shoes plus socks
- Protective eyewear

### 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.

Keep all unprotected persons out of operating areas, or vicinity where there may be drift. Do not enter treated areas without protective clothing until sprays have dried.

## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in a cool, dry place in original container.

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

### CONTAINER DISPOSAL:

**Nonrefillable container <5 gallons:** Nonrefillable container. **DO NOT** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**Nonrefillable container >5 gallons:** Nonrefillable container. **DO NOT** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use for disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable container (bulk):** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from the container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing process two more times.

## TANK MIXES

Tank mixing or use of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of user, applicator and/or application advisor.

Read and follow the entire label of each product to be used in the tank mix with this product.

## PRODUCT INFORMATION

This product is for use on Conifer, Fallow Land (and other non-producing agricultural areas), Non-Crop or Non-Planted Areas

This product is a selective postemergence herbicide for control of annual and perennial grasses. This product does not control sedges or broadleaf weeds.

In some grass species, repeated use of this product (or similar postemergence grass herbicides with the

same mode of action) may lead to the selection of naturally occurring biotypes that are resistant to these products.

A resistant biotype may be present if poor performance occurs and cannot be attributed to adverse weather or application conditions. This will most likely occur in fields where other control strategies such as crop rotation, mechanical removal, and other classes of herbicides are not used from year to year.

Do not allow this product to contact desirable grass crops such as corn, rice, sorghum, small grains, or turf, as these and other grass crops will be injured or killed. Minor leaf spotting may occur on treated plants under certain environmental conditions. New foliage is not affected.

#### Control Symptoms

A reduction in vigor and growth is evident in treated grass weeds. Early chlorosis/necrosis of younger plant tissue is followed by a progressive collapse of the remaining foliage. Symptoms will generally be observed in 7 to 14 days depending on grass species treated and environmental conditions.

### APPLICATION INFORMATION

#### Application Timing

Apply this product postemergence to actively growing grasses according to rate table directions in this label. Do not apply to grass plants under stress from insufficient moisture or cold temperatures, or to grass plants exceeding recommended growth stages as unsatisfactory control may result.

In arid regions, a second application of this product will generally provide more effective control of perennial grass weeds than a single application. Make second application to actively growing grass 2 to 3 weeks after emergence of new growth.

DO NOT APPLY this product if rainfall is expected within one hour, since control may be reduced.

#### Ground Application

Use a minimum of 5 gallons and a maximum of 40 gallons of spray solution per acre. Use of sufficient spray volumes and pressure is essential to ensure complete coverage. Under the following conditions a minimum of 10 gallons per acre is required: broadleaf herbicide tank mixes, perennial grasses, volunteer corn, drought or stress conditions, heavy grass pressure or when grasses are at or near maximum height. Failure to use a minimum of 10 gallons per acre under these conditions can result in poor coverage and reduced grass control requiring repeat applications. Spray pressures should reflect a minimum of 30 psi and a maximum of 60 psi at the nozzle. Do not use flood nozzles.

#### Spot Treatment

When using hand sprayers or high volume sprayers utilizing hand guns, mix ¼% to ½% (0.33 oz. to 0.65 oz. per gallon) of this product and treat to wet vegetation, while not allowing runoff of spray solution. For uses requiring crop oil concentrate, include crop oil concentrate at 1% (1.3 oz. per gallon) by volume. For uses requiring non-ionic surfactant, include non-ionic surfactant at ¼% (0.33 oz. per gallon) by volume.

NOTE: If this product is applied as a spot treatment, care should be taken to not exceed the maximum rate allowed on a "per acre" basis or crop injury may occur.

## RESTRICTIONS AND LIMITATIONS

- Do not apply if rain is expected within 1 hour of application as unsatisfactory control may occur.
- Do not apply a postemergence broadleaf herbicide within one day following application of this product or reduced grass control may result.
- Do not apply under conditions of stress. Applying this product under conditions that do not promote active grass growth will reduce herbicide effectiveness. These conditions include drought, excessive water, extremes in temperature, low humidity and grasses either partially controlled or stunted from prior pesticide applications. Grasses under these kinds of stressful conditions will not absorb and translocate this product effectively, and will be less susceptible to herbicide activity.
- Grass crops such as corn, rice, sorghum, small grains, or turf, etc. are highly sensitive to this product.
- Always read and follow the restrictions and limitations for all products whether used alone or in a tank mix. The most restrictive labeling of any product used applies in tank mixtures, including all crop rotational and other crop restrictions.
- Tank mixes of this product and broadleaf herbicides may result in reduced grass control. If grass regrowth occurs, an additional application of this product may be necessary.

### SPRAY DRIFT

#### **Ground Boom Applications:**

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy. For all other ground applications, the nozzle must be no more than 3 feet from the target vegetation.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

### SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.  
BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

#### **IMPORTANCE OF DROPLET SIZE**

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

#### **Controlling Droplet Size – Ground Boom**

- Volume – Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure – Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle – Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.



**BOOM HEIGHT – Ground Boom**

For ground equipment, the boom should remain level with the crop and have minimal bounce.

**SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

**TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

**TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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 upwardly and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

**WIND**

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

**WEED RESISTANCE MANAGEMENT**

For resistance management, this product is a Group 1 herbicide. Any weed population may contain and develop plants naturally resistant to this product and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance management strategies should be followed.

To delay herbicide resistance, take one or more of the following steps:

- Rotate the use of this product or other Group 1 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other

fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- Report any incidence of non-performance of this product against a particular weed species to your local sales representative or agricultural dealer.
- For further information or to report suspected resistance, contact Nufarm at 919-379-2510.

#### CROP SPECIFIC RESTRICTIONS AND LIMITATIONS

Crops	Minimum Time From Application to Harvest (PHI)	Use Rates <sup>(1)</sup> Per Acre	Adjuvant Recommendation <sup>(2)</sup>	Special Use Instructions
Fallow Land  Conifer Trees (and other non-producing agricultural areas)  Non-Crop or Non-Planted Areas	N/A	6-16 fl. oz.	NIS at 0.25% v/v or COC/MSO at 1qt/A or 1% v/v	Do not plant any crop for 30 days after application unless clethodim is registered for use in that crop.  The addition of ammonium sulfate may improve the activity under hard water conditions. <sup>(3)</sup>

(1) See annual and perennial grass control tables for specific use rate recommendations.  
 (2) Non-ionic surfactant (NIS) in this case refers to an adjuvant containing at least 80% non-ionic surfactant. Crop oil concentrate in this case refers to both crop oil concentrate and crop oil concentrate blends. **Acceptable crop oil concentrates** would be those which contain a minimum of 80% oils and 15% emulsifier. **Acceptable crop oil concentrate blends** would be those that contain a minimum of 60% oils and 25-40% surfactants and emulsifiers. A crop oil concentrate must contain either a petroleum or vegetable oil base and must meet all the following criteria: be non-phytotoxic, contain only EPA-exempt ingredients, provide good mixing quality and be successful in local experience. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils.  
 (3) Spray grade ammonium sulfate (AMS) at the equivalent amount of 2.5 to 4.0 lbs./A may be added to the recommended rate of adjuvants.

#### CONIFER TREES

This product can be used to control labeled grasses in Christmas tree farms, conifer nurseries, and conifer plantations (but not in forests).

COMMON NAME	SCIENTIFIC NAME
Arborvitae, American	<i>Thuja occidentalis</i>
Cedars	<i>Cedrus spp.</i>
Cypress	<i>Taxodium spp.</i>
Douglas Fir	<i>Pseudotsuga menziesii</i>
Firs	<i>Abies spp.</i>
Hemlock, Canadian/Eastern	<i>Tsuga canadensis</i>
Hemlock, Western	<i>Tsuga heterophylla</i>

Pines	<i>Pinus spp.</i>
Spruces	<i>Picea spp.</i>
Yew	<i>Taxus spp.</i>

#### NON-CROP OR NON-PLANTED AREAS

The following areas are considered non-crop or non-planted areas: rights-of-way including railroads, highways, roads, dividers, medians, pipelines, public utility lines, pumping stations, transformer stations and substations. Around airports, electric utilities, commercial buildings, manufacturing plants, storage yards, rail yards, fence lines, parkways and post-harvest croplands. Also beneath greenhouse benches and around golf courses.

#### USE DIRECTIONS FOR ANNUAL GRASSES

Apply only to actively growing grasses at recommended weed heights.

Apply when the first grass weed species in a mixed grass weed population reaches the recommended growth stage for treatment.

Use the high rate under heavy grass pressure and/or when grasses are at maximum height.

Grass Species	Scientific Name	Weed* Height (inches)	Rate (fl. oz./acre)	High Rate <sup>(4)</sup>
Barnyardgrass	<i>Echinochloa crus-galli</i>	2-8	6	8
Broadleaf Signalgrass	<i>Brachiaria platyphylla</i>	2-6	6	8
Brome				
California	<i>Bromus carinatus</i>	2-6	6	8
Cheatgrass	<i>Bromus secalinus</i>	2-6	6	8
Downy	<i>Bromus tectorum</i>	2-6	6	8
Ripgut	<i>Bromus diandrus</i>	2-6	6	8
Canarygrass	<i>Phalaris canariensis</i>	1-4	6	8
Crabgrass				
Hairy	<i>Digitaria adscendens</i>	2-6**	6	8
Large	<i>Digitaria sanguinalis</i>	2-6**	6	8
Smooth	<i>Digitaria ischaemum</i>	2-6**	6	8
Southern	<i>Digitaria ciliaris</i>	2-6**	6	8
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	2-6**	6	8
Fall Panicum	<i>Panicum dichotomiflorum</i>	2-8	6	8
Field Sandbur	<i>Cenchrus incertus</i>	2-6	6	8
Foxtail				
Giant	<i>Setaria faberi</i>	2-12	6	8
Green	<i>Setaria viridis</i>	2-8	6	8
Yellow	<i>Setaria glauca</i>	2-8	6	8
Goosegrass	<i>Eleusine indica</i>	2-6**	6	8
Itchgrass	<i>Rottboellia exaltata</i>	2-6	6	8
Junglerice	<i>Echinochloa colona</i>	2-6	6	8
Lovegrass (Stinkgrass)	<i>Eragrostis cilianensis</i>	2-6	6	8
Rabbitsfootgrass	<i>Polypogon monspeliensis</i>	1-4	6	8
Red Rice	<i>Oryza sativa</i>	1-3	6	8
Ryegrass				
Hardy	<i>Lolium remotum</i>	2-6	6	8
Italian	<i>Lolium multiflorum</i>	2-6	6	8

Grass Species	Scientific Name	Weed* Height (inches)	Rate (fl. oz./acre)	High Rate <sup>(4)</sup>
Seedling Johnsongrass	<i>Sorghum halepense</i>	4-10	6	8
Shattercane	<i>Sorghum bicolor</i>	6-18	6	8
Southwestern Cupgrass	<i>Eriochloa gracillis</i>	2-6	6	8
Sprangletop				
Amazon	<i>Leptochloa panicoides</i>	2-6	6	8
Bearded	<i>Leptochloa fascicularis</i>	2-6	6	8
Mexican	<i>Leptochloa uninervia</i>	2-6	6	8
Red	<i>Leptochloa filiformis</i>	2-6	6	8
Texas Panicum	<i>Panicum texanum</i>	2-6	6	8
Volunteer Cereals <sup>(3)</sup>				
Barley	<i>Hordeum vulgare</i>	2-6	6	8
Oats	<i>Avena sativa</i>	2-6	6	8
Rye	<i>Secale cereale</i>	2-6	6	8
Wheat	<i>Triticum aestivum</i>	2-6	6	8
Volunteer Corn <sup>(2)</sup>	<i>Zea mays</i>	4-24	6	8
Volunteer Corn (S.R.) <sup>(1)</sup>	<i>Zea mays</i>	4-12	8	(suppression only)
Sorghum	<i>Sorghum bicolor</i>	8-12	6	8
Wild Oats	<i>Aven fatua</i>	2-6	6	8
Wild Proso Millet	<i>Panicum miliaceum</i>	2-10	6	8
Witchgrass	<i>Panicum capillare</i>	2-8	6	8
Woolly Cupgrass	<i>Eriochloa villosa</i>	2-8	6	8

\*Generally occurs between 3-leaf stage and tillering

\*\* Length of lateral growth

1. Sethoxydim resistant volunteer corn.
2. Includes Roundup Ready®, Liberty Link® and IMI-CORN® volunteer corn.
3. When the cereal grain crop (such as wheat) is interseeded for crop establishment or is planted as wind breaks to aid crop establishment, the minimum amount of product use rate for control is 8 fl. oz./A.
4. Rates higher than 8 fl. oz./A may be applied in certain geographic areas, environmental conditions, or cropping situations, where experience has shown that higher rates are needed for satisfactory control of annual grasses. In these situations, rates from 8 to 16 fl. oz./A may be applied.

#### USE DIRECTIONS FOR ANNUAL BLUEGRASS CONTROL

Grass Species	Weed Stage	Rate (fl. oz./acre)	High Rate
Annual Bluegrass ( <i>Poa annua</i> )	to 4-Leaf	6*	16

\*Use a minimum of 8 fl. oz/acre to control annual bluegrass in seedling and established alfalfa and mint.

1. Grass needs to be actively growing at time of application(s). Apply under favorable soil moisture and humidity that exists within a few days after rainfall or within 7 days after irrigation.
2. Apply at weed stage indicated on the label, as reduced control can be expected with more mature annual bluegrass.
3. Use the high rate under heavy grass pressure and/or when annual bluegrass is more mature.
4. Always add a crop oil concentrate at 1 qt./acre by ground to the finished spray volume.

USE DIRECTIONS FOR PERENNIAL GRASSES

- Make applications only to actively growing grasses at recommended weed heights.
- Apply when the first grass weed species in a mixed grass weed population reaches the recommended growth stage for treatment.
- Use the high rate when grasses are at maximum height and/or under heavy grass pressure.

Grass Species	Scientific Name	Weed Height (inches)	Rate (fl. oz./acre)	High Rate
Bermudagrass	<i>Cynodon dactylon</i>			
First Application		3 (or up to 6" runners)	8	16
Repeat Application(s) (if regrowth occurs)		3 (or up to 6" runners)	8	16
Fescue, tall	<i>Festuca arundinacea</i>			
First Application		4-8	8	16
Repeat Application(s) (if regrowth occurs)		4-8	8	16
Foxtail Barley	<i>Hordeum jubatum</i>			
First Application		2-6	8	16
Repeat Application(s) (if regrowth occurs)		2-6	8	16
Orchardgrass	<i>Dactylis glomerata</i>			
First Application		4-8	8	16
Repeat Application(s) (if regrowth occurs)		4-8	8	16
Quackgrass*	<i>Elytrigia repens</i>			
First Application		4-12	8	16
Repeat Application(s) (if regrowth occurs)		4-12	8	16
Rhizome Johnsongrass	<i>Sorghum halepense</i>			
First Application		12-24	8	16
Repeat Application(s) (if regrowth occurs)		6-18	6	8
Wirestem Muhly	<i>Muhlenbergia frondosa</i>			
First Application		4-8	8	16
Repeat Application(s) (if regrowth occurs)		4-8	8	16
Perennial Bluegrass*				
Roughstalk	<i>Poa trivialis</i>			
Kentucky	<i>Poa prantensis</i>			
First Application		2-4	8	16
Repeat Application(s) (if regrowth occurs)		2-4	8	16
Bentgrass*	<i>Agrostis spp.</i>			
First Application		2-4	-	16
Repeat Application(s) (if regrowth occurs)		2-4	-	16

\*Control of quackgrass, perennial bluegrass and bentgrass with this product may be enhanced by adding AMS at 2.5 to 4.0 lbs./acre.

## TANK MIXES

The labels for each of the herbicides recommended for tank mixing with this product are unique to the characteristics of those products and contain restrictions and limitations that may be more restrictive than this product label in certain considerations. These may include, but are not limited to:

1. Geographic restrictions – not all products are registered for use in all areas and rates may vary from one region of labeled use to another;
2. Applicator certification requirements;
3. Worker safety rules (i.e., protective clothing requirements, reentry time);
4. Maximum application rate or number of applications allowed per season;
5. Rain free period required;
6. Application timing
7. Do not exceed the total season rates.

THE MOST RESTRICTIVE LABELING OF ANY PRODUCT USED IN A TANK MIX MUST BE FOLLOWED.

### TANK MIX APPLICATION OF THIS PRODUCT AND BROADLEAF HERBICIDES FOR CONTROL OF GRASSES AND BROADLEAF WEEDS

- Apply only to actively growing grass and broadleaf weeds at recommended height or growth stage listed on each label.
- Apply when the first grass or broadleaf weed species in a mixed population reaches the recommended height or growth stage for treatment.
- Apply under favorable soil moisture and humidity, which exist a few days after rainfall or within seven days after irrigation.
- Always add the appropriate adjuvant to the spray mix at the rate recommended for each specific tank mix combination.
- Tank mix applications may sometimes result in reduced grass control and possible increases in crop injury as compared to either product used alone. If regrowth occurs, or an additional flush of new grass emerges, make a second application of this product as specified in the respective size and rate tables.
- Do not tank mix this product when broadleaf weeds are tall and/or dense enough to prevent proper grass coverage.

## MIXING INSTRUCTIONS

Use the jar test to verify mixing and compatibility properties. Maintain agitation throughout the spray application. Unsatisfactory weed control may result due to improper mixing if continuous agitation is not maintained during application.

Tank Mix: Add ½ the required water to the spray tank and begin agitation. Add the required amount of this product and mix thoroughly. Then add the required amount of tank mix partner and continue mixing. Finally, add the required amount of crop oil concentrate and/or nitrogen fertilizer and the remaining water.

## Information on Antagonism

Tank mixes of this product with postemergence broadleaf herbicides have shown some reduction or failure to control certain grass species which would have otherwise been controlled when this product is applied alone. Activity of the postemergence broadleaf herbicide in the tank mix is not affected.

### DIRECTIONS FOR USE IN FALLOW LAND

This product may be used to control annual and perennial grasses in land that has been left fallow the previous year and other non-producing agricultural areas. Apply this product at 6 to 8 fl. oz./A for annual grasses and 8 to 16 fl. oz./A for perennial grasses. When both grass and broadleaf weeds are the target pest, this product may be tank mixed with 2,4-D ester (such as Weedone® LV4 or Weedone® LV6 or dicamba DGA (such as Vanquish®) for broad-spectrum control. When both annual and perennial grasses occur in the same field, use a minimum of 8 fl. oz./A this product rate.

- Use a minimum spray volume of 15 gals./A for ground applications and 5 gals./A for aerial applications.
- Apply only to actively growing grasses when the first grass reaches the recommended weed height as specified by the Use Directions for Annual and Perennial Grasses section of this label.
- Annual grasses which emerge after this product's application will not be controlled, and a second application may be necessary.
- The control of perennial grasses may require more than one application in non-tilled areas.
- Do not plant any crop for 30 days after application unless clethodim is registered for use in that crop.
- Do not apply to grasses that have tillered, formed seedheads or exceeded recommended growth stage.
- Do not use flood jet nozzles.
- Do not apply to drought-stressed grasses.
- Do not mow area for two weeks prior to or after this product's application.

### TANK MIXES TO CONTROL ANNUAL AND PERENNIAL GRASSES IN FALLOW LAND

Product	Application Rates/Acre <sup>(1)</sup>		Spray Adjuvants <sup>(2)</sup>	
	Annual Grasses	Perennial Grasses	Ground	Air
Nufarm IVM Clethodim 2E + 2,4-D ester or dicamba DGA	6 to 8 fl. oz.	8 to 16 fl. oz.	Refer to CROP SPECIFIC RESTRICTIONS AND LIMITATIONS TABLE	
	0.5 lb./A			
	See product labels for rates.			

1. Refer to use directions table for annual and perennial grasses for weed height and species control. Review to tank mix product labels for crop restrictions, use rates and weeds controlled.
2. Always use an adjuvant at the recommended concentration in the finished spray volume.

USE DIRECTIONS FOR GRASS SUPPRESSION NON-CROP AREAS			
GRASS SPECIES	WEED STAGE	RATE FL. OZ./ ACRE	HIGH RATE
Annual and perennial grasses that exceed height claimed for control on height charts above.	Up to and including grasses in the seed head stage	12	16
Do not apply as part of a tank mix when applying this product for grass suppression. Add a crop oil concentrate at 1 qt/A to the finished spray volume. The addition of ammonium sulfate may improve the activity under hard water conditions.			

FOR THE CONTROL AND/OR SUPPRESSION OF TALL FESCUE IN NATIVE PRAIRIE WARM-SEASON GRASS RESTORATION PROJECTS

Product	Product Rates	Grass Weeds Controlled/Suppressed		Weed Stages
		Common Name	Scientific Name	
Nufarm IVM Clethodim 2E	10 to 12 fl. oz./A	Tall Fescue	<i>Festuca arundinacea</i>	4 to 6 inches (40 to 60% green-up)
Adjuvant: This product must be applied with non-ionic surfactant at 0.25% v/v, plus a spray grade ammonium sulfate at 2.5 to 4 lbs./A. Recommended Mixing Order: Thoroughly mix spray grade ammonium sulfate in water, add CLETHODIM 2E, then add non-ionic surfactant.				

SPECIAL APPLICATION INSTRUCTIONS/RESTRICTIONS

- Burn or mow fields a minimum of 3 weeks prior to application to remove excess crop residue. Apply in the spring, at 40 to 60% green-up, prior to emergence of warm-season grasses. Do not mow area for 2 weeks after this product's application.
- Apply in a minimum of 15 to 20 gals. of water per acre at a spray pressure of 40 to 60 PSI at the nozzle. Apply using flat fan or hollow cone nozzles. Do not use flood nozzles.
- Apply only to fields that have warm-season grasses established for two years. Applications of this product to emerged warm-season grasses may cause injury. Do not apply to warm-season grasses grown for seed.
- Do not graze treated fields or feed treated forage and or hay to livestock. Do not plant any crop for 30 days after application, unless clethodim is registered for use in that crop.
- NOTE: This product's applications are most effective if applied when average nighttime temperatures are consistently greater than or equal to 47°F.

FOR THE SUPPRESSION OF TALL FESCUE SEED-HEADS IN NON-PRODUCING AGRICULTURAL AREAS

Product	Product Rate	Suppression	Application Timing
Nufarm IVM Clethodim 2E	1 ½ to 2 fl. oz./A	Tall Fescue Seed-Heads <i>Festuca arundinacea</i>	50 to 90% Tall Fescue green-up
Adjuvant: This product must be applied with crop oil concentrate at 1 qt./A, plus a spray grade ammonium sulfate at 2.5 to 4 lbs./A. Recommended Mixing Order: Thoroughly mix spray grade ammonium sulfate in water, add this product, then add crop oil concentrate.			

SPECIAL APPLICATION INSTRUCTIONS/RESTRICTIONS

- Apply at 50 to 90% tall fescue green-up.
- Use the higher rate if less tall fescue green matter is present.
- Do not mow area for two weeks after the application.
- Apply in a minimum of 15 to 20 gals. of water per acre at a spray pressure of 40 to 60 psi at the nozzle. Apply using flat fan or hollow cone nozzles. Do not use flood nozzles.
- 2,4-D ester (such as Weedone® LV4 or Weedone LV6®), or products containing picloram (such as Trooper™ 22K and Trooper™ P+D) may be added to this tank mix for broadleaf control (see the Weedone and Trooper product labels for weeds controlled).



- Do not graze treated fields or feed treated forage and/or hay to livestock. Do not plant any crop for 30 days after application, unless clethodim is registered for use in that crop.

THE MOST RESTRICTIVE LABELING OF ANY PRODUCT USED IN A TANK MIX MUST BE FOLLOWED

- Apply only to actively growing grass and broadleaf weeds at recommended height or growth stage listed on each label.
- Apply under favorable soil moisture and humidity which exist a few days after rainfall or within seven days after irrigation.
- Tank mix applications may sometimes result in reduced grass control. If regrowth occurs, or an additional flush of new grass emerges, make a second application of this product, as specified in the respective size and rate tables.
- Do not tank mix this product when broadleaf weeds are tall and/or dense enough to prevent proper grass coverage.
- Avoid contact with foliage, green stems, or fruit crops, or any desirable plant and trees, other than soybeans with the ROUNDUP READY gene as severe injury or destruction will result.
- Do not allow this product plus ROUNDUP to mist, drip, drift or splash onto desirable vegetation as minute quantities of the tank mix can cause severe damage or destruction to the crops, plants or other areas on which treatment was not intended. The likelihood of injury occurring from drift of this product is greatest when winds are gusty or in excess of 5 miles per hour. Even under lesser wind velocities, avoid conditions that allow spray drift to occur such as combinations of spray pressure and nozzle type that will result in fine particles (mist) that are likely to drift.

### **WARRANTY DISCLAIMER**

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