

METSULFURON-METHYL

GROUP

2

HERBICIDE

# Mivum

For use on Tree Plantations, Rangeland and Pastures, Non-Crop Industrial Sites,  
Turf (Industrial, Unimproved and Commercial)

**ACTIVE INGREDIENT:**

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

**WT. BY %**

60.0%

**OTHER INGREDIENTS:** . . . . .

40.0%

**TOTAL:** . . . . .

100.0%

Contains 0.60 lb. of metsulfuron-methyl per pound of product.

## KEEP OUT OF REACH OF CHILDREN CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand this label, find someone to explain it to you in detail.)

**See label booklet for complete First Aid, Precautionary Statements,  
Directions For Use, and Storage and Disposal.**

EPA Reg. No. 83529-171

EPA Est. No. **GH** 70815-GA-002; **SC** 39578-TX-001; **MC** 89332-GA-1  
**MA** 83411-MN-001; **TX** 07401-TX-001

The EPA Establishment Number is identified by the circled letters  
above that match the first two letters in the batch number.

## Net Contents: 16 oz. (0.45 kg)

Manufactured For:

**Sharda USA LLC** 

7217 Lancaster Pike, Suite A  
Hockessin, Delaware 19707

<b>FIRST AID</b>	
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<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>
<b>IF IN EYES:</b>	<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>
<b>HOTLINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information concerning this product, call your poison control center at <b>1-800-222-1222</b> .	

## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

#### **CAUTION**

Harmful if swallowed. Harmful if absorbed through skin. Causes eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

#### **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants.
- Shoes plus socks
- Waterproof gloves

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

## ENGINEERING CONTROLS

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

### Applicators and other handlers should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling the product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change clothing.

## ENVIRONMENTAL HAZARDS

**DO NOT** apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean highwater mark. **DO NOT** contaminate water when disposing of equipment wash waters or rinsate.

### Groundwater Advisory

Metsulfuron-methyl is known to leach through soil into groundwater under certain conditions as a result of label use. Metsulfuron-methyl may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

### Surface Water Advisory

This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several weeks or more after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features including ponds, streams, and Springs will reduce the potential loading of this product from runoff water and sediment. Runoff of this product will be greatly reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

### Windblown Soil Particles Advisory

This product has the potential to move off-site due to wind erosion. Soils that are subject to wind erosion usually have a high silt and/or fine to very fine sand fractions and low organic matter content. Other factors which can affect the movement of windblown soil include the intensity and direction of prevailing winds, vegetative cover, site slope, rainfall, and drainage patterns. Avoid applying this product if prevailing local conditions may be expected to result in off-site movement.

### Non-Target Organism Advisory

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

minimizing spray drift. For further guidance and instructions on how to minimize spray drift, refer to the **MANDATORY SPRAY DRIFT MANAGEMENT** section of this label.

## 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, including plants, soil, or water is:

- Coveralls
- Shoes plus socks

### NON-AGRICULTURAL USE REQUIREMENTS

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

**DO NOT** enter treated areas without protective clothing until sprays have dried.

### PRODUCT INFORMATION

**Mivum** is a dispersible granule that is mixed in water and applied as a spray by ground or aerial application.

**Mivum** may be used for use for weed and brush control on tree plantations, rangeland and pastures, non-crop industrial sites including airports, military installations, fence rows, roadsides and associated rights-of-way, petroleum tank farms, pipeline and utility rights-of-way, pumping stations, railroads, storage areas, and State and Federal plant sites including government-owned parks and recreational areas, Federal-controlled customs and border

crossings, and non-crop lands identified under government set-aside programs. This product may also be used for industrial unimproved and commercial turf sites.

**Mivum** controls weeds and woody plants primarily by post-emergent activity. Although **Mivum** has pre-emergence activity, best results are generally obtained when **Mivum** is applied to foliage after emergence or dormancy break. Generally, for the control of annual weeds, **Mivum** provides the best results when applied to young, actively growing weeds. For the control of perennial weeds, applications made at the bud/bloom stage or while the target weeds are in the Fall rosette stage may provide the best results. The use rate depends upon the weed species and size at the time of application.

The degree and duration of control may depend on the following:

- Weed spectrum and infestation intensity.
- Weed size at application.
- Environmental conditions at and following treatment.
- Soil pH, soil moisture, and soil organic matter.

**Mivum** may be applied on conifer and hardwood plantations, and non-crop sites that contain areas of temporary surface water caused by the collection of water between planting beds, in equipment ruts, or in other depressions created by management activities. It is permissible to treat intermittently flooded low lying sites, seasonally dry flood plains and transitional areas between upland and lowland sites when no water is present. It is also permissible to treat marshes, swamps and bogs after water has receded as well as seasonally dry flood deltas.

#### Use Restrictions:

- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per acre per year. One (1) pound of this product contains 0.60 lb. of the active ingredient metsulfuron-methyl.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per single application.
- **DO NOT** use on food or feed crops except as specified by this label or supplemental labeling.
- **DO NOT** use on irrigation ditches.
- **DO NOT** make applications to natural or man-made bodies of water including lakes, reservoirs, ponds, streams, and canals.
- Injury to or loss of desirable trees or other plants may result if the precautions listed below are not followed:
  - **DO NOT** apply **Mivum** (except as specified), 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.
  - Prevent drift of spray to desirable plants.
  - **DO NOT** contaminate any body of water including irrigation water.
  - Keep from contact with fertilizers, insecticides, fungicides, and seeds.

Low rates of **Mivum** can kill or severely injure most crops. Following a **Mivum** application, the use of spray equipment to apply other pesticides to crops on which **Mivum** is not registered may result in their damage. The most effective way to reduce this crop damage potential is to use dedicated mixing and application equipment.

### **Environmental Conditions and Biological Activity**

**Mivum** is absorbed primarily through the foliage of plants and by the roots to a lesser degree. Plant cell division is generally inhibited in sensitive plants within a few hours following uptake. 2 - 4 weeks after application, leaf growth slows followed by discoloration and tissue death. The final effect on annual weeds is evident about 4 - 6 weeks after application. The ultimate effect on perennial weeds and woody plants occurs in the growing season following application.

Warm, moist conditions following treatment promote the activity of **Mivum**, while cold, dry conditions may reduce or delay activity. Weeds and brush hardened off by cold weather or drought stress may not be controlled. The use of a surfactant may be applied to enhance the control of susceptible plants except where noted. Apply at a minimum rate (concentration) of 0.25% v/v (1 qt. per 100 gals. of spray solution) or at the manufacturer's suggested rate. Use only EPA approved surfactants containing at least 80% a.i. Certain types of surfactants, including those incorporating acetic acid (i.e., LI-700), may not be compatible with **Mivum** and may result in decreased performance. Certain surfactants may not be suitable for use on desirable plants, including turf, listed on this label. Consult the surfactant manufacturer's label for appropriate uses. Weed and brush control may be reduced if rainfall occurs soon after application.

### **Effects on Weeds**

**Mivum** applied to foliage of weeds rapidly inhibits growth of susceptible plants; however, typical symptoms (discoloration) of dying weeds may not be noticeable for several weeks after applications, depending on growing conditions and weed susceptibility. Warm, moist conditions following treatment enhance the activity of **Mivum**, while cold, dry conditions delay activity. Weeds hardened off by cold weather or drought stress may not be fully controlled or suppressed and regrowth may occur. Snow or rainfall received within 4 hours after application can reduce the level of post-emergence weed control. **Mivum** will also affect certain seedling weeds that have emerged after application.

Degree of control and duration of effect depend on: Weed spectrum and density, weed size and variability, growing conditions prior to and following application, amount of precipitation, and spray coverage. With adequate rainfall for soil activation, short-term residual control of the more sensitive species may be obtained for a few weeks after application.

### **Spray Preparation**

Add the proper amount of **Mivum** to the necessary volume of water in the spray tank with the agitator running. Continuous agitation is required for a uniform suspension and application. If spray preparation is left standing, thoroughly agitate before reusing.

## WEED RESISTANCE MANAGEMENT

METSULFURON-METHYL	GROUP 2	HERBICIDE
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**Mivum** contains metsulfuron and is classified in the sulfonyleurea chemical class as a Group 2 herbicide, Acetolactate Synthase (ALS) or Acetohydroxy Acid Synthase (AHAS) inhibitor. Herbicide resistance is defined as the inherited ability of a plant to survive and reproduce following exposure to a dose of herbicide normally lethal to the wild type. In a plant, resistance may be naturally occurring or induced by such techniques as genetic engineering or selection of variants produced by tissue culture or mutagenesis. Any weed population may contain or develop plants that are naturally resistant to **Mivum** and other Group 2 herbicides. Weed species with acquired resistance to Group 2 herbicides may eventually dominate the weed population if Group 2 herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by **Mivum** or other Group 2 herbicides.

To delay herbicide resistance, consider the below best practices for resistance management:

- Plant into weed-free fields and keep fields as weed-free as possible.
- To the extent possible, use a diversified approach toward weed management. Whenever possible, incorporate multiple weed-control practices including mechanical cultivation, biological management practices, and crop rotation.
- Fields with difficult to control weeds must be rotated to crops that allow the use of herbicides with alternative mechanisms of action or different management practices.
- To the extent possible, take steps to avoid allowing weed escapes to produce seeds, roots, or tubers. Manage weed seeds at harvest and post-harvest to prevent a buildup of the weed seed-bank.
- Prevent field-to-field and within-field movement of weed seed or vegetative propagules. Thoroughly clean plant residues from equipment before leaving fields.
- Prevent an influx of weeds into the field by managing field borders.
- Identify weeds present in the field through scouting and field history and understand their biology. The weed-control program must consider all of the weeds present.
- Difficult to control weeds may require sequential applications of herbicides with differing mechanisms of action.
- Apply this herbicide at the correct timing and rate needed to control the most difficult weed in the field.
- Use a broad-spectrum soil-applied herbicide with a mechanism of action that differs from this product as a foundation in a weed-control program. **DO NOT** use more than 2 applications of this or any other herbicide with the same mechanism of action within a single growing season unless mixed with an herbicide with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.
- If resistance is suspected, treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes.

- Monitor treated weed populations for loss of field efficacy.
- Scout field(s) before and after application.
- Report lack of performance to registrant or their representative.

Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is 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.

Contact your local sales representative, extension agent, or certified crop advisors to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of action for each target weed.

### INTEGRATED PEST MANAGEMENT

To better manage weed resistance when using **Mivum**, use a combination of tillage and tank mix partners or sequential herbicide applications that have a different mode of action than **Mivum** to control escaped weeds. Weed escapes that are allowed to go to seed will promote the spread of resistant biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate State Agricultural Extension Service representative for specific alternative herbicide treatment available in your area. It is advisable to keep accurate records of pesticides applied to treated areas to help obtain information on the spread and dispersal of resistant biotypes.

### MANDATORY SPRAY DRIFT MANAGEMENT

#### **Aerial Applications:**

- **DO NOT** release spray at a height greater than 10 ft. above the vegetative canopy, unless a greater application height is necessary for pilot safety.
- For applications prior to the emergence of crops and target weeds, applicators are required to use a Coarse or coarser droplet size (ASABE S572.1).
- For all other applications, applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- The boom length must not exceed 65% of the wingspan for airplanes or 75% of the rotor blade diameter for helicopters.
- Applicators must use 1/2 swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

*(continued)*



## **MANDATORY SPRAY DRIFT MANAGEMENT *(continued)***

### **Ground Boom Applications:**

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy unless making a turf, pasture, or rangeland application, in which case applicators may apply with a nozzle height no more than 4 feet above the ground.
- For applications prior to the emergence of crops and target weeds, applicators are required to use a Coarse or coarser droplet size (ASABE S572.1).
- For all other applications, 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.

### **Boom-less Ground Applications:**

- Applicators are required to use a medium or coarser droplet size (ASABE S572.1) for all applications.
- **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**

A most effective way to reduce spray drift potential 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.

## **Controlling Droplet Size - Aircraft**

- **Adjust Nozzles** - Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles must be oriented parallel with the airflow in flight.

## **BOOM HEIGHT - Ground Boom**

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom must remain level with the crop and have minimal bounce.

## **RELEASE HEIGHT - Aircraft**

Higher release heights increase the potential for spray drift. When applying aerially to crops, **DO NOT** release spray at a height greater than 10 ft. above the crop canopy, unless a greater application height is necessary for pilot safety.

## **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 upward 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.

## **Air Assisted (Air Blast) Field Crop Sprayers**

Air assisted field crop sprayers carry droplets to the target via a downward directed air stream. Some may reduce the potential for drift, but if a sprayer is unsuitable for the application and/or set up improperly, high drift potential can result. It is the responsibility of the applicator to determine that a sprayer is suitable for the intended application, is configured properly, and that drift is not occurring. **Note:** Air assisted field sprayers can affect product performance by affecting spray coverage and canopy penetration. Consult the application equipment section of this label to determine if use of an air assisted sprayer is recommended.

### **Boom-less Ground Applications:**

- Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

### **Handheld Technology Applications:**

- Take precautions to minimize spray drift.

### **Drift Control Additives**

Using product compatible drift control additives can reduce drift potential. When a drift control additive is used, read and carefully observe cautionary statements and all other information on the additive's label. If using an additive that increases viscosity, ensure that the nozzles and other application equipment will function properly with a viscous spray solution. Preferred drift control additives have been certified by the Council of Producers and Distributors of Agrotechnology CPDA).

### **Aerial Application on Utility Rights-of-Way, Military Installations, Rangeland, and Pastures (Western U.S.)**

**Mivum** may be applied for control of noxious and troublesome species of weeds and brush on rangeland, and pastures in the western U.S. by aerial (helicopter and fixed wing) application.

Applications may be made in the states of Arizona, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, North Dakota, Nevada, New Mexico, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

Refer to the **WEEDS CONTROLLED** and **Brush Species Controlled** found elsewhere on this label for species of weeds and brush controlled and the appropriate use rates. When used as directed, forage grasses may be cut for hay, fodder, or green forage and fed to livestock 3 days after treatment at rates up to 3.33 ounces (0.125 lb. a.i.) per acre. At rates of 1.66 ounces (0.062 lb. a.i.) per acre and less, there is no grazing restriction. Apply with helicopter or fixed wing aircraft fitted with application equipment designed to deliver droplets of uniform size and to prevent drift. Mix tanks or nurse tanks should be equipped with an agitation system capable of keeping the **Mivum** thoroughly mixed during the application. If the spray preparation is left standing, thoroughly agitate before using. The use of a non-ionic surfactant of at least 80% active ingredient at a minimum rate of 1 qt./100 gals. of spray solution is necessary for acceptable performance. Apply the finished solution at rates between 5 and 25 gals./acre. Apply a minimum of 5 gallons of solution per acre when application rates of greater than 0.5 ounces (0.0188 lb. a.i.) of **Mivum** per acre are used. A minimum of 2 gallons of solution per acre may be used when application rates of 0.5 ounces of **Mivum** per acre and less are used. Use the lower volumes when applications are made with fixed wing aircraft or when the target vegetation is small or sparse. Use the higher volumes when applications are made with a helicopter (10 to 25 gals./acre) or when the target vegetation is tall, dense, or forms multiple canopies (strata) of foliage. Thorough coverage of the target plant's foliage is necessary to obtain adequate control. For broader spectrum control, **Mivum** may be tank mixed with other herbicides labeled for tank mix combination and aerial application on the specific use sites. Refer to the respective package labels for appropriate use rates and use sites. Read and follow the most restrictive cautionary statements and restrictions on the **Mivum** and companion product's package label.

**APPLICATION RESTRICTIONS:** In Idaho, Oregon and Washington State use at least 3 gallons of spray solution per acre.

## TANK MIX INFORMATION

### Tank Mixes

**Mivum** may be tank mixed with other herbicides registered for the use sites described in this label. Use only those tank mix partners that are labeled for the appropriate use site. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### Spray Equipment

Low rates of **Mivum** can kill or severely injure most crops. Following a **Mivum** application, the use of spray equipment to apply other pesticides to crops on which **Mivum** is not registered may result in their damage. The most effective way to reduce this crop damage potential is to use dedicated mixing and application equipment.

The selected sprayer must be equipped with an agitation system to keep **Mivum** suspended in the spray tank. Use a sufficient volume of water to thoroughly cover the foliage of undesirable weeds, generally 10 - 40 gals. per acre. Select a spray volume and delivery system that will deliver a uniform spray pattern. Be sure the sprayer is calibrated before use. Avoid overlapping and shut off spray booms while starting, turning, slowing, or stopping to avoid injury to desired plants. Refer to the **BRUSH CONTROL** section of this label for information unique to that particular use.

### Mixing Instructions

1. Fill the tank 1/4 - 1/3 full of water.
2. While agitating, add the required amount of **Mivum**.
3. Continue agitation until the **Mivum** is fully dispersed, at least 5 minutes.
4. Once the **Mivum** is fully dispersed, maintain agitation and continue filling tank with water. **Mivum** must be thoroughly mixed with water before adding any other material.
5. As the tank is filling, add tank mix partners (if desired), and then add the necessary volume of nonionic surfactant. Always add surfactant last.
6. If the mixture is not continuously agitated, settling will occur. If settling occurs, thoroughly reagitrate before using.
7. **Mivum** spray preparations are stable if they are pH neutral or alkaline and stored at or below 100°F.
8. If **Mivum** and a tank mix partner are to be applied in multiple loads, pre-slurry the **Mivum** in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the **Mivum**.

### Sprayer Cleanup

Spray equipment must be cleaned before **Mivum** is sprayed. Follow the cleanup procedures specified on the labels of previously applied products. If no directions are provided, follow the 6 steps outlined below before applying **Mivum**.

When multiple loads of **Mivum** are applied, it is suggested 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.

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 gals. 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 minutes. 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) listed 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 an approved cleaner can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions.

#### **Attention:**

1. **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 advised prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.
3. When **Mivum** is tank mixed with other pesticides, all required cleanout procedures must be examined and the most rigorous procedure must be followed.
4. In addition to this cleanout procedure, all pre-cleanout guidelines on subsequently applied products must be followed as per the individual labels.

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## AGRICULTURAL USES

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### CONIFER TREE PLANTATIONS

#### Application Information

**Mivum** is used to control of many species of weeds and deciduous trees on sites where conifers are growing or are to be planted. Apply by ground equipment or by air (helicopter only). Refer to the **WEEDS CONTROLLED** and **Brush Species Controlled** for a listing of susceptible species.

#### Application Timing

Apply **Mivum** after weeds have emerged or after undesirable hardwoods have broken Winter dormancy and have reached the point of full leaf expansion.

#### Restrictions - Conifer Plantations:

- **DO NOT** apply **Mivum** to conifers grown as ornamentals.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per acre per year. One (1) pound of this product contains 0.60 lb. of the active ingredient metsulfuron-methyl.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per single application.
- **DO NOT** make more than 1 application per year.

#### Precautions - Conifer Plantations:

- Applications of **Mivum** made to conifers that are suffering from loss of vigor caused by insects, diseases, drought, Winter damage, animal damage, excessive soil moisture, planting shock, or other stresses may injure or kill the trees.
- Make applications of **Mivum** for herbaceous release only after adequate rainfall has closed the planting slit and settled the soil around the roots following transplanting.
- **Mivum** applications may result in damage and mortality to other species of conifers when they are present on sites with those listed in the preceding section for conifer plantations.

#### Conifer Site Preparation - Application Before Transplanting

After consulting the **WEEDS CONTROLLED** and **Brush Species Controlled** tables, apply the rates of **Mivum** specified for the most difficult to control species on the site:

- **Southeast:** Apply up to 4 oz. (0.15 lb. a.i.) of **Mivum** per acre for loblolly and slash pines. Transplant the following planting season.
- **Northeast and Lake States:** Apply up to 2 oz. (0.075 lb. a.i.) of **Mivum** per acre for red pine. Transplant the following planting season. Apply up to 2 oz. (0.075 lb. a.i.) of **Mivum** per acre for black, white and Norway spruce. Transplant the following Spring.

- **West:** Apply up to 2 oz. (0.075 lb. a.i.) of **Mivum** per acre prior to planting Douglas Fir, Sitka Spruce, Western Red Cedar, Western Hemlock, Ponderosa Pine, and Grand Fir in the Coast Rangeland, and western slope of the Cascades in Oregon and Washington. These conifer species listed can be planted any time after application. Other conifer species can be planted providing the user has prior experience indicating acceptable plant resistance to **Mivum** soil residues.

Without prior experience, it is suggested that other species be planted on a small scale to determine selectivity before large-scale plantings are made as unacceptable injury may occur. To the extent consistent with applicable law, Sharda USA LLC will not assume responsibility for injury to any conifer species not listed on this label.

### Tank Mix Combinations

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. For broader spectrum control, the following products may be used in combination with **Mivum**:

- **Mivum plus Glyphosate:** Tank mix 1 - 2 oz. (0.0375 - 0.075 lb. a.i.) of **Mivum** with specified rate of glyphosate per acre. Refer to the product container for a list of species controlled. Follow use directions, precautions, and restrictions on the glyphosate label.
- **Mivum plus Imazapyr:** Tank mix 1 - 2 oz. (0.0375 - 0.075 lb. a.i.) of **Mivum** with specified rate of imazapyr per acre. Follow use directions, precautions, and restrictions on imazapyr label. Loblolly and slash pines may be transplanted the planting season following application. The combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophorn beam, persimmon, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, and red maple.
- **Mivum plus Glyphosate plus Imazapyr:** Tank mix 0.5 - 1 oz. (0.0188 - 0.0375 lb. a.i.) of **Mivum** with specified rates of glyphosate and imazapyr per acre. Slash and loblolly pines may be transplanted the planting season following application. The combination controls cherry, dogwood, elms, oaks (red and water), persimmon, sassafras, sweetgum and suppresses hickory. Follow use directions, precautions, and restrictions on glyphosate and imazapyr labels.
- **Mivum plus Hexazinone:** Tank mix 1 - 2 oz. (0.0375 - 0.075 lb. a.i.) of **Mivum** per acre with hexazinone at the rates specified on the container for various soil textures. Loblolly and slash pines may be transplanted the planting season following application. Refer to the product container for a list of species controlled. Follow use directions, precautions, and restrictions on hexazinone label.
- **Mivum plus Sulfometuron-Methyl:** Tank mix 0.5 - 1.5 oz. (0.0188 - 0.056 lb. a.i.) of **Mivum** with specified rates of sulfometuron-methyl per acre for herbaceous weed control. Refer to the product container and the **WEEDS CONTROLLED** section of this label for a listing of the weeds controlled. Loblolly and slash pines may be transplanted the planting season following application. Follow use directions, precautions, and restrictions on sulfometuron-methyl label. Tank mix 2 oz. (0.075 lb. a.i.) of **Mivum** with specified rates of sulfometuron-methyl

per acre for herbaceous weed control and early Spring suppression of bull thistle and Canada thistle in the Coast Rangeland and western slope of the Cascade Mountains. Douglas fir may be transplanted at least 90 days following application. Follow use directions, precautions, and restrictions on sulfometuron-methyl label.

### **Release - Hardwood Control and Suppression**

**Mivum** is used for application over-the-top of established slash and loblolly pine to control the species listed in **WEEDS CONTROLLED** and **Brush Species Controlled** section of this label. Apply 1 - 4 oz. (0.0375 - 0.15 lb. a.i.) per acre to control the species indicated, including kudzu.

### **Tank Mix Combinations**

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. For broader spectrum control, the following products may be used in combination with **Mivum**:

- **Mivum plus Imazapyr:** A tank mix of 1 - 2 oz. (0.0375 - 0.075 lb. a.i.) of **Mivum** with specified rate of imazapyr per acre may be applied to loblolly pine. Refer to the imazapyr label regarding the use of surfactants and the appropriate application timing with respect to the age and development stage of the pines. The combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbeam, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, persimmon, and red maple. Follow use directions, precautions, and restrictions on imazapyr label.
- **Mivum plus Hexazinone:** Tank mix 1 - 2 oz. (0.0375 - 0.075 lb. a.i.) of **Mivum** with hexazinone at the rates specified on the container for various soil textures. The combination may be applied to loblolly and slash pines. Follow use directions, precautions, and restrictions on hexazinone label.

### **Release - Herbaceous Weed Control**

**Mivum** may be applied to transplanted loblolly and slash pine for the control of herbaceous competition. Consult the **WEEDS CONTROLLED** for a listing of the susceptible species and application rates. Best results are obtained when **Mivum** is applied just before weed emergence until shortly after weed emergence.

### **Tank Mix Combinations**

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. For broader spectrum control, the following products may be used in combination with **Mivum**:

- **Mivum plus Imazapyr:** Tank mix 0.5 - 1 oz. (0.0188 - 0.0375 lb. a.i.) of **Mivum** with specified rate of imazapyr per acre. The tank mix may be used on loblolly pine. Follow use directions, precautions, and restrictions on imazapyr label.



- **Mivum plus Sulfometuron-Methyl:** Tank mix 0.5 - 1.5 oz. (0.0188 - 0.056 lb. a.i.) of **Mivum** with specified rates of sulfometuron-methyl per acre. Best results are obtained when **Mivum** is applied just before weed emergence until shortly after weed emergence. The tank mix may be used on loblolly and slash pine. Follow use directions, precautions, and restrictions on sulfometuron-methyl label.
- **Mivum plus Hexazinone:** Tank mix 0.5 - 1 oz. (0.0188 - 0.0375 lb. a.i.) of **Mivum** with hexazinone at the rates specified on the container for various soil textures. The combination may be applied to loblolly and slash pines. Follow use directions, precautions, and restrictions on hexazinone label.

### Release - Directed Spray in Conifers (Western U.S.)

To release conifers from competing brush species, including, blackberry, salmonberry, snowberry, thimbleberry, and wild roses, mix 2 - 4 oz. (0.075 - 0.15 lb. a.i.) of **Mivum** per 100 gals. of spray solution. Direct spray onto the foliage of competing brush species using a knapsack or backpack sprayer. For best results, apply any time after the brush species have reached full leaf stage but before autumn coloration. At application, the majority of the brush species must be less than 6 ft. in height to help ensure adequate spray coverage. Thorough coverage of the target foliage is necessary to optimize results. Care must be taken to direct the **Mivum** spray solution away from the conifer foliage.

**Mivum** may cause temporary yellowing and/or growth suppression when the spray solution contacts conifer foliage. The use of a surfactant with **Mivum** may improve brush control results. When using a surfactant with **Mivum**, extra precaution must be taken to avoid contact with conifer foliage. Excessive drift onto conifers may result in severe injury.

### SLASH PINE TREE PLANTATIONS

#### Site Preparation

**Mivum** may be applied for site preparation to control Blackberry and other vegetation where plantations of Slash pine will be transplanted the following season.

Weeds/Brush	Mivum Rate Oz. per Acre
Blackberry	0.5 - 1.5 oz. (0.0188 - 0.056 lb. a.i.)
Black Cherry Black Locust Diffuse Knapweed Japanese Honeysuckle Palmetto	3.33 oz. (0.416 lb. a.i.)

## Application Information

Apply **Mivum** in a minimum of 10 gals. water per acre by helicopter or ground sprayer; add surfactant at 0.25% by volume (1 qt. per 100 gals. water). Treat perennial weeds and brush after they have reached full leaf, but before leaf tissue has hardened. Use sufficient spray volume for complete coverage of these plants. Apply as a full coverage spray to foliage and stems. Total spray volume per acre will depend upon plant height and density of growth, and the type of equipment used. Effectiveness may be reduced if rainfall occurs within 24 hours after application.

Slash pine may be transplanted the next season, at least 6 months after application of **Mivum**.

## Tank Mix Combinations

For broader spectrum control, tank mix **Mivum** with products containing the active ingredients hexazinone or glyphosate or imazapyr. For aerial application of combinations, follow directions on the package label of the companion product in addition to **Mivum** directions above; see labels for additional plants controlled.

## For Control of Black Locust

On Slash Pine Plantations for site preparation only, ground, or aerial application may be used as specified on this label. Apply **Mivum** at the rate of 1 - 2 oz. (0.0375 - 0.075 lb. a.i.) per acre after the Black locust has reached full leaf but before leaf tissue has hardened in the Fall. Use a nonionic surfactant of at least 80% a.i. at a minimum rate of 1 qt. per 100 gals. of spray solution. Control may not be satisfactory if the Black locust is under stress at the time of treatment from drought or insects (i.e., Locust leafminer).

## Restrictions - Slash Pine Plantations:

- **DO NOT** use on poorly drained or marshy sites.
- **DO NOT** apply by air within 200 ft. of any homestead, agricultural land or other desirable plantings, agricultural land, or any body of water.
- **DO NOT** apply when weather conditions favor drift from treated areas.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per acre per year. One (1) pound of this product contains 0.60 lb. of the active ingredient metsulfuron-methyl.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per single application.
- **DO NOT** make more than 1 application per year.

## Precautions - Slash Pine Plantations:

- Poor weed and brush control may occur from application made when the soil is saturated with water and rain is imminent within 24 hours.

## LOBLOLLY PINE TREE PLANTATIONS

### Site Preparation for Control of Black Locust

Refer to the **SLASH PINE PLANTATIONS** section for control of Kudzu in listed states.

**Mivum** may be used where Loblolly pine is to be planted or has been established for at least 1 year on sites infested with Kudzu in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and West Virginia.

Apply 4 oz. (0.15 lb. a.i.) of **Mivum** per acre; add a nonionic surfactant (80% a.i.) at 1 qt. per 100 gals. spray mix. Apply after full foliation of Kudzu. Application must be made with sufficient volume to thoroughly wet the Kudzu canopy from top to bottom with crossing passes of 45 - 90 degrees. A minimum of 30 gals. water per acre per pass by ground equipment must be used, totaling 60 gals. per acre.

Retreatment may be necessary. Retreat the area 1 year after the initial treatment. Use broadcast application if resprouting of Kudzu root-crowns are less than 20 ft. apart. If root-crowns are greater than 20 ft., spot application may be utilized. Failure to treat escaped or border patches of Kudzu will result in reinvasion over the entire treated area in subsequent years.

### **Tank Mix Combinations**

**Mivum**, alone or tank mixed with hexazinone, may be used for control of brush and weeds in established plantations of Loblolly pine at least 1 year old in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and West Virginia. In addition to brush species listed on the hexazinone labeling, the combination controls or improves control of Blackberry, Black gum, Elm, and Winged elm, and Cherry. Additionally, the combination controls many weeds as shown on product labels. Apply 1.5 oz. (0.056 lb. a.i.) of **Mivum** in 5 - 30 gals. per acre. For broader spectrum control, tank mix with hexazinone at rates specified on container labels. Apply the combination during late Spring to early Summer. Apply by helicopter as described on the hexazinone container label. Application may also be applied by ground spray equipment.

### **Restrictions - Loblolly Pine Plantations:**

- **DO NOT** apply where conifers are suffering from loss of vigor caused by insects, disease, drought, Winter damage, or other stresses, as injury may result.
- **DO NOT** add surfactant to tank mixes containing hexazinone.
- **DO NOT** use on poorly drained or marshy sites; however, pine on raised beds may be treated.
- Temporary distortion of tip growth of pine may occur.
- **DO NOT** apply by air within 200 ft. of any homestead, agricultural land or other desirable plantings, agricultural land, or any body of water.
- **DO NOT** apply when weather conditions favor drift from treated areas.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per acre per year. One (1) pound of this product contains 0.60 lb. of the active ingredient metsulfuron-methyl.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per single application.
- **DO NOT** make more than 1 application per year.

### **Precautions- Loblolly Pine Plantations:**

- Use on coarse-textured, gravelly, or rocky soils or exposed subsoils may result in conifer injury.
- Poor weed and brush control may occur from application made when the soil is saturated with water and rain is imminent within 24 hours.

## **HARDWOOD TREE PLANTATIONS**

### **Application Information**

**Mivum** may be used to control many species of weeds on sites where yellow poplar is growing or is to be planted, and on sites where red alder is to be planted. Apply at up to 2 oz. (0.075 lb. a.i.) per acre by ground equipment or by air (helicopter only). Refer to the **WEEDS CONTROLLED** sections of this label for a listing of susceptible species.

### **Application Timing**

**Mivum** may be applied as a site preparation treatment prior to planting red alder or yellow poplar. As a prior to planting site preparation treatment for red alder, **Mivum** may be tank mixed with other herbicides labeled for this use. **Mivum** may also be applied over-the-top of planted yellow poplar seedlings after the soil has settled around the root system, but before the seedlings have broken dormancy (prior to bud break).

### **Release - Herbaceous Weed Control**

**Mivum** may be applied to yellow poplar for the control of herbaceous competition. Consult the **WEEDS CONTROLLED** for a listing of the susceptible species and application rates. Best results are obtained when **Mivum** is applied just before weed emergence until shortly after weed emergence.

### **Tank Mix Combinations**

Tank mix 0.5 oz. (0.0188 lb. a.i.) of **Mivum** with hexazinone as specified on the package label for **Release - Herbaceous Weed Control** in pine plantations in the eastern U.S. Follow the hexazinone label directions regarding altering the application rate by soil texture. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### **Restrictions - Hardwood Plantations:**

- **DO NOT** apply more than 4 oz. (0.15 lb. a.i.) of **Mivum** per acre per year.
- **DO NOT** apply more than 2 oz. (0.075 lb. a.i.) of **Mivum** per single application.
- **DO NOT** make more than 2 applications per year when using reduced rates.
- **Retreatment Interval: 30 days**

### Precautions - Hardwood Plantations:

- Application of hexazinone and **Mivum** made to yellow poplar that are suffering from loss of vigor caused by insects, disease, drought, Winter damage, animal damage, excessive soil moisture, planting shock or other stresses may injure or kill the seedlings.
- Make applications of **Mivum** for release only after adequate rainfall has closed the planting slit and settled the soil around the roots following transplanting.
- The use of surfactant is not advised for applications made over the tops of trees.
- Careful consideration must be given by an experienced and knowledgeable forester to match the requirements of yellow poplar and/or red alder to the conditions of the site. Treatment of yellow poplar and/or red alder planted on a site inadequate to meet its requirements may injure or kill the seedlings.

### RANGELAND AND PASTURES

**Mivum** can be used for control of certain broadleaf weeds, brush and several woody vine species in establishment, maintenance, and restoration of rangeland and pastures where certain desirable perennial grasses are established. **Mivum** may be tank mixed with other pesticides labeled for use in pasture and rangeland. Read and follow the labels on all products used in the tank mix. Observe the most restrictive precautions on each of the product's labels. Application of **Mivum** to pasture and rangeland may be made by ground or air. Use a sufficient volume of water to ensure thorough coverage of the targeted weeds with the equipment being used. In Idaho, Oregon, and Washington, use a minimum application volume of 3 gals. of spray solution per acre.

### RESTRICTIONS

- **DO NOT** apply more than 1.66 oz. (0.063 lb. a.i.) of **Mivum** per acre per year on pasture, rangeland, or CRP.
- **DO NOT** apply more than 1 oz. (0.0375 lb. a.i.) of **Mivum** per single application.
- **DO NOT** make more than 2 applications per year when using reduced rates.
- **Minimum Retreatment Interval:** 14 days
- **DO NOT** apply to forage grasses known to be sensitive to **Mivum** including ryegrass (Italian and perennial), bahia, or Garrison's creeping foxtail.
- **Grazing/Haying:** When used as directed, there is no grazing or haying restriction for use rates of 1.66 oz. (0.063 lb. a.i.) per acre and less. Coveralls, shoes plus socks must be worn if cutting within 4 hours of treatment.

## PRECAUTIONS

- Grass species or varieties may differ in their response to various herbicides. If no information is available, limit the initial use of **Mivum** to a small area.
- Components in a grass seed mixture will vary in resistance to **Mivum** so the final stand may not reflect the seed ratio.
- Under certain conditions including heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after **Mivum** application, temporary discoloration and/or grass injury may occur. **Mivum** must not be applied to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, 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 **Mivum** to pasture and rangeland undersown with legumes may cause injury to the legumes. Legumes in a seeding mixture may be severely injured or killed following an application of **Mivum**.
- Applications made to some established grasses may cause temporary stunting, yellowing or seedhead suppression (i.e., fescue, timothy).
- Applications made to newly established grasses less than 2 years from seeding may result in injury or loss.
- Broadleaf forage species, including alfalfa and clover, are highly sensitive to **Mivum** and will be severely injured or killed.
- The control of weeds in wheel track areas may be reduced if ground applications are made when dry, dusty field conditions exist. The addition of 2,4-D or MCPA will help improve weed control under these conditions.

## APPLICATION INFORMATION FOR GRASS ESTABLISHMENT IN RANGELAND AND PASTURES

**Mivum** may be applied for the control or suppression of broadleaf weeds to aid in the establishment of the following perennial native or improved grasses: Blue Grama, Bluestems (Big, Little, Plains, Sand, WW spar), Buffalograss, Green sprangletop, Kleingrass, Lovegrasses (Atherstone, Sand, Weeping, Wilman), Orchardgrass, Sideoats grama, Switchgrass (Blackwell), Wheatgrasses (bluebunch, crested, intermediate, pubescent, Siberian, slender, steam-bank, tall, thickspike, western), Wildgrass (Russian).

Maximize potential for grass establishment by consulting with the Natural Resource and Conservation Service of other government agencies or local experts concerning planting techniques and other cultural practices. Performance from **Mivum** may not always be satisfactory due to the inability of newly planted grass stands to sufficiently compete with weeds, and the severity of weed pressure in new grass stands. An additional herbicide application or mowing may be needed.

## Use Rates and Application Timing for Grass Establishment in Rangeland and Pastures

- **Pre-Plant (prior to planting) or Pre-Emergence (after planting but before grass emergence):** **DO NOT** use more than 0.1 oz. (0.0038 lb. a.i.) of **Mivum** per acre for grass establishment. Apply **Mivum** at 0.1 oz. (0.0038 lb. a.i.) per acre on all labeled grasses except orchardgrass and Russian wildrye grass. **DO NOT** apply **Mivum** pre-plant or pre-emergence to orchardgrass and Russian wildrye grass as severe crop injury may result.
- **Early Post-Emergence to New Plantings:** Apply **Mivum** at 0.1 oz. (0.0038 lb. a.i.) per acre, plus a nonionic surfactant at the rate of 2 - 4 pts. per 100 gals. of spray solution on all labeled grasses any time after grass emergence. **DO NOT** use a spray adjuvant other than nonionic surfactant. Because grass species differ in time of emergence, apply only after the majority of grasses are in the 3- to 4-leaf stage.
- **Post-Emergence to Stands with 1- to 5-Leaf Grasses Planted the Previous Season:** Apply **Mivum** at 0.1 oz. (0.0038 lb. a.i.) per acre plus a nonionic surfactant at the rate of 2 - 4 pts. per 100 gals. of spray solution on all labeled grasses when the majority of the grasses have 1 or more leaves. **DO NOT** use a spray adjuvant other than nonionic surfactant.

## APPLICATION INFORMATION FOR ESTABLISHED GRASSES IN RANGELAND AND PASTURES

### Use Rates - Established Grasses

Apply up to 1 oz. (0.0375 lb. a.i.) of **Mivum** per acre as a broadcast application to established grasses. For spot applications, use 1 oz. (0.0375 lb. a.i.) per 100 gals. of water. **DO NOT** apply more than 1.66 oz. (0.063 lb. a.i.) of **Mivum** per acre per year. Refer to the **WEEDS CONTROLLED** section of this label for a listing of the weeds controlled by **Mivum** and the appropriate use rate to obtain control.

### Application Timing - Established Grasses

**Mivum** may be applied to established native grasses including bluestems and grama, and on other established grasses including bermudagrass, bluegrass, orchardgrass, brome grass, fescue and timothy that were planted the previous growing season (or earlier) and are fully tillered, unless otherwise directed on this label. Specific application timing information on several of these grass species follows:

Grass	Minimum Time from Grass Establishment to Application (Months)
Bermudagrass	2
Bluegrass, Brome grass, Orchardgrass	6
Timothy	12
Fescue	24

## Rotation Intervals in Rangeland and Pastures for Overseeding and Renovation

Location	Crop or Grass Species	Maximum Mivum Rate: Oz. per Acre (lb. a.i.)	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	0.1 - 0.3 oz. (0.0038 - 0.0113)	4
	Wheat (Except Durum)	0.1 - 0.3 oz. (0.0038 - 0.0113)	1
	Durum, Barley, Oat	0.1 - 0.3 oz. (0.0038 - 0.0113)	10
All States Not Included Above	Red Clover, White Clover, and Sweet Clover	0.1 - 0.2 oz. (0.0038 - 0.0076)	12
	Bermudagrass, Bluegrass, Ryegrass	0.1 - 0.2 oz. (0.0038 - 0.0076)	6
	Tall Fescue	0.1 - 0.2 oz. (0.0038 - 0.0076)	18
	Wheat (Except Durum)	0.1 - 0.2 oz. (0.0038 - 0.0076)	1
	Durum, Barley, Oat	0.1 - 0.2 oz. (0.0038 - 0.0076)	10
All Areas with Soil pH of 7.5 or Less	Russian Wildrye	0.1 - 0.5 oz. (0.0038 - 0.0188)	1
	Green Needlegrass, Switchgrass, Sheep Fescue	0.1 - 1 oz. (0.0038 - 0.0375)	1
	Meadow Brome, Smooth Brome, Alta Fescue, Red Fescue, Meadow Foxtail, Orchardgrass, Russian Wildrye, Timothy	0.1 - 1 oz. (0.0038 - 0.0375)	2
All Areas with Soil pH of 7.9 or Less	Alkali Sacaton, Mountain Brome, Blue Grama, Thickspike Wheatgrass	0.1 - 1 oz. (0.0038 - 0.0375)	1
	Sideoats Grama, Switchgrass	0.1 - 0.5 oz. (0.0038 - 0.0188)	2
	Western Wheatgrass	0.1 - 1 oz. (0.0038 - 0.0375)	2
	Sideoats Grama, Switchgrass, Big Bluestem	0.1 - 1 oz. (0.0038 - 0.0375)	3



**Fescue** - Tall fescue that has been treated with this product may experience temporary stunting, yellowing, or seed-head suppression. To minimize these effects, observe the following:

- Use a tank mix with 2,4-D.
- Use the lowest specified rate for the target weeds.
- Use a nonionic surfactant at 0.5 - 1 pt. per 100 gals. of spray solution.
- Make application later in the Spring after the new growth is 5" - 6" tall or apply in the Fall.
- The first cutting yields may be reduced due to seedhead suppression resulting from treatment with **Mivum**.
- **Restrictions:**
  - **DO NOT** use more than 0.4 oz. (0.015 lb. a.i.) of **Mivum** per application.
  - **DO NOT** apply more than 0.4 oz. (0.015 lb. a.i.) of **Mivum** per acre per year.
  - **DO NOT** make more than 1 application per year.
  - **DO NOT** use a surfactant if liquid nitrogen is used as a carrier.
  - **DO NOT** use a spray adjuvant unless it is a nonionic surfactant.

**Timothy** - Observe the following:

- Use a tank mix with 2,4-D.
- Use the lowest specified rate for the target weeds.
- Use a nonionic surfactant at 0.5 pt. per 100 gals. of spray solution (0.0625%).
- Make applications in the late Summer or Fall.
- **Restrictions:**
  - **DO NOT** apply unless timothy is at least 6" tall and actively growing, or crop yellowing and/or stunting may occur.
  - **DO NOT** use more than 0.4 oz. (0.015 lb. a.i.) of **Mivum** per application.
  - **DO NOT** apply more than 0.4 oz. (0.015 lb. a.i.) of **Mivum** per acre per year.
  - **DO NOT** make more than 1 application per year.
  - **DO NOT** use a surfactant if liquid nitrogen is used as a carrier.
  - **DO NOT** use a spray adjuvant unless it is a nonionic surfactant.

#### **Other Rangeland and Pasture Grasses:**

Application of **Mivum** to Pensacola bahiagrass, ryegrass (Italian or perennial) and Garrison's creeping foxtail may cause severe injury to and/or loss of forage. Varieties and species of forage grasses differ in their resistance to herbicides. When using **Mivum** 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 forage species, including alfalfa and clover, are highly sensitive to **Mivum** and will be severely stunted or injured by **Mivum**.

## SPOT TREATMENTS

**Mivum** may be used for use as spot treatment to control noxious and troublesome weeds on pasture and rangeland.

### Application Information

**Mivum** may be used to control many species of weeds, including noxious weeds, in forage grasses growing on pasture and rangeland. Refer to the **WEEDS CONTROLLED** section of the package label or supplemental labeling for a listing of susceptible weed species. If the sprayer is calibrated, consult the package label or other supplemental labeling to select the application rate per acre of **Mivum** appropriate for the target weeds. Or mix 1 gram of **Mivum** per 1 gal. of water along with a suitable surfactant. Spray to the point of wetting the entire surface of the target weeds, approximately 40 gals. of solution per acre. When applied in this manner there is no grazing restrictions following the use of **Mivum**. Applications may be made at any time of the year, except when the soil is frozen.

## CROP ROTATION

Before using **Mivum**, carefully consider your crop rotation plans and options. For rotational flexibility, **DO NOT** treat all of your pasture and rangeland at the same time.

### Minimum Rotational Intervals

Minimum rotation intervals\* are determined by the rate of breakdown of **Mivum** applied. **Mivum** 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 **Mivum** breakdown in soil, while high soil pH, low soil temperature, and low soil moisture slow **Mivum** 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 must 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

**Mivum** must 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, **Mivum** 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 **Mivum**.

### Checking Soil pH

Before using **Mivum**, determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0" - 4" samples from different areas of the field and analyze them separately. Consult local extension publications for additional information on 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 the following year in fields previously treated with **Mivum**. 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.

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## NON-AGRICULTURAL USES

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### NON-CROP APPLICATIONS

#### Application Information

**Mivum** may be used for use for listed weeds and brush control on non-crop, industrial sites including airports, military installations, fence rows, roadsides and associated rights-of-way, petroleum tank farms, pipeline and utility rights-of-way, pumping stations, railroads, storage areas, and State and Federal plant sites including government-owned parks and recreational areas, Federal-controlled customs and border crossings, and non-crop lands identified under government set-aside programs.

Consult the **WEEDS CONTROLLED** and **Brush Species Controlled** tables to determine the appropriate application rate.

**Mivum** may be applied in tank mixture with other herbicides labeled for use on non-crop sites. Fully read the labels and follow all directions and restrictions on each label.

#### Restrictions:

- **DO NOT** apply more than 4 oz. (0.15 lb. of a.i.) of **Mivum** per acre per year.
- **DO NOT** apply more than 3 oz. (0.114 lb. of a.i.) of **Mivum** per single application.
- **DO NOT** make more than 6 applications per acre per year when using reduced rates.
- **Minimum Retreatment Interval:** 7 days

### BRUSH CONTROL

#### Application Information

**Mivum** may be used for the control of undesirable brush growing in non-crop areas. Applications may be made by air, high-volume ground application, low-volume ground application, and ultra-low volume ground application. Except as noted elsewhere for multiflora rose, **Mivum** must be applied as a spray to the foliage.

The application volume required will vary with the height and density of the brush and the application equipment used. Generally, aerial applications will require 15 - 25 gals. of water per acre; high-volume ground application will require 100 - 400 gals. of water per acre; low-volume ground application will require 20 - 50 gals. of water per acre;

and ultra-low volume ground application will require 10 - 20 gals. of water per acre. Regardless of the application volume and equipment used, thorough coverage of the foliage is necessary to optimize results.

#### Restriction - Brush Control:

- **DO NOT** apply more than 4 oz. (0.15 lb. of a.i.) of **Mivum** per acre per year.
- **DO NOT** apply more than 3 oz. (0.114 lb. of a.i.) of **Mivum** per single application.
- **DO NOT** make more than 6 applications per acre per year when using reduced rates.
- **Minimum Retreatment Interval:** 7 days
- When used as directed, there is no grazing restriction for use rates of 1.66 oz. per acre and less. At use rates of 1.66 to 3.5 oz. (0.063 - 0.131 lb. a.i.) per acre, forage grasses may be cut for hay, fodder, or green foliage and fed to livestock, including lactating animals, 3 days after treatment.

#### Brush Species Controlled

Species	High-Volume Mivum Rate Oz. (lb. a.i.) per 100 Gals.	Broadcast Mivum Rate Oz. (lb. a.i.) per Acre
Ash	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Aspen	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Black Locust	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Blackberry	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Camelthorn	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Cherry	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Cottonwood	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Eastern Red Cedar	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Elder	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Elm	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Firs	3 (0.114 lb. a.i.)	1 - 2 (0.0375 - 0.075 lb. a.i.)
Hawthorn	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Honeysuckle	1 - 2 (0.0375 - 0.075 lb. a.i.)	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)

<b>Species</b>	<b>High-Volume Mivum Rate Oz. (lb. a.i.) per 100 Gals.</b>	<b>Broadcast Mivum Rate Oz. (lb. a.i.) per Acre</b>
Mulberry	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Multiflora Rose	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Muscadine (Wild Grape)	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Oaks	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Ocean Spray (Holodiscus)	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Osage Orange	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Red Maple	1 - 2 (0.0375 - 0.075 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Salmonberry	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Snowberry	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Spruce (Black and White)	3 (0.114 lb. a.i.)	2 - 3 (0.075 - 0.113 lb. a.i.)
Thimbleberry	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Tree of Heaven (Ailanthus)	1 - 2 (0.0375 - 0.075 lb. a.i.)	1 - 2 (0.0375 - 0.075 lb. a.i.)
Tulip Tree	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Wild Roses	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)
Willow	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1 - 3 (0.0375 - 0.113 lb. a.i.)

For low-volume and ultra-low volume ground applications, mix 4 - 8 oz. of **Mivum** per 100 gals. of spray solution.

### **Application Timing**

Make a foliar application of the specified rate of **Mivum** during the period from full leaf expansion in the Spring until the development of full Fall coloration on deciduous species to be controlled. Coniferous species may be treated at any time during the growing season.

### **Spot Treatment**

**Mivum** may be used for the control of many species of weeds including noxious/invasive weeds in certain established grasses growing on non-crop areas. Refer to the **WEEDS CONTROLLED** section for a listing of susceptible weed species and the application rate per acre per the target weed. Or mix 1 gram of **Mivum** per 1 gal. of water

along with a surfactant. Spray to the point of wetting the entire surface of the target weeds, approximately 40 gals. of solution per acre.

### Tank Mix Combinations

**Mivum** may be tank mixed with any product labeled for non-crop brush control at the application rates specified on the companion product's label for the pests specified on the product's companion label. Read and follow the label instructions of both products when tank mixing. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

- **Mivum plus Glyphosate:** After consulting the **Brush Species Controlled** table, tank mix the prescribed rate of **Mivum** with the rate of glyphosate indicated for various application methods on the glyphosate label. Refer to glyphosate label for list of species controlled. Follow use directions, precautions, and restrictions on the glyphosate label.
- **Mivum plus Imazapyr:** Combine 1 - 2 oz. (0.0375 - 0.075 lb. a.i.) of **Mivum** with the prescribed rate of imazapyr per acre and apply as a broadcast spray. Aerial application must use a minimum of 15 gals. per acre spray volume. In addition to species listed above controlled by **Mivum**, this combination controls black gum, hophornbeam, sassafras, sweetgum, Vaccinium species, dogwood, myrtle dahoon, hickories, and persimmon. Follow use directions, precautions, and restrictions on the imazapyr label.
- **Mivum plus Triclopyr:** After consulting the **Brush Species Controlled** table, tank mix the prescribed rate of **Mivum** with the rate of triclopyr indicated for the various application methods on its label. Refer to the triclopyr label for list of species controlled. Follow use directions, precautions, and restrictions on the triclopyr label.
- **Mivum plus Fosamine:** After consulting the **Brush Species Controlled** table, tank mix the prescribed rate of **Mivum** with the rate of fosamine indicated for the various application methods on its label. Refer to the fosamine label for list of species controlled. Follow use directions, precautions, and restrictions on the fosamine label.
- **Mivum plus Picloram:** After consulting the **Brush Species Controlled** table, tank mix the prescribed rate of **Mivum** with the rate of picloram indicated for the various application methods on its label. Refer to the picloram label for list of species controlled. Follow use directions, precautions, and restrictions on the picloram label.
- **Mivum plus Picloram plus Imazapyr:** Combine 1 - 1.5 oz. (0.0375 - 0.056 lb. a.i.) of **Mivum** with prescribed rates of picloram and imazapyr per 100 gals. of water. Apply as a high-volume spray. The tank mix controls cherry, elms, box elder, maples, hackberry, redbud, ash, oaks (including shingle oak), black locust and sassafras. Follow use directions, precautions, and restrictions on the imazapyr and picloram labels.

### Spotgun Basal Soil Treatment

For control of multiflora rose, prepare a spray suspension of **Mivum** by mixing 1 oz. (0.0375 lb. a.i.) per gal. of water. Mix vigorously until the **Mivum** is dispersed and agitate periodically while applying the spray suspension. Apply the

spray preparation with an exact delivery handgun applicator. Apply at the rate of 4 milliliters for each 2 ft. of rose canopy diameter. Direct the treatment to the soil within 2 ft. of the stem union. When treating large plants and more than 1 delivery is required, make applications on opposite sides of the plant. Applications must be made from early Spring to Summer.

### NATIVE GRASSES

**Mivum** may be used for weed control and suppression in the establishment and maintenance of native grasses. It may be used where blue gramma, bluestems (big, little, plains, sand, ww spar), brome grasses (meadow), buffalograss, green sprangletop, indiagrass, kleingrass, lovegrasses (atherstone, sand, weeping, wilman), orchardgrass, sideoats gramma, switchgrass (blackwell), wheatgrass (bluebunch, intermediate, pubescent siberian, slender, streamband, tall, thickspike, western), and Russian wildrye are established. It may also be applied over these species in the seedling stage, except for orchardgrass and Russian wildrye.

#### Application Information

Apply **Mivum** at the rate of 0.1 oz. (0.0038 lb. a.i.) per acre for the control and suppression\* of bur buttercup (testiculate), common purslane, common sunflower\*, cutleaf eveningprimrose\*, flixweed\*, lambsquarters\* (common and slimleaf), marestail\*, pigweed (redroot and tumble), snow speedwell, tansymustard\* and tumble mustard (Jim Hill mustard).

\*Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. Degree of suppression will vary with the size of weed and environmental conditions following treatment.

#### Application Timing

For established grasses, apply when weeds are in the seedling stage. For grasses in the seedling stage, apply pre-plant or pre-emergence where the soil (seed bed) has been cultivated.

#### Restrictions - Native Grasses:

- **DO NOT** apply to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, 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.
- **DO NOT** use more than 0.1 oz. (0.0038 lb. a.i.) of **Mivum** per acre for grass establishment.
- **DO NOT** apply more than 4 oz. (0.25 lb. of product or 0.15 lb. of a.i.) of **Mivum** per acre per year. One (1) pound of this product contains 0.60 lb. of the active ingredient metsulfuron-methyl.
- **DO NOT** apply more than 2 oz. (0.125 lb. of product or 0.075 lb. of a.i.) of **Mivum** per single application.
- **DO NOT** make more than 2 applications per year when using reduced rates.
- **Minimum Retreatment Interval: 28 days**

### Precautions - Native Grasses:

- Grass species or varieties may differ in their response to this herbicide. Consult with your State Experiment Station, University, or Extension agent or other local experts as to sensitivity to this herbicide. If inadequate information is available, limit the initial use of this product to a small area. The types of grass in a grass seed mixture will vary in resistance to this product, so the grasses in the final stand may not reflect the same ratio as in the seed mix.

### Grass Replant Intervals

Following an application of **Mivum** to non-crop areas, the treated sites may be replanted with various species of grasses at the intervals indicated below:

For soils with a pH of 7.5 or less observe the following replant intervals:		
Species	Mivum Rate: Oz. per Acre (lb. a.i.)	Replant Interval (Months)
Brome, Meadow	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	3
Brome, Smooth	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	4
Fescue, Alta	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	4
Fescue, Red	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	4
Fescue, Sheep	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1
	1 - 2 (0.0375 - 0.075 lb. a.i.)	4
Foxtail, Meadow	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	4
Green Needlegrass	0.5 - 2 (0.0188 - 0.075 lb. a.i.)	1
Orchardgrass	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	4

(continued)



For soils with a pH of 7.5 or less observe the following replant intervals: <i>(continued)</i>		
Species	Mivum Rate: Oz. per Acre (lb. a.i.)	Replant Interval (Months)
Russian Wildrye	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1
	1 (0.0375 lb. a.i.)	2
	2 (0.075 lb. a.i.)	3
Switchgrass	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1
	1 - 2 (0.0375 - 0.075 lb. a.i.)	3
Timothy	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	4
Wheatgrass, Western	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	3
For soils with a pH of 7.5 or greater observe the following replant intervals:		
Species	Mivum Rate: Oz. per Acre (lb. a.i.)	Replant Interval (Months)
Alkali Sacaton	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1
	1 - 2 (0.0375 - 0.075 lb. a.i.)	3
Bluestem, Big	0.5 - 2 (0.0188 - 0.075 lb. a.i.)	3
Brome, Mountain	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	1
	1 - 2 (0.0375 - 0.075 lb. a.i.)	2
Gramma, Blue	0.5 - 2 (0.0188 - 0.075 lb. a.i.)	1
Gramma, Sideoats	0.5 (0.0188 lb. a.i.)	2
	>0.5 (0.0188 lb. a.i.)	>3
Switchgrass	0.5 (0.0188 lb. a.i.)	2
	>0.5 (0.0188 lb. a.i.)	>3

For soils with a pH of 7.5 or greater observe the following replant intervals: <i>(continued)</i>		
Species	Mivum Rate: Oz. per Acre (lb. a.i.)	Replant Interval (Months)
Wheatgrass, Thickspike	0.5 - 2 (0.0188 - 0.075 lb. a.i.)	1
Wheatgrass, Western	0.5 - 1 (0.0188 - 0.0375 lb. a.i.)	2
	1 - 2 (0.0375 - 0.075 lb. a.i.)	3

The indicated intervals are for applications made in the Spring to early Summer. Because **Mivum** degradation is slowed by cold or frozen soils, applications made the late Summer or Fall must consider the intervals as beginning in the Spring following treatment.

Testing has indicated that there is considerable variation in response among the species of grasses when seeded into areas treated with **Mivum**. If species other than those listed above are to be planted into areas treated with **Mivum**, a field bioassay must be performed or previous experience may be used to determine the feasibility of replanting treated sites.

#### ADDITIONAL GRASS APPLICATION INFORMATION FOR GRASS ESTABLISHMENT

**Mivum** may be applied for the control or suppression of broadleaf weeds to aid in the establishment of the following perennial native or improved grasses: Blue Grama, Bluestems (Big, Little, Plains, Sand, WW spar), Buffalograss, Green sprangletop, Kleingrass, Lovegrasses (Atherstone, Sand, Weeping, Wilman), Orchardgrass, Sideoats grama, Switchgrass (Blackwell), Wheatgrasses (bluebunch, crested, intermediate, pubescent, Siberian, slender, steam-bank, tall, thickspike, western), Wildgrass (Russian)

Maximize potential for grass establishment by consulting with the Natural Resource and Conservation Service of other government agencies or local experts concerning planting techniques and other cultural practices. Performance from **Mivum** may not always be satisfactory due to the inability of newly planted grass stands to sufficiently compete with weeds, and the severity of weed pressure in new grass stands. An additional herbicide application or mowing may be needed.

#### Use Rates and Application Timing for Grass Establishment

- **Pre-Plant (prior to planting) or Pre-Emergence (after planting but before grass emergence):** **DO NOT** use more than 0.1 oz. (0.0038 lb. a.i.) of **Mivum** per acre for grass establishment. Apply **Mivum** at 0.1 oz. (0.0038 lb. a.i.) per acre on all labeled grasses except orchardgrass and Russian wildrye grass. **DO NOT** apply **Mivum** pre-plant or pre-emergence to orchardgrass and Russian wildrye grass as severe crop injury may result.
- **Early Post-Emergence to New Plantings:** Apply **Mivum** at 0.1 oz. (0.0038 lb. a.i.) per acre, plus a nonionic surfactant at the rate of 2 - 4 pts. per 100 gals. of spray solution on all labeled grasses any time after grass emergence. **DO NOT** use a spray adjuvant other than nonionic surfactant. Because grass species differ in time of emergence, apply only after the majority of grasses are in the 3- to 4-leaf stage.

- **Post-Emergence to Stands with 1- to 5-Leaf Grasses Planted the Previous Season:** Apply **Mivum** at 0.1 oz. (0.0038 lb. a.i.) per acre plus a nonionic surfactant at the rate of 2 - 4 pts. per 100 gals. of spray solution on all labeled grasses when the majority of the grasses have 1 or more leaves. **DO NOT** use a spray adjuvant other than nonionic surfactant.

### APPLICATION INFORMATION FOR ESTABLISHED GRASSES

#### Use Rates - Established Grasses

Apply up to 1.66 oz. (0.063 lb. a.i.) of **Mivum** per acre as a broadcast application to established grasses. For spot applications, use 1 oz. (0.0375 lb. a.i.) per 100 gals. of water. **DO NOT** apply more than 1.66 oz. (0.063 lb. a.i.) of **Mivum** per acre per year. Refer to the **WEEDS CONTROLLED** section of this label for a listing of the weeds controlled by **Mivum** and the appropriate use rate to obtain control.

#### Application Timing - Established Grasses

**Mivum** may be applied to established native grasses including bluestems and grama, and on other established grasses including bermudagrass, bluegrass, orchardgrass, brome grass, fescue and timothy that were planted the previous growing season (or earlier) and are fully tillered, unless otherwise directed on this label. Specific application timing information on several of these grass species follows:

Grass	Minimum Time from Grass Establishment to Application (Months)
Bermudagrass	2
Bluegrass, Brome grass, Orchardgrass	6
Timothy	12
Fescue	24

**Fescue** - Tall fescue that has been treated with this product may experience temporary stunting, yellowing, or seed-head suppression. To minimize these effects, observe the following:

- Use a tank mix with 2,4-D.
- Use the lowest specified rate for the target weeds.
- Use a nonionic surfactant at 0.5 - 1 pt. per 100 gals. of spray solution.
- Make application later in the Spring after the new growth is 5" - 6" tall or apply in the Fall.
- The first cutting yields may be reduced due to seedhead suppression resulting from treatment with **Mivum**.

• **Restrictions:**

- **DO NOT** use more than 0.4 oz. (0.015 lb. a.i.) **Mivum** per application.
- **DO NOT** apply more than 0.4 oz. (0.015 lb. a.i.) **Mivum** per acre per year.
- **DO NOT** make more than 1 application per year.
- **DO NOT** use a surfactant if liquid nitrogen is used as a carrier.
- **DO NOT** use a spray adjuvant unless it is a nonionic surfactant.

**Timothy** - Observe the following:

- Use a tank mix with 2,4-D.
- Use the lowest specified rate for the target weeds.
- Use a nonionic surfactant at 0.5 - 1 pt. per 100 gals. of spray solution (0.0625%).
- Make applications in the late Summer or Fall.

• **Restrictions:**

- **DO NOT** apply unless timothy is at least 6" tall and actively growing, or crop yellowing and/or stunting may occur.
- **DO NOT** use more than 0.4 oz. (0.015 lb. a.i.) **Mivum** per application.
- **DO NOT** apply more than 0.4 oz. (0.015 lb. a.i.) **Mivum** per acre per year.
- **DO NOT** make more than 1 application per year.
- **DO NOT** use a surfactant if liquid nitrogen is used as a carrier.
- **DO NOT** use a spray adjuvant unless it is a nonionic surfactant.

**Other Grasses:**

Application of **Mivum** to Pensacola bahiagrass, ryegrass (Italian or perennial) and Garrison's creeping foxtail may cause severe injury to and/or loss of forage. Varieties and species of forage grasses differ in their resistance to herbicides. When using **Mivum** 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 forage species, including alfalfa and clover, are highly sensitive to **Mivum** and will be severely stunted or injured by **Mivum**.

## CROP ROTATION

Before using **Mivum**, carefully consider your crop rotation plans and options.

### Minimum Rotational Intervals

Minimum rotation intervals\* are determined by the rate of breakdown of **Mivum** applied. **Mivum** 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 **Mivum** breakdown in soil, while high soil pH, low soil temperature, and low soil moisture slow **Mivum** 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 must 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

**Mivum** must 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, **Mivum** 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 **Mivum**.

### Checking Soil pH

Before using **Mivum**, determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0" - 4" samples from different areas of the field and analyze them separately. Consult local extension publications for additional information on 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 the following year in fields previously treated with **Mivum**. 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.

## Rotation Intervals for Overseeding and Renovation

Location	Crop or Grass Species	Maximum Mivum Rate: Oz. per Acre (Lb. A.I.)	Minimum Rotation Interval (Months)
AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, and WV	Alfalfa, Red Clover, White Clover, Sweet Clover, Bermudagrass, Bluegrass, Ryegrass, Tall Fescue	0.1 - 0.3 (0.0038 - 0.0114)	4
	Wheat (Except Durum)	0.1 - 0.3 (0.0038 - 0.0114)	1
	Durum, Barley, Oat	0.1 - 0.3 (0.0038 - 0.0114)	10
All States Not Included Above	Red Clover, White Clover, Sweet Clover	0.1 - 0.2 (0.0038 - 0.0076)	12
	Bermudagrass, Bluegrass, Ryegrass	0.1 - 0.2 (0.0038 - 0.0076)	6
	Tall Fescue	0.1 - 0.2 (0.0038 - 0.0076)	18
	Wheat (Except Durum)	0.1 - 0.2 (0.0038 - 0.0076)	1
	Durum, Barley, Oat	0.1 - 0.2 (0.0038 - 0.0076)	10
All Areas with Soil pH of 7.5 or Less	Russian Wildrye	0.1 - 0.5 (0.0038 - 0.0188)	1
	Green Needlegrass, Switchgrass, Sheep Fescue	0.1 - 1 (0.0038 - 0.0375)	1
	Meadow Brome, Smooth Brome, Alta Fescue, Red Fescue, Meadow Foxtail, Orchardgrass, Russian Wildrye, Timothy	0.1 - 1 (0.0038 - 0.0375)	2
All Areas with Soil pH of 7.9 or Less	Alkali Sacaton, Mountain Brome, Blue Grama, Thickspike Wheatgrass	0.1 - 1 (0.0038 - 0.0375)	1
	Sideoats Grama, Switchgrass	0.1 - 0.5 (0.0038 - 0.0188)	2
	Western Wheatgrass	0.1 - 1 (0.0038 - 0.0375)	2
	Sideoats Grama, Switchgrass, Big Bluestem	0.1 - 1 (0.0038 - 0.0375)	3

When used as directed, there is no grazing or haying restriction for use rates of 1.66 oz. (0.063 lb. a.i.) per acre or less. At use rates greater than 1.66 oz. (0.063 lb. a.i.) per acre and up to 3.33 oz. (0.126 lb. a.i.) per acre, forage grasses may be cut for hay, fodder or green forage and fed to livestock, including lactating animals, 3 days after treatment.

## Precautions

- Grass species or varieties may differ in their response to various herbicides. If no information is available, limit the initial use of **Mivum** to a small area.
- Components in a grass seed mixture will vary in resistance to **Mivum** so the final stand may not reflect the seed ratio.
- Under certain conditions including heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after **Mivum** application, temporary discoloration and/or grass injury may occur. **Mivum** must not be applied to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, 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 **Mivum** to lands undersown with legumes may cause injury to the legumes. Legumes in a seedling mixture may be severely injured or killed following an application of **Mivum**. The control of weeds in wheel track areas may be reduced if ground applications are made when dry, dusty field conditions exist. The addition of 2,4-D or MCPA will help improve weed control under these conditions.

## WEEDS CONTROLLED

0.33 - 0.5 Oz. (0.012 - 0.0188 lb. a.i.) of Mivum per Acre			
Annual Sowthistle	Common Groundsel	Goldenrod	Smallseed Falseflax
Aster	Common Purslane	Lambsquarters	Smooth Pigweed
Bahiagrass	Common Yarrow	Marestail/Horseweed****	Sweet Clover
Beebalm	Conical Catchfly	Maximillion Sunflower	Tansymustard
Bittercress	Corn Cockle	Miners Lettuce	Treacle Mustard
Bitter Sneezeweed	Cow Cockle	Pennsylvania Smartweed	Tumble Mustard
Blackeyed-Susan	Crown Vetch	Plains Coreopsis	Wild Carrot
Blue Mustard	Dandelion	Plantain	Wild Garlic
Bur Buttercup	Dogfennel	Redroot Pigweed	Wild Lettuce
Chicory	False Chamomile	Redstem Filaree	Wild Mustard
Clover	Fiddleneck Tarweed	Rough Fleabane	Wooly Croton
Cocklebur	Field Pennycress	Shepherd's Purse	Wood Sorrel
Common Chickweed	Flixweed	Silky Crazyweed (Locoweed)	Yankeeeweed

(continued)

### WEEDS CONTROLLED (*continued*)

0.5 - 1 Oz. (0.0188 - 0.0375 lb. a.i.) of Mivum per Acre			
Blackberry	Curly Dock	Honeysuckle	Rosering Gaillardia
Black Henbane	Dewberry	Multiflora Rose and Other Wild Roses	Seaside Arrowgrass
Broom Snakeweed*	Dyer's Woad	Musk Thistle***	Sericea Lespedeza
Buckhorn Plantain	Gorse	Oxeye Daisy	Tansy Ragwort
Bull Thistle	Halogeton	Plumeless Thistle	Teasel
Common Crupina	Henbit	Prostrate Knotweed	Wild Caraway
Common Sunflower			
1 - 2 Oz. (0.0375 - 0.075 lb. a.i.) of Mivum per Acre			
Common Mullein	Lupine	Purple Scabious	St. Johnswort
Common Tansy	Old World Climbing Fern (Logodium)	Scotch Thistle	Sulfur Cinquefoil
Field Bindweed**	Perennial Pepperweed	Scouringrush	Western Salsify
Greasewood	Poison Hemlock	Salsify	Whitetop (Hoary Cress)
Gumweed	Purple Loosestrife	Snowberry	Wild Iris
Houndstongue			
1.5 - 2 Oz. (0.056 - 0.075 lb. a.i.) of Mivum per Acre			
Canada Thistle**	Duncecap Larkspur	Tall Larkspur	Yellow Toadflax**
Dalmation Toadflax**	Russian Knapweed**	Wild Parsnip	
3 - 4 Oz. (0.1125 - 0.15 lb. a.i.) of Mivum per Acre			
Kudzu			
*Apply Fall through Spring.			
**Suppression, which is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. Apply as a full coverage spray for best performance.			



## WEEDS CONTROLLED (*continued*)

\*\*\*Certain biotypes of musk thistle are more sensitive to **Mivum** and may be controlled with rates of 0.25 - 0.5 oz. (0.0094 - 0.0188 lb. a.i.) per acre. Treatments of **Mivum** may be applied from rosette through bloom stages of development.

\*\*\*\*Certain biotypes of maretail/horsetail are less susceptible to **Mivum** and may be controlled by tank mixes with herbicides with a different mode of action.

### Problem Weed Control

For broader spectrum control and for use on certain biotypes of broadleaf weeds which may be resistant to **Mivum** and herbicides with the same mode of action, the following tank mixes may be applied.

#### Dicamba plus 2,4-D

Weed	Rate of Mivum Oz. per Acre (lb. a.i.)	Rate of Dicamba (Fl. oz. per Acre)	Rate of 2,4-D (Fl. oz. per Acre)
Kochia Control	0.5 (0.0188 lb. a.i.)	8	16
Spotted Knapweed Control	0.5 (0.0188 lb. a.i.)	8	16
Rush Skeletonweed Suppression	1 (0.0375 lb. a.i.)	8	16

## TURF - INDUSTRIAL

### INDUSTRIAL TURF APPLICATIONS (UNIMPROVED ONLY)

#### Application Information

**Mivum** may be used for selective weed control in unimproved industrial turf where certain grasses are well established and desired as ground cover. **Mivum** may also be used for the control of certain noxious and troublesome weeds in turf.

In addition to conventional spray equipment, **Mivum** may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of **Mivum** in the water phase. Consult the **WEEDS CONTROLLED** table to determine which weeds will be controlled by the following applications:

- **Fescue and Bluegrass:** Apply 0.25 - 0.5 oz. (0.0094 - 0.0188 lb. a.i.) of **Mivum** per acre.
- **Crested Wheatgrass and Smooth Brome:** Apply 0.25 - 1 oz. (0.0094 - 0.0375 lb. a.i.) of **Mivum** per acre.
- **Bermudagrass:** Apply 0.25 - 2 oz. (0.0094 - 0.075 lb. a.i.) of **Mivum** per acre.

## Application Timing

Applications may be made at any time of the year, except when the soil is frozen. When a Spring application is made on fescue or bluegrass, a second application may be made during the Summer after full seed head maturation.

## Restrictions - Turf:

- **DO NOT** apply **Mivum** to turf under stress due to drought, insects, disease, cold temperatures, high temperatures above 85° F on cool season grasses, or poor soil fertility as injury may result.
- **DO NOT** apply to turf less than 1 year old.
- **DO NOT** use on Bahiagrass where it is the desired turf, as severe injury may result.
- **DO NOT** plant ornamentals including shrubs and trees in treated areas for at least 1 year after the last application or bedding plants for at least 2 years.
- **DO NOT USE ON FOOD OR FEED CROPS.** Injury to or loss of desirable trees or other plants may result from failure to observe the following:
  - **DO NOT** apply **Mivum** (except as indicated on the label) 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** apply to any body of water, including streams, irrigation water, or wells.
  - **DO NOT** apply where runoff water may flow on agricultural land, as injury to crops may result.
  - **DO NOT** allow spray drift on adjacent crops or other desirable plants or trees as injury may occur.

## Precautions - Turf:

- Use lowest rates for minimum chlorosis of the turf.
- Addition of a nonionic surfactant of at least 80% a.i. at 0.25% volume (1 qt./100 gals.) provides maximum performance but may temporarily increase chlorosis of the turf.
- Allow 1 week between applications of **Mivum** and other pesticide products (this guideline can be relaxed where severe insect or disease attack requires immediate treatment).
- When overseeding, wait 2 months (8 weeks) after application.
- Follow these practices to minimized drift:
  - Stop spraying if wind speed becomes excessive. Spray drift can occur at wind speeds less than 10 mph. If sensitive plants are downwind, extreme caution must be used. Avoid making applications when winds are gusty.
  - High temperatures, drought and low relative humidity increase the possibility of harmful spray drift. Caution must be used when these conditions are present and sensitive plants are nearby.
  - Use large droplets size sprays to minimize drift.
  - Use spray pressures of 35 PSI or less when applying this product.

## **GROWTH SUPPRESSION AND SEED HEAD INHIBITION (CHEMICAL MOWING)**

### **Application Information**

**Mivum** may be applied for growth suppression and seed head inhibition in well-established fescue and bluegrass turf at the use rate of 0.25 - 0.5 oz. (0.0094 - 0.0188 lb. a.i.) per acre.

### **Tank Mix Combination**

**Mivum** may be tank mixed with Embark for improved performance in the regulation of growth and seed head suppression. Tank mix 0.25 - 0.5 oz. (0.0094 - 0.0188 lb. a.i.) of **Mivum** with 0.125 - 0.25 pt. of Embark. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### **Application Timing**

Application may be made after at least 2" - 3" of new growth has emerged until the appearance of the seed stalk.

### **Precautions - Fescue:**

**Mivum** may temporarily stunt tall fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Tank mix **Mivum** with 2,4-D.
- Use the lowest labeled rate for target weeds.
- Use a nonionic surfactant at 0.5 - 1 pt. per 100 gals. of spray solution.
- Make application later in the Spring after the new growth is 5" - 6" tall, or in the Fall.
- The yields from the first cutting may be reduced due to seedhead suppression resulting from treatment with **Mivum**.

### **Restrictions - Fescue:**

- **DO NOT** use more than 0.4 oz. (0.015 lb. a.i.) of **Mivum** per application.
- **DO NOT** apply more than 0.4 oz. (0.015 lb. a.i.) of **Mivum** per acre per year.
- **DO NOT** make more than 1 application per year.
- **DO NOT** use a surfactant when liquid nitrogen is used as a carrier.
- **DO NOT** use a spray adjuvant other than nonionic surfactant.

### **Precautions - Industrial Turf Only:**

- An application of **Mivum** may cause temporary discoloration (chlorosis) of the grasses. Use the lower labeled rates for minimum discoloration.

- With fescue and bluegrass, sequential applications made during the same or consecutive growth periods (i.e., Spring and Fall) may result in excessive injury to turf.
- Excessive injury may result when **Mivum** is applied to turf that is under stress from drought, insects, disease, cold temperatures (Winter injury), or poor fertility.
- **Mivum** is not for use on bahiagrass.

### SPRAYER CLEAN-UP

Immediately after spraying, thoroughly remove all traces of **Mivum** from mixing and spray equipment as follows:

1. Drain tank, rinse interior surface of tank, then flush tank, boom, and hoses with clean water for a minimum of 5 minutes.
2. Fill the tank with clean water, then add an ammonia cleaning solution. Use 1 gal. ammonia (containing 3% active) per 100 gals. of water. Turn on sprayer long enough to flush through boom, hoses, and nozzles. Stop spraying, but keep agitator working in the tank for 15 minutes, then drain.
3. Repeat Step 2.
4. Repeat Step 1.
5. Nozzles and screens must then be removed and cleaned separately. To remove traces of cleaning solution, rinse the tank thoroughly with clean water and flush through hoses and boom.
6. Flush boom and hoses with clean water for 5 minutes just prior to using the sprayer for the first time after the **Mivum** application.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage and disposal.

**PESTICIDE STORAGE:** Store product in original container only. **DO NOT** contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place.

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

### **CONTAINER HANDLING:**

**Nonrefillable Plastic (Capacity Equal to or Less Than 50 Pounds):** 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 1/4 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 if available or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

**Nonrefillable Plastic Containers (Capacity Greater Than 50 Pounds):** 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 1/4 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. Turn the container over onto its other 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

**Nonrefillable Plastic Containers, e.g., Intermediate Bulk Containers [IBC] (Size or Shape Too Large to be Tipped, Rolled or Turned Upside Down):** Nonrefillable container. **DO NOT** reuse or refill this container. Clean container promptly after emptying the contents from this container into application equipment or mix tank and before final disposal using the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom, and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

*(continued)*

## STORAGE AND DISPOSAL *(continued)*

### CONTAINER HANDLING: *(continued)*

**Nonrefillable Fiber Drums with Liners:** Nonrefillable container. **DO NOT** reuse or refill this container. Completely empty paper or plastic bag, fiber sack or drum liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application or manufacturing equipment. Then offer for recycling if available or dispose of empty fiber drum and liner in a sanitary landfill, or by other procedures approved by State and local authorities.

**Refillable Fiber Drums with Liners: Refillable container (fiber drum only). Refilling Fiber Drum:** Refill this fiber drum with metsulfuron-methyl only. **DO NOT** reuse this fiber drum for any other purpose. Cleaning before refilling is the responsibility of the refiller. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application or manufacturing equipment. Disposing of Fiber Drum and/or Liner: **DO NOT** reuse this fiber drum for any other purpose other than refilling (see preceding). Cleaning the container (liner and/or fiber drum) before final disposal is the responsibility of the person disposing of the container. Offer the liner for recycling if available or dispose of liner in a sanitary landfill, or by incineration. **DO NOT** burn, unless allowed by State and local ordinances. If drum is contaminated and cannot be reused, dispose of it in the manner required for its liner. To clean the fiber drum before final disposal, completely empty the fiber drum by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application or manufacturing equipment. Then offer the fiber drum for recycling if available or dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

## CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Sharda USA LLC or Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold Sharda USA LLC and Seller harmless for any claims relating to such factors.

Sharda USA LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under conditions not reasonably foreseeable to or beyond the control of Seller or Sharda USA LLC and Buyer and User assume the risk of any such use. To the extent consistent with applicable law, SHARDA USA LLC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, neither Sharda USA LLC nor Seller shall be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SHARDA USA LLC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SHARDA USA LLC OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

Sharda USA LLC and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of Sharda USA LLC.

All trademarks are the property of their respective owners.

## NOTES



METSULFURON-METHYL GROUP 2 HERBICIDE

# Mivum

For use on Tree Plantations, Rangeland and Pastures, Non-Crop Industrial Sites, Turf (Industrial, Unimproved and Commercial)

<b>ACTIVE INGREDIENT:</b>	<b>WT. BY %</b>
Metsulfuron-Methyl: methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl] amino]sulfonyl]benzoate	60.0%
<b>OTHER INGREDIENTS:</b>	40.0%
<b>TOTAL:</b>	<b>100.0%</b>

Contains 0.60 lb. of metsulfuron-methyl per pound of product.

## KEEP OUT OF REACH OF CHILDREN CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID
<p><b>IF SWALLOWED:</b> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.</p>
<p><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.</p>
<p><b>IF IN EYES:</b> • Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.</p>
HOTLINE NUMBER
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information concerning this product, call your poison control center at 1-800-222-1222.</p>

## PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

### CAUTION

Harmful if swallowed. Harmful if absorbed through skin. Causes eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

## DIRECTIONS FOR USE

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

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage and disposal. **PESTICIDE STORAGE:** Store product in original container only. **DO NOT** contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place. **PESTICIDE DISPOSAL:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility. **CONTAINER HANDLING: Nonrefillable Plastic (Capacity Equal to or Less Than 50 Pounds):** 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 1/4 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 if available or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

See label booklet for complete  
Precautionary Statements and Directions For Use.

### Manufactured For:

Sharda USA LLC, 7217 Lancaster Pike, Suite A, Hockessin, Delaware 19707

EPA Reg. No. 83529-171

EPA Est. No. **GH** 70815-GA-002; **SC** 39578-TX-001; **MC** 89332-GA-1;

**MA** 83411-MN-001; **TX** 07401-TX-001

The EPA Establishment Number is identified by the circled letters above that match the first two letters in the batch number.

Net Contents: 16 oz. (0.45 kg)

OPEN HERE