



**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
**Office of Pesticide Programs**  
**Registration Division (7505P)**  
**Ariel Rios Building**  
**1200 Pennsylvania Ave., NW**  
**Washington, D.C. 20460**

EPA Registration  
Number:

87276-25

Date of Issuance:

FEB 26 2013

**NOTICE OF PESTICIDE:**

☒ Registration  
☐ Reregistration

(under FIFRA, as amended)

Term of Issuance: **Unconditional**

Name of Pesticide Product:

**Equil Pasture and Turf MSM**

Name and Address of Registrant (include ZIP Code):

Envincio LLC c/o Pyxis Regulatory Consulting, Inc.  
2155 West Croft Circle 4110 136<sup>th</sup> Street, NW  
Spartanburg, SC 29302 Gig Harbor, WA 98332

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

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

This product is registered in accordance with FIFRA provided that you submit and/or cite all data required for registration review/reregistration of your product when the Agency requires all registrants of similar products to submit data.

The basic and alternate Confidential Statement of Formula (CSF) dated October 23, 2012 are acceptable.

A stamped copy of the label is enclosed for your records. Submit one (1) copy of the final printed label before you release the product for shipment. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA §6(e). Your release for shipment of the product constitutes acceptance of these conditions.

If you have any questions regarding this Notice, please contact Mindy Ondish at (703)605-0723 or at [ondish.mindy@epa.gov](mailto:ondish.mindy@epa.gov).

Signature of Approving Official:

Kable Bo Davis  
Product Manager 25  
Herbicide Branch  
Registration Division (7505P)

Date:

FEB 26 2013

GROUP	2	HERBICIDE
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# Equil Pasture and Turf MSM

HERBICIDE FOR SELECTIVE WEED AND BRUSH CONTROL ON NON-CROP INDUSTRIAL SITES, TURF (INDUSTRIAL, UNIMPROVED AND COMMERCIAL), NATIVE GRASSES, RANGELAND AND PASTURE

<b>ACTIVE INGREDIENT:</b>	% by wt.
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> .....	100.0%

## 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 the label, find someone to explain it to you in detail.)

FIRST AID	
<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>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 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 inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-257-4118 for emergency medical treatment information.	
NOTE TO PHYSICIAN (Sulfonylurea)	
Symptoms of Poisoning and Recommendations for Medical Treatment: This compound does not cause any definite symptoms that would be diagnostic. Contact with the eyes may cause irritation. No specific antidote. Treat symptomatically.	

See label booklet for First Aid, Precautionary Statements and Directions or Use including Storage and Disposal instructions.

For Chemical Spill, Leak, Fire, or Exposure, Call: CHEMTREC 1-800-424-9300  
For Medical Emergencies Only, Call: 866-257-4118

EPA Reg. No. 87276-25

Manufactured for:

Envincio LLC

2155 West Croft Circle

Spartanburg, SC 29302

EPA Est. No. XXXXX-XX-X

Net Weight:

**ACCEPTED**

FEB 26 2013

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under  
EPA Reg. No. 87276-25

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Causes eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or spray mist.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

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.

### USER SAFETY RECOMMENDATIONS

**Users should:**

Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

### ENVIRONMENTAL HAZARDS

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

This herbicide is injurious to plants at extremely low concentrations. Non-target plants may be adversely affected from drift and run-off.

## PRODUCT INFORMATION

Equil Pasture and Turf MSM is a dispersible granule that is mixed in water and applied as a spray by ground or aerial application.

Equil Pasture and Turf MSM may be used for the control of annual and perennial weeds and unwanted woody plants on private, public and military lands, on rights-of-way, industrial sites, non-crop areas, ditchbanks of dry drainage ditches, certain types of unimproved turf grass, and conifer and hardwood plantations, including grazed areas on these sites. Do not use on irrigation ditches.

Equil Pasture and Turf MSM controls weeds and woody plants primarily by postemergent activity. Although this product has preemergence activity, best results are generally obtained when product is applied to foliage after emergence or dormancy break. Generally, for the control of annual weeds, this product 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

This product 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. DO NOT make applications to natural or man-made bodies of water such as lakes, reservoirs, ponds, streams and canals.

## Environmental Conditions and Biological Activity

Equil Pasture and Turf MSM 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. Two to 4 weeks after application, leaf growth slows followed by discoloration and tissue death. The final effect on annual weeds is evident about 4 to 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 this product, 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 1/4% volume/volume (1 quart per 100 gallons of spray solution) or at the manufacturer's suggested rate. Use only EPA approved surfactants containing at least 80% active ingredient. Certain types of surfactants, such as those incorporating acetic acid (i.e. LI-700), may not be compatible with this product and may result in decreased performance. Certain surfactants may not be suitable for use on desirable plants, such as 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

Equil Pasture and Turf MSM 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 this product, 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 postemergence weed control. This product 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 this product 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.

## Resistance

Biotypes of certain weeds listed on this label are resistant to this product and other herbicides with the same mode of action even at exaggerated application rates. Biotypes are naturally occurring individuals of a species that are identical in appearance but have slightly different genetic compositions; the mode of action of a herbicide is the chemical interaction that interrupts a biological process necessary for plant growth and development.

If weed control is unsatisfactory, it may be necessary to retreat problem areas using a product with a different mode of action, such as postemergence broadleaf and/or grass herbicides.

If resistant weed biotypes such as kochia, prickly lettuce, and Russian thistle are suspected or known to be present, use a tank-mix partner with Equil Pasture and Turf MSM to help control these biotypes, or use a planned herbicide rotation program where other residual broadleaf herbicides having different modes of action are used.

## Integrated Pest Management

To better manage weed resistance when using this product, use a combination of tillage and tank-mix partners or sequential herbicide applications that have a different mode of action than Equil Pasture and Turf MSM, 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.

## 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 in your State responsible for pesticide regulation.

### Use Restrictions

- **DO NOT USE ON FOOD OR FEED CROPS EXCEPT AS SPECIFIED BY THIS LABEL OR SUPPLEMENTAL LABELING.**
- Do not apply this product (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.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas.
- Do not contaminate any body of water including irrigation water.
- Do not apply more than 4 ounces of this product per acre per year.

### Use Precautions

Injury to or loss of desirable trees or other plants may result if the precautions listed below are not followed.

- 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.

### Tank Mixes

This product 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. When tank mixing, use the most restrictive label limitations for each of the products being used in the tank mix.

### Spray Equipment

Low rates of this product can kill or severely injure most crops. Following an Equil Pasture and Turf MSM application, the use of spray equipment to apply other pesticides to crops on which Equil Pasture and Turf MSM 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 should be equipped with an agitation system to keep this product suspended in the spray tank. Use a sufficient volume of water to thoroughly cover the foliage of undesirable weeds, generally 10 to 40 gallons 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 to 1/3 full of water.
2. While agitating, add the required amount of this product.
3. Continue agitation until product is fully dispersed, at least 5 minutes.
4. Once the Equil Pasture and Turf MSM is fully dispersed, maintain agitation and continue filling tank with water. Equil Pasture and Turf MSM should 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 reagituate before using.
7. Equil Pasture and Turf MSM spray preparations are stable if they are pH neutral or alkaline and stored at or below 100°F.
8. If this product and a tank mix partner are to be applied in multiple loads, preslurry the Equil Pasture and Turf MSM in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the Equil Pasture and Turf MSM.

## Sprayer Cleanup

Spray equipment must be cleaned before this product is sprayed. Follow the cleanup procedures specified on the labels of previously applied products. If no directions are provided, follow the six steps outlined below before applying Equil Pasture and Turf MSM.

When multiple loads of Equil Pasture and Turf MSM 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 gallon of household ammonia\* (contains 3% active) for every 100 gallons 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.

1. **Attention:** Do not use chlorine bleach with ammonia, as dangerous gases will form. Do not clean equipment in an enclosed area.
2. Steam-cleaning aerial spray tanks is advised prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.
3. When Equil Pasture and Turf MSM is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.
4. In addition to this cleanout procedure, all pre-cleanout guidelines on subsequently applied products should be followed as per the individual labels.

## SPRAY DRIFT MANAGEMENT

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

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

### IMPORTANCE OF DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. **APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS! SEE WIND, TEMPERATURE AND HUMIDITY, and TEMPERATURE INVERSIONS sections of this label.**

### Controlling Droplet Size-General Techniques

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

types narrower spray angles produce larger droplets. Consider using low-drift nozzles.

#### **Controlling Droplet Size-Aircraft**

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

#### **BOOM HEIGHT**

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

#### **WIND**

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

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

#### **TEMPERATURE AND HUMIDITY**

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

#### **TEMPERATURE INVERSIONS**

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

#### **SHIELDED SPRAYERS**

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

## AGRICULTURAL USES

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours. PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Shoes plus socks

## CONIFER PLANTATIONS

### Application Information

This product may be used for the 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 this product after weeds have emerged or after undesirable hardwoods have broken winter dormancy and have reached the point of full leaf expansion.

### Conifer Site Preparation --Application Before Transplanting

After consulting the "Weeds Controlled" and "Brush Species Controlled" tables, apply the rates of Equil Pasture and Turf MSM given for the most difficult to control species on the site.

**Southeast**—Apply up to 4 ounces per acre for loblolly and slash pines. Transplant the following planting season.

**Northeast and Lake States**—Apply up to 2 ounces per acre for red pine. Transplant the following planting season. Apply up to 2 ounces per acre for black, white and Norway spruce. Transplant the following spring.

**West**—Apply up to 2 ounces 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 anytime after application. Other conifer species can be planted providing the user has prior experience indicating acceptable tolerance to Equil Pasture and Turf MSM 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. Envincio LLC will not assume responsibility for injury to any conifer species not listed on this label.

### Tank Mix Combinations

For broader spectrum control, the following products may be used in combination with this product.

**Accord:** Tank mix 1 to 2 ounces of this product with 2 to 10 quarts of Accord per acre. Refer to the product container for a list of species controlled.

**Arsenal Applicator's Concentrate:** Tank mix 1 to 2 ounces of this product with 10 to 24 fluid ounces of Arsenal Applicator's Concentrate per acre. Loblolly and slash pines may be transplanted the planting season following application. The combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbeam, persimmon, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, and red maple.

**Accord + Arsenal Applicators Concentrate:** Tank mix 1/2 to 1 ounce of this product with 16 to 64 fluid ounces of Accord and 10 to 12 fluid ounces of Arsenal Applicator's Concentrate 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.

**Glyphosate (4 pound active per gallon):** Tank mix 1 to 2 ounces of this product with 2 to 10 quarts of glyphosate per acre. Refer to the product container for a list of species controlled.

**Imazapyr (4 pound active per gallon):** Tank mix 1 to 2 ounces of this product with 10 to 24 fluid ounces of imazapyr per acre. Loblolly and slash pines may be transplanted the planting season following application. This combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbeam, persimmon, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, and red maple.

**Glyphosate (4 pound active per gallon) + Imazapyr (4 pound active per gallon):** Tank mix 1/2 to 1 ounce of this product with 16 to 64 fluid ounces of glyphosate and 10 to 12 fluid ounces of imazapyr per acre. Slash and loblolly pines may be transplanted the planting season following application. This combination controls cherry, dogwood, elms, oaks (red and water), persimmon, sassafras, sweetgum and suppresses hickory.

**Velpar® L or Velpar® DF:** Tank mix 1 or 2 ounces of this product per acre with Velpar L or Velpar DF 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.

**Oust® Extra:** Tank mix 1/2 to 1 1/2 ounces of this product with 2 to 3 ounces of Oust Extra 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. Tank mix 2 ounces of this product with 3 ounces of Oust Extra 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.

## Release--Hardwood Control and Suppression

This product may be applied 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 to 4 ounces per acre to control the species indicated, including kudzu.

### Tank Mix Combinations

For broader spectrum control the following products may be used in combination with this product.

**Arsenal Applicator's Concentrate:** A tank mix 1 to 2 ounces of this product with 8 to 16 fluid ounces of Arsenal Applicator's Concentrate per acre may be applied to loblolly pine. Refer to the Arsenal Applicator's Concentrate 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 suppression of blackberry, dogwood, elm, myrtle dahoon, hickories, persimmon, and red maple.

**Imazapyr (4 pound active per gallon):** Tank mix 1 to 2 ounces of this product with 8 to 16 fluid ounces of imazapyr per acre for application 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. This 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.

**Velpar® L or Velpar® DF:** Tank mix 1 to 2 ounces of this product with Velpar L or Velpar DF at the rates indicated on the labels for various soil textures. This combination may be applied to loblolly and slash pines.

## Release--Herbaceous Weed Control

This product 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 this product is applied just before weed emergence until shortly after weed emergence.

### Tank Mix Combinations

For broader spectrum control the following products may be used in combination with this product.

**Arsenal Applicators Concentrate:** Tank mix 1/2 to 1 ounce of this product with 4 ounces of Arsenal Applicators Concentrate per acre. The tank mix may be used on loblolly pine.

**OUST XP:** Tank mix 1/2 to 1 1/2 ounces of this product with 2 to 3 ounces of OUST XP (or generic equivalent)

per acre. Best results are obtained when this product is applied just before weed emergence until shortly after weed emergence. The tank mix may be used on loblolly and slash pine.

**Imazapyr (4 pound active per gallon):** Tank mix 1/2 to 1 ounce of this product with 4 fluid ounces of imazapyr per acre. The tank mix may be used on loblolly pine.

**Velpar® L or Velpar® DF:** Tank mix 1/2 to 1 ounce of this product with Velpar L or Velpar DF at the rates indicated on the product labels for various soil textures. This combination may be applied to loblolly and slash pines.

### Release - Directed Spray in Conifers (Western US)

To release conifers from competing brush species, such as, blackberry, salmonberry, snowberry, thimbleberry and wild roses, mix 2 to 4 ounces of this product per 100 gallons 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 should be less than six feet in height to help ensure adequate spray coverage. Thorough coverage of the target foliage is necessary to optimize results. Care should be taken to direct the Equil Pasture and Turf MSM spray solution away from the conifer foliage.

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

### IMPORTANT PRECAUTIONS — CONIFER PLANTATIONS ONLY

- Applications of this product 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.
- Applications of this product made for herbaceous release should only be made after adequate rainfall has closed the planting slit and settled the soil around the roots following transplanting.
- Do not apply this product to conifers grown as ornamentals.
- Equil Pasture and Turf MSM applications may result in damage and mortality to other species of conifers when they are present on sites with those listed in the preceding instructions for conifer plantations.

### SLASH PINE PLANTATIONS

#### Site Preparation

This product 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	Ounces Equil Pasture and Turf MSM Per Acre
Blackberry	1/2 to 1-1/2
Black cherry Black locust Diffuse knapweed Japanese honeysuckle Palmetto	3-1/3

#### Application information

Apply this product 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 this product. For broader spectrum control, Equil Pasture and Turf MSM should be tank mixed with Velpar Herbicide or

Roundup® or Arsenal. For aerial application of combinations, follow directions on the package label of the companion product in addition to Equil Pasture and Turf MSM directions above; see labels for additional plants controlled.

**Note:**

- Poor weed and brush control may occur from application made when the soil is saturated with water and rain is imminent within 24 hours.
- Do not use on poorly drained or marshy sites.
- Do not apply by air within 200 feet 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.

**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 this product at the rate of 1 to 2 ounces 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% active ingredient at a minimum rate of 1 quart per 100 gallons 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).

## **LOBLOLLY PINE PLANTATIONS**

### **Site Preparation For Control of Black Locust**

See Information Under "Slash Pine Plantations" for control of Kudzu in listed states.

This product 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 AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, TX, and WV.

Apply 4 ounces of this product per acre; add a nonionic surfactant (80% active) at 1 qt./100 gals. spray mix.

Apply after full foliation of Kudzu. Application should be made with sufficient volume to thoroughly wet the Kudzu canopy from top to bottom with crossing passes of 45 to 90 degrees. A minimum of 30 gals. water per acre per pass by ground equipment should be used, totaling 60 gals. per acre.

Retreatment may be necessary. Retreat the area one year after the initial treatment. Broadcast application should be utilized if resprouting of Kudzu root-crowns are less than 20 feet apart. If root-crowns are greater than 20 feet, 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.

**Note:**

- 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.
- Use on coarse textured, gravelly or rocky soils or exposed subsoils may result in conifer injury.
- 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.

### **Tank Mix with Velpar L For Selective Weed Control For Listed States**

This product, alone or tank mixed with Velpar L (or "Velpar"), may be used for control of brush and weeds in established plantations of Loblolly pine at least 1 year old in AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, TX and WV.

In addition to brush species listed on the Velpar L 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. of this product in 5 to 30 gals. per acre. For broader spectrum control, tank mix with Velpar L (or Velpar) at rates specified on container labels. The combination should be applied during late Spring to early Summer. Apply by helicopter as described on the Velpar L container label. Application may also be applied by ground spray equipment.

**Note:**

- 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 "Velpar" or Velpar L.
- 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.
- Do not use on poorly drained or marshy sites.

- Temporary distortion of tip growth of pine may occur.
- Do not apply by air within 200 feet 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.

## **HARDWOOD PLANTATIONS**

### **Application Information**

This product may be used at rates of up to 2 ounces per acre for the control of many weed species on sites where yellow poplar is growing or is to be planted, and on sites where red alder is to be planted. Apply 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**

This product 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, Equil Pasture and Turf MSM may be tank mixed with other herbicides labeled for this use.

This product 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**

This product 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 this product is applied just before weed emergence until shortly after weed emergence.

### **Tank Mix Combinations**

Tank mix 1/2 ounce of this product with 4 to 6 pints of Velpar L as specified on the package label for "RELEASE—HERBACEOUS WEED CONTROL" in pine plantations in the eastern U.S. follow the Velpar L label directions regarding altering the application rate by soil texture.

## **IMPORTANT PRECAUTIONS —HARDWOOD PLANTATIONS ONLY**

- Application of Velpar L and this product 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.
- Applications of this product made for release should only be made 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.

## NON-AGRICULTURAL USES

### NON-AGRICULTURAL USE REQUIREMENTS

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

**Non-crop industrial weed control and selective weed control in turf (industrial, unimproved only) are not within the scope of the Worker Protection Standard.**

**Do not enter or allow others to enter the treated area until sprays have dried.**

## NONCROP APPLICATIONS

**(Rangeland, Pasture, Industrial and Professional Turf, Establishment and Maintenance of Native Grasses)**

### Application Information

This product may be used for general weed and brush control on non-crop, industrial sites such as 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, noncrop lands identified under government set-aside programs. It also may be used for the control of certain noxious and troublesome weeds on industrial, unimproved and professional turf, such as lawns, parks, cemeteries, and golf courses (fairways, aprons, tees and roughs), and for the establishment and maintenance of native grasses in noncrop, rangeland and pasture.

This product may also be used on Sod Farms. Use on Sod Farms falls under the scope of the Worker Protection Standard, 40 CFR part 170. Refer to the Personal Protective Equipment (PPE) and Agricultural Use Requirements sections of this label as they are applicable when this product is used on Sod Farms.

Consult the WEEDS CONTROLLED and BRUSH SPECIES CONTROLLED tables to determine the appropriate application rate.

Equil Pasture and Turf MSM 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.

## BRUSH CONTROL

### Application Information

This product 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, this product should 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 to 25 gallons of water per acre; high volume ground application will require 100 to 400 gallons of water per acre; low volume ground application will require 20 to 50 gallons of water per acre; and ultra-low volume ground application will require 10 to 20 gallons of water per acre. Regardless of the application volume and equipment used, thorough coverage of the foliage is necessary to optimize results.

## Brush Species Controlled

Species	High Volume Equil Pasture and Turf MSM Rate: oz./100 Gallons	Broadcast Equil Pasture and Turf MSM Rate: oz./acre
Ash	1-2	1-3
Aspen	1-2	1-3
Black locust	1-2	1-3
Blackberry	1-2	1-3
Camelthorn	1-2	1-3
Cherry	1-2	1-3
Cottonwood	1-2	2-3
Eastern red cedar	1-2	2-3
Elder	1-2	2-3
Elm	1-2	1-3
Firs	3	1-2
Hawthorn	1-2	1-3
Honeysuckle	1-2	1/2 -1
Mulberry	1-2	2-3
Multiflora rose	1-2	1-3
Muscadine (wild grape)	1-2	2-3
Oaks	1-2	1-3
Ocean spray ( <i>Holodiscus</i> )	1-2	2-3
Osage orange	1-2	2-3
Red maple	1-2	2-3
Salmonberry	1/2 -1	1-3
Snowberry	1/2 -1	1-3
Spruce (black and white)	3	2-3
Thimbleberry	1/2 -1	1-3
Tulip tree	1/2-1	1-3
Wild roses	1/2 -1	1-3
Willow	1/2-1	1-3

For low volume and ultra-low volume ground applications, mix 4 to 8 ounces of this product per 100 gallons of spray solution.

## Application Timing

Make a foliar application of this product 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 anytime during the growing season.

## Spot Treatment

This product 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 one gram of this product per one gallon of water along with a surfactant. Spray to the point of wetting the entire surface of the target weeds, approximately 40 gallons of solution per acre.

## Tank Mix Combinations

This product 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. Follow the most restrictive limitations of any of the product labels being tank mixed.

**Accord:** After consulting the "Brush Species Controlled" Table, tank mix the prescribed rate of this product with the rate of Accord indicated for the various application methods on the Accord label. Refer to the Accord label for list of species controlled.

**Arsenal Herbicide:** Combine 1 to 2 ounces of this product with 1 to 4 pints of Arsenal Herbicide per acre and apply as a broadcast spray. Aerial applications should use a minimum of 15 gallons per acre spray volume. In addition to species listed above controlled by this product, this combination controls black gum, hophornbeam, sassafras, sweetgum, Vaccinium species, dogwood, myrtle dahoon, hickories, and persimmon.

**Garlon 3A or Garlon 4 (or generic equivalents):** After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of this product with the rate of Garlon 3A indicated for the various application methods on the Garlon 3A label. Refer to the Garlon 3A label for list of species controlled.

**Krenite S Brush Control Agent:** After consulting the "Brush Species Controlled" Table, tank mix the prescribed rate of this product with the rate of Krenite S indicated for the various application methods on the Krenite S label. Refer to the Krenite S label for list of species controlled.

**Tordon K Specialty Herbicide:** After consulting the "Brush Species Controlled" Table, tank mix the prescribed rate of this product with the rate of Tordon K indicated for the various application methods on the Tordon K label. Refer to the Tordon K label for list of species controlled.

**Tordon K Specialty Herbicide + Arsenal Herbicide:** Combine 1 to 1 1/2 ounces of this product with 2 to 8 fluid ounces of Arsenal Herbicide and 1 to 2 pints of Tordon K per 100 gallons of water. Apply as a high volume spray. This tank mix controls cherry, elms, box elder, maples, hackberry, redbud, ash, oaks (including shingle oak), black locust and sassafras.

\*Tordon K is a restricted use pesticide.

### Spotgun Basal Soil Treatment

For control of multiflora rose, prepare a spray suspension of this product by mixing 1 ounce per gallon of water. Mix vigorously until the Equil Pasture and Turf MSM 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 feet of rose canopy diameter. Direct the treatment to the soil within 2 feet of the stem union. When treating large plants and more than one delivery is required, make applications on opposite sides of the plant. Applications should be made from early spring to summer.

### IMPORTANT PRECAUTIONS---NON-CROP BRUSH ONLY

When using tank mixtures of this product with companion herbicides, read and follow all use instructions, application rates, warnings and precautions appearing on the labels. Follow the most restrictive label instructions for each of the herbicides used.

### NATIVE GRASSES

This product 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 this product at the rate of 1/10 ounce per acre for the control and suppression\* of bur buttercup (testiculate), common purslane, common sunflower\*, cutleaf evening-primrose\*, flixweed\*, lambsquarters\* (common and slimleaf), maretail\*, 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 preplant or preemergence where the soil (seed bed) has been cultivated.

### IMPORTANT PRECAUTIONS-NATIVE GRASSES

- Grass species or varieties may differ in their response to various herbicides. If no information is available, limit the initial use of Equil Pasture and Turf MSM to a small area. Components in a grass seed mixture will vary in tolerance to Equil Pasture and Turf MSM, so the final stand may not reflect the seed ratio.



- Under certain conditions such as heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after Equil Pasture and Turf MSM application, temporary discoloration and/or grass injury may occur. This product should 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.

## Grass Preplant Intervals

Following an application of this product 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	Rate of Equil Pasture and Turf MSM ( oz./acre)	Replacement Interval (months)
Brome, meadow	1/2-1	2
	1-2	3
Brome, smooth	1/2-1	2
	1-2	4
Fescue, alta	1/2-1	2
	1-2	4
Fescue, red	1/2-1	2
	1-2	4
Fescue, sheep	1/2-1	1
	1-2	4
Foxtail, meadow	1/2-1	2
	1-2	4
Green needlegrass	1/2-2	1
Orchardgrass	1/2-1	2
	1-2	4
Russian wildrye	1/2	1
	1	2
	2	3
Switchgrass	1/2-1	1
	1-2	3
Timothy	1/2-1	2
	1-2	4
Wheatgrass, western	1/2-1	2
	1-2	3

**For soils with a pH of 7.5 or greater observe the following replant intervals:**

Species	Rate of Equil Pasture and Turf MSM ( oz./acre)	Replant Interval (months)
Alkali sacaton	1/2-1	1
	1-2	3
Bluestem, big	1/2-2	3
Brome, mountain	1/2-1	1
	1-2	2
Gamma, blue	1/2-2	1
Gamma, sideoats	1/2	2
	>1/2	>3
Switchgrass	1/2	2
	>1/2	>3
Wheatgrass, thickspike	1/2-2	1
Wheatgrass, western	1/2-1	2
	1-2	3

The indicated intervals are for applications made in the spring to early summer. Because Equil Pasture and Turf MSM degradation is slowed by cold or frozen soils, applications made the late summer or fall should 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 this product. If species other than those listed above are to be planted into areas treated with Equil Pasture and Turf MSM, a field bioassay should be performed or previous experience may be used to determine the feasibility of replanting treated sites.

#### **ADDITIONAL GRASS APPLICATION INFORMATION FOR GRASS ESTABLISHMENT**

This product 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	Sideoats grama
Bluestems -	Switchgrass
Big	Blackwell
Little	Wheatgrasses -
Plains	bluebunch
Sand	crested
WW spar	intermediate
Buffalograss	pubescent
Green sprangletop	Siberian
Kleingrass	slender
Lovegrasses --	steambank
Atherstone	tall
Sand	thickspike
Weeping	western
Wilman	Wildrye grass- Russian
Orchardgrass	

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 Equil Pasture and Turf MSM 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 Preplant (prior to planting) or Preemergence (after planting but before grass emergence)**

Do not use more than 1/10 ounce per acre of this product for grass establishment.

Apply this product at 1/10 ounce per acre on all labeled grasses except orchardgrass and Russian wildrye grass. Do not apply this product preplant or preemergence to orchardgrass and Russian wildrye grass as severe crop injury may result.

#### **Early postemergence to new plantings**

Apply this product at 1/10 ounce per acre, plus a nonionic surfactant at the rate of 2 to 4 pints per 100 gallons of spray solution on all labeled grasses anytime after grass emergence.

Do not use a spray adjuvant other than non-ionic surfactant. Because grass species differ in time of emergence, apply only after the majority of grasses are in the 3 to 4 leaf stage.

#### **Postemergence to stands with 1— 5 leaf grasses planted the previous season**

Apply this product at 1/10 ounce per acre plus a nonionic surfactant at the rate of 2 to 4 pints per 100 gallons of spray solution, on all labeled grasses when the majority of the grasses have one or more leaves.

Do not use a spray adjuvant other than non-ionic surfactant.

#### **APPLICATION INFORMATION FOR ESTABLISHED GRASSES**

##### **Use Rates for Established Grasses**

Apply up to 1 ounce of this product per acre as a broadcast application to established grasses. For spot applications, use 1 ounce per 100 gallons of water. Do not apply more than 1 2/3 ounces of this product per acre per year.

Refer to the Weeds Controlled section of this label for a listing of the weeds controlled by this product and the appropriate use rate to obtain control.

##### **Application Timing — Established Grasses**

This product may be applied to established native grasses such as bluestems and grama, and on other

established grasses such as bermudagrass, bluegrass, orchardgrass, bromegrass, 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 Equil Pasture and Turf MSM Application
Bermudagrass	2 months
Bluegrass, bromegrass, Orchardgrass	6 months
Timothy	12 months
Fescue	24 months

#### Fescue Precautions:

Note that Equil Pasture and Turf MSM may temporarily stunt tall fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Do not use more than 4/10 ounce per acre of Equil Pasture and Turf MSM
- Tank mix Equil Pasture and Turf MSM with 2,4-D
- Use the lowest labeled application rate for target weeds
- Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution
- Make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall
- Do not use surfactant when liquid nitrogen is used as a carrier
- Do not use a spray adjuvant other than non-ionic surfactant
- The first cutting yields may be reduced due to seedhead suppression resulting from treatment with this product.

#### Timothy Precautions:

Timothy should be at least 6 inches tall at application and be actively growing. Applications of this product to timothy under any other conditions may cause crop yellowing and/or stunting. To minimize these symptoms, take the following precautions:

- Do not use more than 4/10 ounce per acre Equil Pasture and Turf MSM
- Tank mix Equil Pasture and Turf MSM with 2, 4-D
- Use the lowest labeled application rate for target weeds
- Use a non-ionic surfactant at 1/2 pint per 100 gallons of spray solution (1/16%)
- Make applications in the late summer or fall
- Do not use surfactant when liquid nitrogen is used as a carrier
- Do not use spray adjuvant other than non-ionic surfactant
- Application of Equil Pasture and Turf MSM to Pensacola bahiagrass, ryegrass (Italian or perennial) and Garrison's creeping foxtail may cause severe injury to and/or loss of forage.

#### Other Grasses:

Varieties and species of forage grasses differ in their tolerance to herbicides. When using Equil Pasture and Turf MSM 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, such as alfalfa and clover, are highly sensitive to this product and will be severely stunted or injured by Equil Pasture and Turf MSM.

### CROP ROTATION

Before using this product, carefully consider your crop rotation plans and options.

#### Minimum Rotational Intervals

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

Of these 3 factors, only soil pH remains relatively constant. Soil temperature, and to a greater extent, soil moisture,

can vary significantly from year to year and from area to area. For this reason, soil temperatures and soil moisture should be monitored regularly when considering crop rotations.

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

### Soil pH Limitations

Equil Pasture and Turf MSM should not be used on soils having a pH above 7.9, as extended soil residual activity could extend crop rotation intervals beyond normal. Under certain conditions, Equil Pasture and Turf MSM 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 this product.

### Checking Soil pH

Before using this product, determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0" to 4" samples from different areas of the field and analyze them separately. Consult local extension publications for additional information on 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 Equil Pasture and Turf MSM. 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 Equil Pasture and Turf MSM Rate (oz per A)	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	1/10 to 3/10	4
	Wheat (except durum)	1/10 to 3/10	1
	Durum, barley, oat	1/10 to 3/10	10
ALL STATES NOT INCLUDED ABOVE	Red clover, white clover, and sweet clover	1/10 to 2/10	12
	Bermudagrass, bluegrass, ryegrass	1/10 to 2/10	6
	Tall Fescue	1/10 to 2/10	18
	Wheat (except durum)	1/10 to 2/10	1
	Durum, barley, oat	1/10 to 2/10	10
ALL AREAS WITH SOIL PH OF 7.5 OR LESS	Russian wildrye	1/10 to 1/2	1
	Green needlegrass, switchgrass, sheep fescue	1/10 to 1	1
	Meadow brome, smooth brome, alta fescue, red fescue, meadow foxtail, orchardgrass, Russian wildrye, timothy	1/10 to 1	2
	Alkali sacaton, mountain brome, blue grama, thickspike wheatgrass	1/10 to 1	1
ALL AREAS WITH SOIL PH OF 7.9 OR LESS	Sideoats grama, switchgrass	1/10 to 1/2	2
	Western wheatgrass	1/10 to 1	2
	Sideoats grama, switchgrass, big bluestem	1/10 to 1	3

## GRAZING AND HAYING RESTRICTIONS

When used as directed, there is no grazing or haying restriction for use rates of 1 2/3 ounce per acre or less. At use rates greater than 1 2/3 ounce per acre and up to 3 1/3 ounce per acre, forage grasses may be cut for hay, fodder or green forage and fed to livestock, including lactating animals, 3 days after treatment. Coveralls, shoes, and socks must be worn if cutting within 4 hours of treatment.

## IMPORTANT PRECAUTIONS

- Grass species or varieties may differ in their response to various herbicides. If no information is available, limit the initial use of Equil Pasture and Turf MSM to a small area.
- Components in a grass seed mixture will vary in tolerance to this product so the final stand may not reflect the seed ratio.
- Under certain conditions such as heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after product application, temporary discoloration and/or grass injury may occur.
- This product should 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 this product to lands undersown with legumes may cause injury to the legumes. Legumes in a seeding mixture may be severely injured or killed following an application of this product.
- 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 should improve weed control under these conditions

## WEEDS CONTROLLED

### 1/3 to 1/2 ounce per acre

Annual sowthistle	Goldenrod
Aster	Lambsquarters
Bahiagrass	Marestail/horseweed****
Beebalm	Maximillion sunflower
Bittercress	Miners lettuce
Bitter sneezeweed	Pennsylvania smartweed
Blackeyed-susan	Plains coreopsis
Blue mustard	Plantain
Bur buttercup	Redroot pigweed
Chicory	Redstem filaree
Clover	Rough fleabane
Cocklebur	Shepherd's purse
Common chickweed	Silky crazyweed (locoweed)
Common groundsel	Smallseed falseflax
Common purslane	Smooth pigweed
Common yarrow	Sweet clover
Conical catchfly	Tansymustard
Corn cockle	Treacle mustard
Cow cockle	Tumble mustard
Crown vetch	Wild carrot
Dandelion	Wild garlic
Dogfennel	Wild lettuce
False chamomile	Wild mustard
Fiddleneck tarweed	Wooly croton
Field pennycress	Wood sorrel
Flixweed	Yankeweed

### 1/2 to 1 ounce per acre

Blackberry	Honeysuckle
Black henbane	Multiflora rose and other
Broom snakeweed*	wild roses
Buckhorn plantain	Musk thistle***
Bull thistle	Oxeye daisy
Common crupina	Plumeless thistle

Common sunflower	Prostrate knotweed
Curly dock	Rosering gaillardia
Dewberry	Seaside arrowgrass
Dyer's woad	Sericea lespedeza
Garlic mustard	Tansy ragwort
Gorse	Teasel
Halogeton	Wild caraway
Henbit	

**1 to 2 ounces per acre**

Common mullein	Purple loosestrife
Common tansy	Purple scabious
Field bindweed**	Scotch thistle
Greasewood	Scouringrush
Gumweed	Salsify
Houndstongue	Snowberry
Lupine	St. Johnswort
Old world climbing fern (Lygodium)	Sulphur cinquefoil
Perennial pepperweed	Western salsify
Poison hemlock	Whitetop (hoary cress)
	Wild Iris

**1 1/2 to 2 ounces per acre**

Canada thistle**	Tall larkspur
Dalmation toadflax**	Wild parsnip
Duncecap larkspur	Yellow toadflax**
Russian knapweed**	

**3 to 4 ounces 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.

\*\*\* Certain biotypes of musk thistle are more sensitive to this product and may be controlled with rates of 1/4 to 1/2 ounce per acre. Treatments of this product may be applied from rosette through bloom stages of development.

\*\*\*\* Certain biotypes of maretail/horsetail are less sensitive to this product 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 Equil Pasture and Turf MSM and herbicides with the same mode of action, the following tank mixes may be applied.

**Dicamba + 2,4-D**

Weed	Rate of Equil Pasture and Turf MSM	Rate of Dicamba (fluid ounces/acre)	Rate of 2,4-D (fluid ounces/acre)
Kochia control	1/2	8	16
Spotted knapweed control	1/2	8	16
Rush skeletonweed suppression	1	8	16

**RANGELAND AND PASTURES**

This product may be used for control of certain broadleaf weeds in permanent rangeland and pastures where certain desirable perennial grasses are established.

## Selective use on established perennial grasses

On grasses such as western wheatgrass, crested wheatgrass, sideoats gramma, hairy gramma, bluestems, smooth brome, purple threeawn, hooded windmillgrass, switchgrass, and bermudagrass, apply postemergence at the rates of 1/10 to 3/4 oz. per acre as listed under WEEDS CONTROLLED.

## Selective use on established and newly seeded grasses

Blue gramma, bluestems, sideoats gramma, Blackwell switchgrass, buffalograss, green sprangletop, indiangrass, kleingrass, lovegrasses (atherstone, sand, weeping, wilman), orchardgrass, wheatgrass (bluebunch, intermediate, pubescent siberian, slender, streambank, tall, thickspike), and wildrye grass (Russian) may be treated only at 1/10 oz. Equil Pasture and Turf MSM per acre (see WEEDS CONTROLLED).

New seedlings (except Russian wildrye, and orchardgrass) of these grasses may be treated either preplant (before planting) or preemergence (after planting but before emergence). All of the grasses listed may be treated postemergence (after emergence).

## WEEDS CONTROLLED

1/10 ounce Equil Pasture and Turf MSM per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

Chickweed (common)	Field pennycress (fanweed)	Plains coreopsis	Snow speedwell
Common purslane	Filaree	Shepherdspurse	Tumble mustard (Jim Hill)
Conical catchfly	Groundsel (common)	Smallseed falseflax	Volunteer sunflower
Cow cockle	Mayweed	Smartweed (green ladysthumb, pale)	Waterpod
False chamomile	Miner's lettuce		Wild mustard

### Early Spring\* (a)

1/10 to 1/5 ounce Equil Pasture and Turf MSM per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

Buttercup	Henbit	Mayweed	Wild garlic* (b)
Carolina geranium			

### Late Spring/Early Summer\* (c)

1/10 to 1/5 ounce Equil Pasture and Turf MSM per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

Bitter sneezeweed	Common maretail	Pigweed	Woolly croton
Common broomweed			

### Late Spring/Early Summer\* (c)

1/10 to 1/3 ounce Equil Pasture and Turf MSM per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

Canada thistle* (d)	Muskthistle*(e)	Western snowberry or Buckbrush* (f)	
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\* (a-f see below)

- (a) Apply in the early spring, but before weeds are 4 inches tall or in diameter. Apply when weeds are actively growing.
- (b) Apply in the early spring when garlic is less than 12 inches tall with 2 to 4 inches of new growth. Thorough spray coverage of all garlic plants is essential.
- (c) Apply in the late spring or early summer, but before weeds are 4 inches tall. Apply when weeds are actively growing.
- (d) Suppression-apply when the Canada thistle is at least 6-10 inches tall and near flowering.
- (e) Apply in the spring or early summer to the rosette stage, before bolting, for best control.
- (f) Suppression-a visual reduction in weed competition (reduced population and/or vigor) as compared to an untreated area. Degree of suppression will vary with the rate used, size of weeds, and environmental conditions following treatment.

1/3 to 1/2 ounce Equil Pasture and Turf MSM per acre (plus surfactant)

Annual sowthistle	Common groundsel	Field pennycress	Rough fleabane
Aster	Common mullein	Flixweed	Shepherdspurse
Bahiagrass (Pensacola)	Common purslane	Goldenrod	Smallseed falseflax
Beebalm	Common yarrow	Gumweed	Smooth pigweed
Bittercress	Conical catchfly	Lambsquarters	Sweet clover
Blackberry	Corn cockle	Maximillion sunflower	Tansymustard
Blackeyed-Susan	Cow cockle	Miner's lettuce	Treacle mustard



Blue mustard	Crown vetch	Multiflora rose* (g)	Tumble mustard
Chicory	Dandelion	Pennsylvania smartweed	Wild carrot
Clover	Dogfennel	Plains coreopsis	Wild mustard
Cocklebur	False chamomile	Plantain	Woolly sorrel
Common chickweed	Fiddleneck tarweed	Redstem filaree	Yankee weed

\* (g) Apply in the spring, soon after fully leafed. Multiflora rose must be less than 3 feet tall for a broadcast application to give effective control. See also SPOT APPLICATION.

\* Weed suppression is a visual reduction in weed competition (reduced population and/or vigor) as compared to an untreated area. Degree of suppression will vary with the rate used, size of weeds, and environmental conditions following treatment.

#### 1/2 to 3/4 ounce Equil Pasture and Turf MSM per acre (plus surfactant)

Broom snakeweed (apply fall/spring)	Common sunflower	Dyer's woad	Prostrate knotweed
Buckhorn plantain	Curly dock	Hoary cress (whiteweed)	Rosering gaillardia

#### 3/4 to 1 ounce Equil Pasture and Turf MSM per acre (plus surfactant)

Crupina	Henbit	St. Johnswort	Teasel
Gorse	Marestail	Tansy ragwort	Wild roses
Halogeton	Perennial pepperweed		

#### 1 to 12/3 ounces Equil Pasture and Turf MSM per acre (plus surfactant)

Bull thistle	Poison hemlock	Scotch thistle	Snowberry
Common tansy	Salsify	Scouringrush	

Use the lower rate of this product on light infestations or seedling weeds and the higher rates on heavy infestations, larger weeds, or where extended control is desired. Note: Do not apply this product to pasture grasses under stress from drought, insects, disease, cold temperatures, or poor fertility as injury may result.

**SPOT APPLICATION:** Apply 1 ounce of this product per 100 gallons of water, plus surfactant, for the control of: • Blackberry • Canada thistle • Multiflora rose

Apply as a foliar spray to runoff. Do not exceed 167 gallons of total spray per acre. Foliar applications should be made after plants are fully leafed. Complete coverage of all foliage and stems is required for control. Effectiveness may be reduced if rainfall occurs within 4 hours after application. On tall, dense stands, it is often necessary to spray from both sides to obtain adequate coverage. For Canada thistle, apply in the spring when growth is at least 6-10 inches tall and before flowering.

Do not use on bahiagrass or ryegrass pasture as severe injury will result. Applications of this product to fescue early in the season may cause yellowing and stunting of the grass as well as seedhead suppression.

Use low rates for minimum effect (chlorosis) on pasture grasses, particularly fescue.

Do not exceed 1 2/3 oz. Equil Pasture and Turf MSM per acre per year.

When used as directed, there are no grazing or haying restrictions for use rates up to 1 2/3 oz. per acre.

Do not use on grasses grown for seed.

## General Application Information

This product may be applied to rangeland or pasture by air or ground. Use an adequate spray volume to obtain thorough coverage of the target weeds.

## Applications to Rangeland and Pasture

### Ground Applications

Apply using properly calibrated equipment. Select a spray volume and delivery system that will ensure thorough coverage and a uniform spray pattern. Avoid overlapping, and shut off spray booms while starting, turning, slowing, or stopping, or injury to the crop or following crops may result.

Unless otherwise directed, use a surfactant of at least 80% active ingredient in postemergence applications to weeds. Add surfactant as the last ingredient at the rates of 1 to 3 quarts per 100 gallons of spray volume; use the high rate for maximum effects on emerged weeds. Antifoaming agents may be needed. DO NOT use liquid fertilizer as a substitute for a surfactant.

### Equipment-Spray Volumes

For optimum spray distribution and thorough coverage use flat fan or low volume flood nozzles. For flat fan

nozzles, do not use less than 3 gallons per acre (GPA) spray volume.

For flood nozzles on 30-inch nozzle spacing, use not less than 10 GPA and no larger than TK 10 or equivalent and not less than 30 psi. On 40-inch nozzle spacing, use not less than 13 GPA or not less than 20 GPA when nozzles are on a 60-inch spacing. 100% overlapping of nozzle spray pattern is suggested for 30, 40, and 60-inch spacing. With Raindrop nozzles, do not use less than 30 GPA and ensure 100% overlap of nozzle spray patterns.

Use 50-mesh screens or larger.

Application may also be made with a handgun using 100 to 300 gals. water per acre (as needed for coverage of weed growth). Do not exceed 3/4 oz. of this product per acre per year.

#### **IMPORTANT PRECAUTIONS — SPRAY DRIFT**

Follow these practices to minimize drift. Do not allow spray to drift on to adjacent crops or land, as even small amounts may injure other plants. When spraying near adjacent, sensitive crops or plants, do everything possible to reduce spray drift. This includes:

- Stop spraying if wind speed becomes excessive. DO NOT SPRAY IF WIND SPEED IS 10 MPH OR GREATER. DO NOT SPRAY IF WINDS ARE GUSTY.
- High temperatures, drought, and low relative humidity increase the possibility of harmful spray drift. EXTREME CAUTION MUST BE USED WHEN THESE CONDITIONS ARE PRESENT AND SENSITIVE CROPS OR PLANTS ARE NEARBY, REGARDLESS OF WIND SPEED.
- Do not apply when a temperature inversion exists.
- Drift from ground equipment may be further reduced by:
  1. Reducing pressure (PSI). DO NOT EXCEED 40 PSI when applying this product.
  2. Applying as close to target plants as possible while still maintaining a good spray pattern.
- Use extreme care when applying in areas adjacent to any body of water.

Keep out of lakes, streams, ponds, reservoirs, or any body of water.

Refer to the SPRAY DRIFT MANAGEMENT section found elsewhere on this label for additional spray drift information.

#### **Application as a Spot Treatment Technique in Range and Noncrop Areas**

This product may be used for use as spot treatment to control noxious and troublesome weeds on rangeland and non-crop areas such as roadsides and industrial sites including government and private lands.

#### **Application Information**

This product may be used to control many species of weeds, including noxious weeds, in certain established grasses growing on non-crop areas and forage grasses growing on rangeland and pasture. Refer to the WEEDS CONTROLLED section found elsewhere on this label for a listing of susceptible weed species.

If the sprayer is calibrated, consult this label to select the application rate per acre of Equil Pasture and Turf MSM appropriate for the target weeds, or use a measuring guide to mix one gram of Equil Pasture and Turf MSM per one gallon of water along with a suitable surfactant. Spray to the point of wetting the entire surface of the target weeds, approximately 40 gallons of solution per acre.

When applied in this manner there is no grazing restriction following the use of Equil Pasture and Turf MSM.

#### **Application Timing**

Applications may be made at any time of the year, except when the soil is frozen.

#### **IMPORTANT PRECAUTIONS**

- Varieties and species of grasses differ in their tolerance to herbicides. When using this product on a particular grass for the first time, limit use to a single 1 ounce container. If no injury occurs throughout the season larger acreage may be treated.
- Applications made to some established grasses may cause temporary stunting, yellowing, or seed head suppression (i.e. fescue, timothy).
- Applications made to newly established grasses less than 2 years from seeding may result in injury or loss.
- Do not apply to forage grasses known to be sensitive to this product such as ryegrass (Italian and perennial), bahia or Garrison's creeping foxtail.
- Broadleaf forage species such as alfalfa and clover are highly sensitive to this



product and will be severely injured or killed.

- When used as directed, there is no grazing restriction for use rates of 1 2/3 ounces per acre and less. At use rates of 1 2/3 to 3 1/3 ounces per acre, forage grasses may be cut for hay, fodder, or green forage and fed to livestock, including lactating animals, 3 days after treatment.

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

This product 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 1/3 ounces per acre. At rates of 1 2/3 ounces 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 Equil Pasture and Turf MSM 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 1/2 ounce of this product per acre are used. A minimum of 2 gallons of solution per acre may be used when application rates of 1/2 ounce of Equil Pasture and Turf MSM 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, this product may be tank mixed with other herbicides labeled for tank mix combination and aerial application on the specific use sites. Refer to the Equil Pasture and Turf MSM package label for a complete listing of registered tank mixes. 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 Equil Pasture and Turf MSM and companion product's package label.

### **APPLICATION RESTRICTIONS**

In Idaho, Oregon and Washington state, use at least 3 gallons of spray solution per acre.

## **TURF – INDUSTRIAL AND ORNAMENTAL**

### **Industrial Turf Applications (Unimproved Only)**

#### **Application Information**

This product may be used for selective weed control in unimproved industrial turf where certain grasses are well established and desired as ground cover. Equil Pasture and Turf MSM may also be used for the control of certain noxious and troublesome weeds in turf.

In addition to conventional spray equipment, this product may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of Equil Pasture and Turf MSM in the water phase. Consult the WEEDS CONTROLLED table to determine which weeds will be controlled by the following applications.

#### **Fescue and Bluegrass**

Apply 1/4 to 1/2 ounce of this product per acre.

#### **Crested Wheatgrass and Smooth Brome**

Apply 1/4 to 1 ounce of this product per acre.

## Bermudagrass

Apply 1/4 to 2 ounces of this product per acre.

### Application Timing

Applications may be made at anytime 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.

### Growth Suppression and Seed head Inhibition (Chemical Mowing) Application Information

This product may be applied for growth suppression and seed head inhibition in well established fescue and bluegrass turf at the use rate of 1/4 to 1/2 ounce per acre.

### Tank Mix Combination

This product may be tank mixed with Embark for improved performance in the regulation of growth and seed head suppression. Tank mix 1/4 to 1/2 ounce of Equil Pasture and Turf MSM with 1/8 to 1/4 pint of Embark.

### Application Timing

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

## IMPORTANT PRECAUTIONS — FESCUE

Equil Pasture and Turf MSM may temporarily stunt tall fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Do not use more than 4/10 ounce per acre of Equil Pasture and Turf MSM.
- Tank mix Equil Pasture and Turf MSM with 2,4-D.
- Use the lowest labeled rate for target weeds.
- Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution.
- Make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall.
- Do not use a surfactant when liquid nitrogen is used as a carrier.
- Do not use a spray adjuvant other than non-ionic surfactant.
- The yields from the first cutting may be reduced due to seedhead suppression resulting from treatment with Equil Pasture and Turf MSM.

## IMPORTANT PRECAUTIONS-INDUSTRIAL TURF ONLY

- An application of Equil Pasture and Turf MSM 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 this product is applied to turf that is under stress from drought, insects, disease, cold temperatures (winter injury), or poor fertility.
- This product is not for use on bahiagrass.

## Professional Turf and Ornamental Applications

This product is for use on Professional Turf and Ornamentals, such as Lawns, Parks, Cemeteries, and Golf Courses (Fairways, Aprons, Tees and Roughs). This product may also be used on Sod Farms.

### Controls the following perennial and annual weedy grasses:

Bahiagrass                      Ryegrass  
Foxtail

### Controls the following broadleaf (dicot) weeds:

Annual sowthistle	Henbit
Aster	Hoary cress (whitetop)
Bittercress	Kochia
Blue mustard	Lambsquarters
Buckhorn	Miners lettuce
Bur buttercup	Pennsylvania smartweed
Canada thistle	Plantain

Chicory	Prickly lettuce
Clover (white)	Prostrate knotweed
Common chickweed	Redroot pigweed
Common groundsel	Redstem filaree
Common mullein	Shepherdspurse
Common purslane	Smallseed flaxweed
Common sunflower	Smooth pigweed
Common yarrow	Spurge (prostrate)
Conical catchfly	Sweet clover
Cow cockle	Tansy mustard
Crown vetch	Treacle mustard
Curly dock	Tumble mustard
Dandelion	Virginia buttonweed
Dogfennel	Wild carrot
False chamomile	
Fiddleneck tarweed	
Field pennycress	
Flixweed	
Goldenrod	

For use only on Kentucky Bluegrass, Fine Fescue, Bermudagrass and St. Augustinegrass turf areas.

### IMPORTANT PRECAUTIONS — TURF

- Use lowest rates for minimum chlorosis of the turf.
- Do not apply this product to turf under stress from drought, insects, disease, cold temperatures, high temperatures of above 85°F on cool season grasses, or poor 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 such as shrubs and trees in treated areas for at least 1 year after the last application, or bedding plants for at least 2 years.
- **NOTE:** Addition of a nonionic surfactant of at least 80% active ingredient at 0.25 percent by volume (1 qt./100 gal.) provides maximum performance, but may temporarily increase chlorosis of the turf.
- Allow one week between the application of this product and other pesticide products. (This guideline can be relaxed where severe insect or disease attack requires immediate treatment).

**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 this product (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.
- When overseeding, wait 2 months (8 weeks) after application. Do not apply to any body of water, including streams, irrigation water or wells. Do not apply where runoff water may flow onto agricultural land, as injury to crops may result.
- Do not allow spray drift onto adjacent crops or other desirable plants or trees as injury may occur.

Follow these practices to minimize 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. Do not spray if 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 droplet size sprays to minimize drift.
- Use spray pressures of 35 psi or less when applying this product.

### HOW TO USE

Use spray volumes of 20 to 80 gals./acre and pressures of 25 to 35 psi at the following rates of this product for the weeds listed below:

#### 0.125 TO 0.25 OZ. PRODUCT/ACRE

Ryegrass (greens)

**0.25 TO 0.33 OZ. PRODUCT/ACRE**

Bittercress  
 Blue mustard  
 Bur buttercup  
 Chickweed  
 Chicory  
 Clover (white)  
 Creeping beggarweed  
 Dandelion  
 Field pennycress  
 Ground ivy (Fall)  
 Parsley-piert  
 Prostrate spurge  
 Redstem filaree  
 Spurweed  
 Wild carrot

**0.33 TO 0.5 OZ. PRODUCT/ACRE**

Annual sowthistle  
 Aster  
 Carolina geranium  
 Common yarrow  
 Crown vetch  
 Florida betony  
 Ground ivy (Spring\*)  
 Henbit  
 Lambsquarters  
 Lespedeza  
 Miners lettuce  
 Plantain  
 Prickly lettuce  
 Ragweed  
 Redroot pigweed  
 Ryegrass (fairways)  
 Seedling dogfennel  
 Shepherdspurse  
 Smooth pigweed  
 Smallseed falseflax  
 Sweet clover  
 Tansy mustard  
 Treacle mustard  
 Tumble mustard  
 Wild celery  
 Wild garlic  
 Wild lettuce  
 Wild onion  
 Woodsorrel (oxalis)

**0.25 TO 0.75 OZ. PRODUCT/ACRE**

Bahiagrass\*

**0.5 TO 1 OZ. PRODUCT/ACRE**

Brazil pusley  
 Buckhorn plantain  
 Canada thistle\*\*  
 Curly dock  
 Common groundsel  
 Common purslane  
 Common sunflower  
 Crabgrass

Dogfennel  
 Dollarweed\*  
 Florida pusley  
 Foxtail  
 Hoary cress (whitetop)  
 Kochia  
 Pennsylvania smartweed  
 Plantain  
 Prostrate knotweed  
 Sida (southern)  
 Virginia buttonweed  
 Wild mustard

\* A repeat application may be required in 4 to 6 weeks.

\*\* Suppression only involving a visual reduction in competition compared to an untreated area.

\*\*\* Controls seedling Virginia buttonweed. Suppression only of more mature plants. Repeat application may be required in 4 to 6 weeks.

The required amount of this product should be added when the spray tank is half full of water and, with agitator running, add the proper amount of product. Finish adding the required amount of water. Continuous agitation is required to keep the product in suspension.

Spray preparations of this product may degrade in acid solutions if not used in 24 hours; it is stable in alkaline solutions. Thoroughly re-agitate before using.

Tank mixes with other registered herbicides should be tested for compatibility before full scale mixing. Use mechanical or bypass agitation to thoroughly mix the spray suspension. It is not necessary to premix this product with water in a separate container prior to adding it to the spray tank. This product should always be added to the tank first, before any other herbicides or adjuvants.

**Kentucky Bluegrass and Fine Fescue:** Apply 0.25 to 0.5 oz. of this product per acre for control of the listed weeds. Do not exceed a total of 0.5 oz. per acre within a 9-month period.

**St. Augustinegrass, Bermudagrass and Zoysiagrass (Meyers and Emerald):** Apply 0.25 to 1.0 oz. of this product per acre for weed control. Some chlorosis or stunting of the turfgrass may occur following application.

**Bahiagrass Control:** For the selective control of Bahiagrass in Bermudagrass turf, use 0.25 to 0.75 oz. of this product per acre. Use the higher rates of the range on Argentine, Common and Paraguayan Bahiagrass. Apply a repeat treatment in 4 to 6 weeks if necessary. Some chlorosis or stunting of the Bermudagrass may occur following the application.

**Centipedegrass:** Apply 0.25 to 0.5 oz. of this product per acre for weed control. Some chlorosis or stunting of the turfgrass may occur following the application.

**NOTE:** Addition of a nonionic surfactant of at least 80% active ingredient at 0.25 percent by volume (1 qt./100 gal.) provides maximum performance, but may temporarily increase chlorosis of the turf. Allow one week between the application of this product and other pesticide products. (This guideline can be relaxed where a severe insect or disease attack requires immediate treatment.)

#### SPRAYER CLEANUP

Immediately after spraying, thoroughly remove all traces of Equil Pasture and Turf MSM 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 one gallon ammonia (containing 3% active) per 100 gallons 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 should 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 Equil Pasture and Turf MSM application.

### **STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

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

**PESTICIDE DISPOSAL:** Pesticide spray mixture or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill or by incineration.

### **CONDITION 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.

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