

66222-50

10/4/2001

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U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (H7505C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number:
66222-50

Date of Issuance:
OCT -4 2001

NOTICE OF PESTICIDE:
 Registration
 Reregistration

Term of Issuance:
Conditional

Name of Pesticide Product:
Metsulfuron Methyl
60DF Herbicide

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

Makhteshim-Agan of North America, Inc
551 Fifth Avenue, Suite 1100
New York, NY 10176

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

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

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

This product is conditionally registered in accordance with section 3(c)(7)(A) and (B) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) provided that you:

1. Submit/cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.
2. Make the labeling changes listed below before you release the product for shipment.
 - a. Add the phrase "EPA Registration No. 66222-50"
 - b. In the Non-Agricultural Use Requirements Box the phrase "and pastures and rangeland" must be removed from the label, since pasture and rangeland that may be cut for hay are subject to the Worker Protection Standard.
3. Submit three (3) copies of your final printed labeling bearing the above change 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 sec.6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of labeling is enclosed for your records.

Signature of Approving Official:

Date:

OCT 4 2001

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For future submissions, labels requiring revisions will not be stamped "Accepted". Labels requiring revisions will be rejected pending submission of corrected labels.

METSULFURON METHYL 60DF

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**HERBICIDE
DRY FLOWABLE**

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

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID

- | | |
|--------------------------------|--|
| IF IN EYES: | <ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice. |
| IF ON SKIN OR CLOTHING: | <ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice. |
| IF SWALLOWED: | <ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person. |
| IF INHALED: | <ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice. |

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For medical emergencies involving this product, call toll-free Prosar 1-800-250-9291.

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, 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 disposing of equipment washwaters. This herbicide is injurious to plants at extremely low concentrations. Nontarget plants may be adversely effected from drift and run-off.

NET CONTENTS 5.35 L
ACCEPTED

OCT - 4 2001

EPA Reg. No. 66222-xx LN
EPA Est. No.

Makhteshim-Agan of North America, Inc.
551 Fifth Avenue, Suite 1100
New York, NY 10176

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 66222-50

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IMPORTANT

- DO NOT USE ON FOOD OR FEED CROPS EXCEPT AS RECOMMENDED BY THIS LABEL OR SUPPLEMENTAL LABELING.
- Injury to or loss of desirable trees or other plants may result from failure to observe the following: Do not apply Metsulfuron Methyl 60DF Herbicide (except as recommended), 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.
- 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.
- Following a Metsulfuron Methyl 60DF application, do not use sprayer for application to crops except as recommended on this label. This is extremely important as low rates of Metsulfuron Methyl 60DF can kill or severely injure most crops (except small grains).

GENERAL INFORMATION

Metsulfuron Methyl 60DF herbicide is a dispersible granule that is mixed in water and applied as a spray. Metsulfuron Methyl 60DF controls many annual and perennial weeds and woody plants in non-crop areas and conifer and hardwood plantations.

Metsulfuron Methyl 60DF controls weeds and woody plants primarily by postemergent activity. Although Metsulfuron Methyl 60DF has preemergence activity, best results are generally obtained when Metsulfuron Methyl 60DF is applied to foliage after emergence or dormancy break. Except where noted, Metsulfuron Methyl 60DF provides the best results when applied to young, actively growing weeds. 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

It is permissible to apply Metsulfuron Methyl 60DF to floodplains where surface water is not present, terrestrial areas of deltas, and low lying areas where water is drained but may be isolated in pockets due to uneven or unlevel conditions.

Metsulfuron Methyl 60DF is noncorrosive, nonflammable, nonvolatile, and does not freeze.

Metsulfuron Methyl 60DF should be used only in accordance with recommendations on this label or in separately published Makhteshim-Agan recommendations. Makhteshim-Agan will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by Makhteshim-Agan. User assumes all risks associated with such nonrecommended use. Read the entire DIRECTIONS FOR USE and the WARRANTY STATEMENT before using this product. If terms are not acceptable, return the unopened product container to the place of purchase at once.

For tank mixes, use the most restrictive limitations from the labeling of the products being mixed. Use only those tank mix partners which are labeled for the appropriate use site.

Do not apply more than 4 ounces of Metsulfuron Methyl 60DF per acre per year.

MIXING INSTRUCTIONS

1. Fill the tank ¼ to ½ full of water.
2. While agitating, add the required amount of Metsulfuron Methyl 60DF.
3. Continue agitation until the Metsulfuron Methyl 60DF is fully dispersed, at least 5 minutes.
4. Once the Metsulfuron Methyl 60DF is fully dispersed, maintain agitation and continue filling tank with water. Metsulfuron Methyl 60DF should be thoroughly mixed with water before adding any other material.
5. As the tank is filling, add tank mix partners (if desired), 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 reagitate before using.
7. Metsulfuron Methyl 60DF spray preparations are stable if they are pH neutral or alkaline and stored at or below 100°F.

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8. If Metsulfuron Methyl 60DF and a tank mix partner are to be applied in multiple loads, preslurry the Metsulfuron Methyl 60DF in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the Metsulfuron Methyl 60DF.

SPRAYER CLEANUP

Spray equipment must be cleaned before Metsulfuron Methyl 60DF 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 in the "At the End of the Day" section before applying Metsulfuron Methyl 60DF.

At the End of the Day

When multiple loads of Metsulfuron Methyl 60DF herbicide are applied, it is recommended that at the end of each day of spraying, the interior of the tank be rinsed with fresh water and then partially filled, and the boom and hoses flushed. This will prevent the buildup of dried pesticide deposits that can accumulate in the application equipment.

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) recommended on this label. Do not exceed the maximum labeled use rate. If other cleaners are used, consult the cleaner label for rinsate disposal instructions. If no instructions are given, dispose of the rinsate on site or at an approved waste disposal facility.

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

Notes:

1. **Attention:** Do not use chlorine bleach with ammonia, as dangerous gases will form. Do not clean equipment in an enclosed area.
2. Steam-cleaning aerial spray tanks is recommended prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.
3. When Metsulfuron Methyl 60DF is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.
4. In addition to this cleanout procedure, all precleanout guidelines on subsequently applied products should be followed as per the individual labels.

SPRAY DRIFT MANAGEMENT

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions. **AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.**

IMPORTANCE OF DROPLET SIZE

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

Controlling Droplet Size-General Techniques

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

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- **Nozzle Type-** Use a nozzle type that is designed for the intended application. With most nozzle types narrower spray angles produce larger droplets. Consider using low-drift nozzles.

Controlling Droplet Size-Aircraft

- **Number of Nozzles-**Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- **Nozzle Orientation-**Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- **Nozzle Type-**Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.
- **Boom Length-** The boom length should not exceed $\frac{1}{4}$ 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.

USE PRECAUTIONS

Injury to or loss of desirable trees or other plants may result from failure to observe the following:

- If equipment is drained or flushed 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.
- Treatment of powdery, dry soil or light, sandy soil when there is little likelihood of rainfall soon, treatment may result in off target movement and possible damage to susceptible crops when soil particles are moved by wind or water. Injury to crops may result if treated soil is washed, blown, or moved onto land used to produce crops. Exposure to Metsulfuron Methyl 60DF may injure or kill most crops. Injury may be more severe when the crops are irrigated.
- Applications made where runoff water flows onto agricultural land may injure crops. Applications made during periods of intense rainfall, to soils saturated with water, surfaces paved with materials such as asphalt or concrete, or soils through which rainfall will not readily penetrate may result in runoff and movement of Metsulfuron Methyl 60DF. Do not treat frozen soil. Treated soil should be left undisturbed to reduce the potential for Metsulfuron Methyl 60DF movement by soil erosion due to wind or water.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas.
- Do not apply through any type of irrigation system.

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- Do not use the equipment used to mix or apply Metsulfuron Methyl 60DF on crops (except pasture, range, and wheat). The mixing and application equipment may be used for noncrop areas and conifer plantations only.
- When used as directed, there is no grazing restriction for use rates of 1½ ounce per acre and less. At use rates of 1½ to 3½ 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.
- Do not use this product in the following counties of Colorado: Saguache, Rio Grande, Alamosa, Costilla, and Conejos.
- Do not use this product in California.

ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY

Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF, 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 is recommended to enhance the control of susceptible plants except where noted. Apply at a minimum rate (concentration) of ¼% volume/volume (1 quart per 100 gallons of spray solution) or at the manufacturer's recommended 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 Metsulfuron Methyl 60DF and may result in decreased performance. Certain surfactants may not be suitable for use on desirable plants, such as turf and conifers, 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.

RESISTANCE

Biotypes of certain weeds listed on this label are resistant to Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF, use a combination of tillage and tank-mix partners or sequential herbicide applications that have a different mode of action than Metsulfuron Methyl 60DF, to control escaped weeds. Do not let weed escapes go to seed. Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative herbicide recommendations 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.

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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

Metsulfuron Methyl 60DF is recommended to control 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 Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF recommended for the most difficult to control species on the site.

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

Northeast and Lake States – Apply up to 2 ounces per acre for red pine. Transplant the following planting season.

West – Apply up to 2 ounces per acre for Douglas fir in the Coast Range and western slope. Transplant at least 90 days after treatment.

Tank Mix Combinations

For broader spectrum control, the following products are recommended in combination with Metsulfuron Methyl 60DF.

Accord®

Tank mix 1 to 2 ounces of Metsulfuron Methyl 60DF with 2 to 10 quarts of Accord per acre. Refer to the product container for a list of species controlled.

Arsenal® Applicators Concentrate

Tank mix 1 to 2 ounces of Metsulfuron Methyl 60DF with 10 to 24 fluid ounces of Arsenal Applicators 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 ½ to 1 ounce of Metsulfuron Methyl 60DF with 16 to 64 fluid ounces of Accord and 10 to 12 fluid ounces of Arsenal Applicators 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.

VELPAR® L or VELPAR® DF

Tank mix 1 to 2 ounces of Metsulfuron Methyl 60DF per acre with VELPAR L or VELPAR DF at the rates recommended 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®

Tank mix ½ to 1½ ounces of Metsulfuron Methyl 60DF with 2 to 3 ounces of OUST 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 Metsulfuron Methyl 60DF with 3 ounces of OUST per acre for herbaceous weed control and early spring suppression of bull thistle and Canada thistle in the Coast Range and western slope of the Cascade Mountains. Douglas fir may be transplanted at least 90 days following application.

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Release-Hardwood Control and Suppression

Metsulfuron Methyl 60DF is recommended for application over the top of established slash and loblolly pine to control the species listed in WEEDS CONTROLLED and BRUSH SPECIES CONTROLLED section of this label. Apply 1 to 4 ounces per acre to control the species indicated, including kudzu.

Tank Mix Combinations

For broader spectrum control, the following products are recommended in combination with Metsulfuron Methyl 60DF.

Arsenal¹ Applicators Concentrate

1 to 2 ounces of Metsulfuron Methyl 60DF with 8 to 16 fluid ounces of Arsenal Applicators Concentrate per acre may be applied to loblolly pine. Refer to the Arsenal Applicators 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 suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, persimmon, and red maple.

VELPAR L or VELPAR DF

Tank mix 1 to 2 ounces of Metsulfuron Methyl 60DF with VELPAR L or VELPAR DF at the rates recommended on the container for various soil textures. The combination may be applied to loblolly and slash pines.

Release-Herbaceous Weed Control

Metsulfuron Methyl 60DF 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 recommended application rates. Best results are obtained when Metsulfuron Methyl 60DF is applied just before weed emergence until shortly after weed emergence.

Tank Mix Combinations

For broader spectrum control, the following products are recommended in combination with Metsulfuron Methyl 60DF.

Arsenal Applicators Concentrate

Tank mix ½ to 1 ounce of Metsulfuron Methyl 60DF with 4 fluid ounces of Arsenal Applicators concentrate per acre. The tank mix may be used on loblolly pine.

OUST

Tank mix ½ to 1½ ounces of Metsulfuron Methyl 60DF with 2 to 3 ounces of OUST per acre. Best results are obtained when Metsulfuron Methyl 60DF is applied just before weed emergence until shortly after weed emergence. The tank mix may be used on loblolly and slash pine.

VELPAR L or VELPAR DF

Tank mix ½ to 1 ounce of Metsulfuron Methyl 60DF with VELPAR L or VELPAR DF at the rates recommended on the container for various soil textures. The combination may be applied to loblolly and slash pines.

IMPORTANT PRECAUTIONS-CONIFER PLANTATIONS ONLY

- Applications of Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF to conifers grown as ornamentals.
- Metsulfuron Methyl 60DF applications may result in damage and mortality to other species of conifers when they are present on sites with those listed in the preceding recommendations for conifer plantations.

HARDWOOD PLANTATIONS

Application Information

Metsulfuron Methyl 60DF is recommended to control many species of weeds on sites where yellow poplar is growing or is to be planted. Apply by ground equipment or by air (helicopter only). Refer to the WEEDS CONTROLLED section of this label for a listing of susceptible species.

Application Timing

Metsulfuron Methyl 60DF may be applied over the top of planted seedlings after the soil has settled around the root systems but before the seedlings have broken dormancy (bud break).

Release-Herbaceous Weed Control

Metsulfuron Methyl 60DF may be applied to yellow poplar for the control of herbaceous competition. Consult the WEEDS CONTROLLED for a listing of the susceptible species and recommended application rates. Best results are obtained when Metsulfuron Methyl 60DF is applied just before weed emergence until shortly after weed emergence.

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Tank Mix Combinations

Tank mix ½ ounce of Metsulfuron Methyl 60DF with 4 to 6 pints of VELPAR L as recommended on the package label for Release-Herbaceous Weed Control in pine plantations in the eastern U.S. Follow the VELPAR L label recommendations regarding altering the application rate by soil texture.

IMPORTANT PRECAUTIONS-HARDWOOD PLANTATIONS ONLY

- Applications of VELPAR L and Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF 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 recommended 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 to the conditions of the site.
- Treatment of yellow poplar 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.

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

WEEDS CONTROLLED

½ to ½ oz. per acre

Annual sowthistle	Goldenrod
Aster	Lambsquarters
Bahiagrass	Marestail
Beebalm	Maximillion sunflower
Bittercress	Miner's lettuce
Bitter sneezeweed	Pennsylvania smartweed
Blackeyed-Susan	Plains coreopsis
Blue mustard	Plantain
Bur buttercup	Redroot pigweed
Chicory	Redstem filaree
Clover	Rough fleabane
Cocklebur	Shepherdspurse
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	Woolly croton
Field pennycress	Wood sorrel
Flixweed	Yankeweed

½ to 1 oz. per acre

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

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WEEDS CONTROLLED (continued)

½ to 1 oz. per acre (continued)

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

1 to 2 oz. per acre

Bull thistle	Purple loosestrife
Common mullein	Scotch thistle
Common tansy	Scouringrush
Field bindweed**	Salsify
Gumweed	Snowberry
Houndstongue	St. Johnswort
Perennial pepperweed	Western salsify
Poison hemlock	Whitetop (hoary cress)

1½ to 2 oz. per acre

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

3 to 4 oz. per acre

Kudzu	
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*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 Metsulfuron Methyl 60DF and may be controlled with rates of ¼ to ½ ounce per acre. Treatments of Metsulfuron Methyl 60DF may be applied from rosette through bloom stages of development.

Tank Mix Combination

For broader spectrum control and for use on certain biotypes of broadleaf weeds which may be resistant to Metsulfuron Methyl 60DF and herbicides with the same mode of action, the following tank mixes are recommended.

Dicamba + 2,4-D

Combine ½ to 1 ounce of Metsulfuron Methyl 60DF with 8 fluid ounces of dicamba and 16 fluid ounces of 2,4-D for the control of kochia.

Combine ½ ounce of Metsulfuron Methyl 60DF with 8 fluid ounces of dicamba and 16 fluid ounces of 2,4-D for the control of spotted knapweed.

Combine 1 ounce of Metsulfuron Methyl 60DF with 8 fluid ounces of dicamba and 16 fluid ounces of 2,4-D for the suppression of rush skeletonweed.

NONCROP (INDUSTRIAL) SITES

Application Information

Metsulfuron Methyl 60DF is recommended for use 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, plant sites, and other similar areas including governmental and private lands. It is also recommended for the control of certain noxious and troublesome weeds.

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

Metsulfuron Methyl 60DF 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.

Application Timing

For best results, Metsulfuron Methyl 60DF should be applied postemergence to young, actively growing weeds. Applications may be made at any time of the year except when the ground is frozen.

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GRASS REPLANT INTERVALS

Following an application of Metsulfuron Methyl 60DF to non-crop areas, the treated sites may be replanted with various species of grasses at the intervals recommended below.

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

Species	Metsulfuron Methyl 60DF Rate oz./acre	Replant 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	Metsulfuron Methyl 60DF Rate 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 recommended intervals are for applications made in the spring to early summer. Because Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF. If species other than those listed above are to be planted into areas treated with Metsulfuron Methyl 60DF, a field bioassay should be performed or previous experience may be used to determine the feasibility of replanting treated sites.

TURF, INDUSTRIAL (UNIMPROVED ONLY)

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Application Information

Metsulfuron Methyl 60DF is recommended for selective weed control in unimproved industrial turf where certain grasses are well established and desired as ground cover. Metsulfuron Methyl 60DF is also recommended for the control of certain noxious and troublesome weeds in turf.

In addition to conventional spray equipment, Metsulfuron Methyl 60DF may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of Metsulfuron Methyl 60DF in the water phase. Consult the WEEDS CONTROLLED table to determine which weeds will be controlled by the following recommendations.

Fescue and Bluegrass

Apply $\frac{1}{4}$ to $\frac{1}{2}$ ounce of Metsulfuron Methyl 60DF per acre.

Crested Wheatgrass and Smooth Brome

Apply $\frac{1}{4}$ to 1 ounce of Metsulfuron Methyl 60DF per acre.

Bermudagrass

Apply $\frac{1}{4}$ to 2 ounces of Metsulfuron Methyl 60DF per acre.

Application Timing

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

Growth Suppression and Seedhead Inhibition (Chemical Mowing) Application Information

Metsulfuron Methyl 60DF is recommended for growth suppression and seedhead inhibition in well established fescue and bluegrass turf at the use rate of $\frac{1}{4}$ to $\frac{1}{2}$ ounce per acre.

Tank Mix Combination

Metsulfuron Methyl 60DF may be tank mixed with Embark for improved performance in the regulation of growth and seedhead suppression. Tank mix $\frac{1}{4}$ to $\frac{1}{2}$ ounce of Metsulfuron Methyl 60DF with $\frac{1}{4}$ to $\frac{1}{2}$ 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-INDUSTRIAL TURF ONLY

- An application of Metsulfuron Methyl 60DF may cause temporary discoloration (chlorosis) of the grasses. Use the lower recommended 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 Metsulfuron Methyl 60DF is applied to turf that is under stress from drought, insects, disease, cold temperatures (winter injury), or poor fertility.
- Metsulfuron Methyl 60DF is not recommended for use on bahiagrass.

NATIVE GRASSES

Metsulfuron Methyl 60DF is recommended 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 Metsulfuron Methyl 60DF at the rate of 1/10 ounce per acre for the control and suppression* of bur buttercup (testiculate), common purslane, common sunflower*, cutleaf eveningprimrose*, flaxweed*, lambsquarters* (common and slimleaf), marestail*, pigweed (redroot and tumble), snow speedwell, tansymustard*, and tumble mustard (Jim Hill mustard).

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

Application Timing

For established grasses, apply when weeds are in the seedling stage.

For grasses in the seedling stage, apply preplant or preemergence where the soil (seed bed) has been cultivated.

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BRUSH CONTROL

Application Information

Metsulfuron Methyl 60DF is recommended 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, Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF Rate oz./100 Gallons	Broadcast Metsulfuron Methyl 60DF 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	½ -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 (Holodiscus)	1-2	2-3
Osage orange	1-2	2-3
Red maple	1-2	2-3
Salmonberry	½ -1	1-3
Snowberry	½ -1	1-3
Spruce (black and white)	3	2-3
Thimbleberry	½ -1	1-3
Tulip tree	½ -1	1-3
Wild roses	½ -1	1-3
Willow	½ -1	1-3

For low volume and ultra-low volume ground applications, mix 4 to 8 ounces of Metsulfuron Methyl 60DF per 100 gallons of spray solution.

Application Timing

Make a foliar application of the recommended rate of Metsulfuron Methyl 60DF 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.

Tank Mix Combinations- Accord®

After consulting the BRUSH SPECIES CONTROLLED table, tank mix the prescribed rate of Metsulfuron Methyl 60DF 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.

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Arsenal® Herbicide

Combine 1 to 2 ounces of Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF, this combination controls black gum, hophornbeam, sassafras, sweetgum, Vaccinium species, dogwood, myrtle dahoon, hickories, and persimmon.

Garlon® 3A or Garlon 4

After consulting the BRUSH SPECIES CONTROLLED table, tank mix the prescribed rate of Metsulfuron Methyl 60DF with the rate of Garlon indicated for the various application methods on the Garlon label. Refer to the Garlon label for list of species controlled.

Krenite® S

After consulting the BRUSH SPECIES CONTROLLED table, tank mix the prescribed rate of Metsulfuron Methyl 60DF 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®

After consulting the BRUSH SPECIES CONTROLLED table, tank mix the prescribed rate of Metsulfuron Methyl 60DF 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 + Arsenal Herbicide

Combine 1 to 1½ ounce of Metsulfuron Methyl 60DF with 2 to 8 fluid ounces of Arsenal and 1 to 2 pints of Tordon K per 100 gallons of water. Apply as a high volume spray. The tank mix controls cherry, elms, box elder, maples, hackberry, redbud, ash, oaks (including shingle oak), black locust and sassafras.

*Tordon K is a restricted use pesticide.

Spotgun Basal Soil Treatment

For control of multiflora rose, prepare a spray suspension of Metsulfuron Methyl 60DF by mixing 1 ounce per gallon of water. Mix vigorously until the Metsulfuron Methyl 60DF 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.

Spray Equipment

Following a Metsulfuron Methyl 60DF application, do not use the sprayer or mixing equipment for application to agricultural crops, except that it may be used to treat pasture, range, and wheat. This is extremely important as low rates of Metsulfuron Methyl 60DF can kill or severely injure most agricultural crops.

The selected sprayer should be equipped with an agitation system to keep Metsulfuron Methyl 60DF 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.

IMPORTANT PRECAUTIONS-NONCROP BRUSH ONLY

- When using tank mixtures of Metsulfuron Methyl 60DF 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.

SELECTIVE WEED CONTROL IN RANGELAND AND PASTURES

Metsulfuron Methyl 60DF is recommended 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 threawn, hooded windmillgrass, switchgrass, and bermudagrass, apply postemergence at the rates of 1/10 to ¼ oz. per acre as listed under WEEDS CONTROLLED.

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Selective use on established and newly seeded grasses

Blue gramma, bluestems, sideoats gramma, Blackwell switchgrass, buffalograss, green sprangletop, indiagrass, 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. Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

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

Early Spring* (a)

1/10 to 1/5 ounce Metsulfuron Methyl 60DF per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

Buttercup	Mayweed
Carolina geranium	Wild garlic* (b)
Henbit	

Late Spring/Early Summer* ©

1/10 to 1/5 ounce Metsulfuron Methyl 60DF per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

Bitter sneezeweed	Pigweed
Common broomweed	Woolly croton
Common maretail	

Late Spring/Early Summer* ©

1/10 to 1/5 ounce Metsulfuron Methyl 60DF per acre (add 1-3 qts. surfactant/100 gals. for emerged weeds)

Canada thistle* (d)	Western snowberry or Buckbrush* (f)
Musk thistle* (e)	

• (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.

1/2 to 1/2 ounce Metsulfuron Methyl 60DF per acre (plus surfactant)

Annual sowthistle	Field pennycress
Aster	Flixweed
Bahiagrass (Pensacola)	Goldenrod
Beebalm	Gumweed
Bittercress	Lambsquarters
Blackberry	Maximillion sunflower
Blackeyed-susan	Miner's lettuce
Blue mustard	Multiflora rose* (g)
Chicory	Pennsylvania smartweed

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½ to ¾ ounce Metsulfuron Methyl 60DF per acre (plus surfactant)(continued)

Clover	Plains coreopsis
Cocklebur	Plantain
Common chickweed	Redstem filaree
Common groundsel	Rough fleabane
Common mullein	Shepherdspurse
Common purslane	Smallseed falseflax
Common yarrow	Smooth pigweed
Conical catchfly	Sweet clover
Corn cockle	Tansymustard
Cow cockle	Treacle mustard
Crown vetch	Tumble mustard
Dandelion	Wild carrot
Dogfennel	Wild mustard
False chamomile	Woolly sorrel
Fiddleneck tarweed	Yankeweed

* (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.

½ to ¾ ounce Metsulfuron Methyl 60DF per acre (plus surfactant)

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

¾ to 1 ounce Metsulfuron Methyl 60DF per acre (plus surfactant)

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

1 to 1 ½ ounces Metsulfuron Methyl 60DF per acre (plus surfactant)

Bull thistle	Scotch thistle
Common tansy	Scouringrush
Poison hemlock	Snowberry
Salisfy	

Use the lower rate of Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF to pasture grasses under stress from drought, insects, disease, cold temperatures, or poor fertility as injury may result.

SPOT APPLICATION: Apply 1 ounce of Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF 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 ½ oz. Metsulfuron Methyl 60DF per acre per year.

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Metsulfuron Methyl 60DF has no grazing restriction.

Do not use on grasses grown for seed.

Tank Mixtures

Metsulfuron Methyl 60DF can be used as a tank-mix herbicide with other suitable registered herbicides, such as picloro, dicamba, and 2,4-D. When using a tank mix, refer to the labeling of the companion product and precautions and limitations on Metsulfuron Methyl 60DF labeling and follow the most restrictive instructions.

Effects on Weeds

Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF, 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. Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF 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.

Equipment-Spray Volumes

Apply using properly calibrated ground equipment. Select a spray volume and delivery system that will insure 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.

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

Do not apply by any aerial application equipment.

Ground Application- 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-gallon per acre (GPA) spray volume.

For flood nozzles on 30-inch nozzle spacings, use not less than 10 GPA and no larger than TK 10 or equivalent and not less than 30 psi. On 40-inch nozzle spacings, 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 recommended for 30, 40, and 60-inch spacings.

With Raindrop [1] nozzles, do not use less than 30 GPA and insure for 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 ¼ oz. Metsulfuron Methyl 60DF per acre per year.

CAUTION: AVOID 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.

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- 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 Metsulfuron Methyl 60DF .
 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.

AERIAL APPLICATION ON UTILITY RIGHTS-OF-WAY, MILITARY INSTALLATIONS, RANGELAND, AND PASTURES WESTERN U.S.

Metsulfuron Methyl 60DF herbicide is recommended for control of noxious and troublesome species of weeds and brush on utility and pipeline rights-of-way, military installations, 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 1/2 ounces per acre. At rates of 1 1/2 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 Metsulfuron Methyl 60DF 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 1qt/100 gal. of spray solution is necessary for acceptable performance. Apply the finished solution at rates between 5 and 25 gal/acre.

Apply a minimum of 5 gallons of solution per acre when application rates of greater than 1/2 ounce of Metsulfuron Methyl 60DF per acre are used. A minimum of 2 gallons of solution per acre may be used when application rates of 1/2 ounce of Metsulfuron Methyl 60DF 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 gal/acre) or when the target vegetation is tall, dense or forms multiple canopies (strata) of foliage. Through coverage of the target plant's foliage is necessary to obtain adequate control.

For broader spectrum control, Metsulfuron Methyl 60DF may be tank mixed with other herbicides labeled for tank mix combination and aerial application on the specific use sites. Refer to the Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF and companion product's package label.

SPOT TREATMENT TECHNIQUE IN RANGE AND NONCROP AREAS

Metsulfuron Methyl 60DF herbicide is recommended for use as spot treatment to control noxious and troublesome weeds on rangeland and noncrop areas such as roadsides and industrial sites including government and private lands.

Application Information

Metsulfuron Methyl 60DF is recommended to control many species of weeds, including noxious weeds, in certain established grasses growing on noncrop areas and forage grasses growing on rangeland. 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 Metsulfuron Methyl 60DF appropriate for the target weeds.

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Use a measuring guide to mix one gram of Metsulfuron Methyl 60DF 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 Metsulfuron Methyl 60DF.

Application Timing

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

Use Precautions

- Varieties and species of grasses differ in their tolerance to herbicides. When using Metsulfuron Methyl 60DF 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 seedhead 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 Metsulfuron Methyl 60DF such as ryegrass (Italian and perennial), bahia or Garrison's creeping foxtail.
- Broadleaf forage species such as alfalfa and clover are highly sensitive to Metsulfuron Methyl 60DF and will be severely injured or killed.
- When used as directed, there is no grazing restriction for use rates of 1 1/2 ounce per acre and less. At use rates of 1 1/2 to 3 1/2 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.

STORAGE AND DISPOSAL

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

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

CONTAINER DISPOSAL: Triple-rinse (or equivalent) the container and then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

- Arsenal is a registered trademark of American Cyanamid Company.
- Accord is a registered trademark of Monsanto Company.
- Embark is a registered trademark of PBI Gordon Corporation.
- Garlon is a registered trademark of Dow Agrosciences.
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WARRANTY STATEMENT

MAKHTESHIM-AGAN OF NORTH AMERICA warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of MAKHTESHIM-AGAN OF NORTH AMERICA. In no case shall MAKHTESHIM-AGAN OF NORTH AMERICA be liable for consequential, special, or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. In addition to the foregoing, no purchaser of this product (other than an end user) shall be entitled to any reimbursement for any loss suffered as a result of any suspension or cancellation of the registration for this product by the U.S. Environmental Protection Agency. Except as expressly provided herein, MAKHTESHIM-AGAN OF NORTH AMERICA makes no warranties, guarantees, or representations of any kind, either expressed or implied, or by usage of trade, statutory or otherwise, with regard to the product sold, including, but not limited to merchantability, fitness for a particular purpose, use or eligibility of the product for any particular trade usage. The exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling, or application of this product, whether in contract, warranty, tort, negligence, strict liability, or otherwise, shall be damages not exceeding the purchase price paid for this product or, at MAKHTESHIM-AGAN OF NORTH AMERICA's election, the replacement of this product.

• DENOTES REGISTERED TRADEMARK.