



Vegetation Manager™

Along a

METSULFURON METHYL DF DRY FLOWABLE

SPECIMEN LABEL

ACTIVE INGREDIENT:

METSULFURON METHYL

METHYL 2-[[[4-METHOXY-6-METHYL-

1,3,5-TRIAZIN-2-YL)AMINO]-

CARBONYL]AMINO]SULFONYL]BENZOATE60%

INERT INGREDIENTS:40%

TOTAL:100%

EPA REG. NO. 74477-2

EPA EST. NO. 352-IL-1

KEEP OUT OF REACH OF CHILDREN CAUTION

Net Contents: 1 lb.

First Aid

If in Eyes:

- 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:

- 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.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS:

CAUTION! Causes Moderate Eye Irritation. Harmful if Swallowed, Absorbed Through the Skin, or Inhaled.

PERSONAL PROTECTIVE EQUIPMENT

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

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Shoes plus socks
- Chemical resistant (category A) gloves such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber.

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 affected from drift and run-off.

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 DF (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 DF application, do not use sprayer for application to crops. This is extremely important, as low rates of Metsulfuron Methyl DF can kill or severely injure most crops (except small grains).

GENERAL INFORMATION

Metsulfuron Methyl DF is a dispersible granule that is mixed in water and applied as a spray. Metsulfuron Methyl DF controls many annual and perennial weeds and woody plants in noncrop areas and conifer plantations.

Metsulfuron Methyl DF may be used for general weed and brush control on industrial non-crop sites and for selective weed control in certain types of unimproved turf grasses on industrial sites. It can also be used for controlling and suppressing undesirable weeds and hardwoods in conifer plantations. Metsulfuron Methyl DF controls weeds and woody plants primarily by postemergent activity. Although Metsulfuron Methyl DF has preemergence activity, best results are generally obtained when Metsulfuron Methyl DF is applied to foliage after emergence or dormancy break. Except where noted, Metsulfuron Methyl DF 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 DF 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 DF is noncorrosive, nonflammable, nonvolatile and does not freeze.

ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY

Metsulfuron Methyl DF 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 effects on annual weeds are 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 DF, 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 1/4 % volume/volume (1 qt. Per 100 gal. 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 DF 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 DF and other herbicides with the same mode of action, even at exaggerated application rates. Biotypes are naturally occurring individuals of a species that

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are identical in appearance but have slightly different genetic composition; the mode of action of an 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 re-treat 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 DF 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 DF, use a combination of tillage and tank-mix partners or sequential herbicide applications that have a different mode of action than Metsulfuron Methyl DF, 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.

Metsulfuron Methyl DF should be used only in accordance with recommendations on this label or in separately published Vegetation Management recommendations.

Vegetation Management will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by Vegetation Management. User assumes all risks associated with such nonrecommended use.

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 DF per acre per year. Do not use on food or feed crops except as recommended by this label or supplemental 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.

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 use 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.
- Chemical resistant (category A) gloves such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber.

CONIFER PLANTATIONS

Application Information

Metsulfuron Methyl DF 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" tables for a listing of susceptible species.

Application Timing

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

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

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

West—Apply up to 2 oz 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 DF.

Accord²

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

Arsenal¹ Applicator's Concentrate

Tank mix 1 to 2 ounces of Metsulfuron Methyl DF 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, and Vaccinium species. The combination suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, and red maple.

Accord² + Arsenal¹ Applicators Concentrate

Tank mix 1/2 to 1 ounce of Metsulfuron Methyl DF 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, and sweetgum, and suppresses hickory.

VELPAR⁸ L or VELPAR⁸ DF

Tank mix 1 to 2 ounces of Metsulfuron Methyl DF 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.

OUST⁷ (or Generic Sulfometuron Methyl)

Tank mix 1/2 to 1-1/2 ounces of Metsulfuron Methyl DF with 2 to 3 ounces of OUST⁷ (or generic equivalent) 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 DF with 3 ounces of OUST⁷ (or generic equivalent) 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.

Release

—Hardwood Control and Suppression

Metsulfuron Methyl DF 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" sections 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 DF.

Arsenal¹ Applicator's Concentrate

A tank mix of 1 to 2 ounces of Metsulfuron Methyl DF 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, and Vaccinium species. The combination suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, persimmon, and red maple.

VELPAR⁸ L or VELPAR⁸ DF

Tank mix 1 to 2 ounces of Metsulfuron Methyl DF with VELPAR L or VELPAR DF at

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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 DF may be applied to transplanted loblolly and slash pine for the control of herbaceous competition. Consult the "**Weeds Controlled**" section for a listing of the susceptible species and recommended application rates. Best results are obtained when Metsulfuron Methyl DF is applied just before weed emergence and until shortly after weed emergence.

Tank Mix Combinations-

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

Arsenal¹ Applicators Concentrate

Tank mix 1/2 to 1 ounce of Metsulfuron Methyl DF with 4 ounces of Arsenal Applicators Concentrate per acre. The tank mix may be used on loblolly pine.

OUST⁷

Tank mix 1/2 to 1-1/2 ounces of Metsulfuron Methyl DF with 2 to 3 ounces of OUST⁷ (or generic equivalent) per acre. Best results are obtained when Metsulfuron Methyl DF is applied just before weed emergence and until shortly after weed emergence. The tank mix may be used on loblolly and slash pine.

VELPAR⁸ L or VELPAR⁸ DF

Tank mix 1/2 to 1 ounce of Metsulfuron Methyl DF with VELPAR⁸ L or VELPAR⁸ 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 DF 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 DF 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 DF to conifers grown as ornamentals.

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

HARDWOOD PLANTATIONS

Application Information

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

Tank Mix Combinations-

Tank mix 1/2 ounce of Metsulfuron Methyl DF with 4 to 6 pints of VELPAR⁸ L as recommended on the package label for "RELEASE-HERBACEOUS WEED CONTROL" in pine plantations in the eastern U.S. Follow the VELPAR⁸ L label recommendations regarding altering the application rate by soil texture.

IMPORTANT PRECAUTIONS

-HARDWOOD PLANTATIONS ONLY

-Application of VELPAR⁸ L and Metsulfuron Methyl DF 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 DF 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.

NOXIOUS WEED CONTROL

Aerial Application on Utility Rights-of-Way, Military Installations, Rangeland and Pastures in Western States

Metsulfuron Methyl DF controls noxious and troublesome species of weeds and brush on utility and pipeline rights-of-way, military installations, rangeland and pastures in the western states of Arizona, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming by aerial (both fixed wing and helicopter) application.

Refer to the "**Weeds Controlled**" and "**Brush Species Controlled**" tables for species controlled and recommended 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. There is no grazing restriction at rates of 1-2/3 ounce per acre or less.

How To Use:

Apply by helicopter or fixed wing aircraft with a spray system designed to deliver droplets of uniform size and prevent drift. Keep the Metsulfuron Methyl DF thoroughly mixed during application. If the spray tank is left standing, agitate thoroughly before using.

Use a non-ionic surfactant of at least 80% active ingredient at a minimum rate of 1-qt/100 gallons of spray mixture for acceptable performance. Apply at a spray volume of 5 to 25 gallons per acre when rates exceeding 1/2 oz/ac of Metsulfuron Methyl DF are used. A minimum of 2 gallons of spray mixture can be used when rates of 1/2 oz/ac or less are used. Use the lower spray volumes when applying by fixed wing aircraft or when target vegetation is sparse or small. Use the higher spray volumes when applying by helicopter or when target vegetation is tall, dense or forms multiple canopies of foliage. Thorough coverage is essential for satisfactory control.

For a broader spectrum of control, tank mix with other herbicides labeled for tank mix combination and aerial application on the specific use sites. See "**Tank Mixtures**" section of this label and tank mix partner label directions for appropriate rates and use sites. Follow the most restrictive cautionary statements and restrictions on the respective labels.

Musk Thistle (biennial) in Rangeland By Ground Sprayer Only

For musk thistle (biennial) in rangeland, apply 1/2 oz. Metsulfuron Methyl DF per acre, **by ground sprayer only**, at rosette, bolt and bud stages to control existing plants and inhibit seed production. Include a nonionic surfactant containing at least 80% active ingredient at 1/4 to 1/2% V/V (1 to 2 qts/100 gal) to improve wetting and/or contact activity.

Spot Treatment in Range and Noncrop Areas

Metsulfuron Methyl DF is recommended for use as a spot treatment to control noxious and troublesome weeds on rangeland, noncrop areas such as roadsides and industrial areas. Refer to the "**Weeds Controlled**" section of this label for the application rates for the target weeds;

OR

Mix 1 gram of Metsulfuron Methyl DF per one gallon of water (approximately 3-1/2 oz/100 gal) along with a suitable surfactant; then spray to the point of wetting the entire surface of target weeds, or about 40 gallons of spray mixture per acre. Applications may be made at any time of year except when the soil is frozen.

There are no grazing restrictions when applied in this manner.

Precautions and Restrictions:

Varieties and species of grasses differ in their tolerance to herbicides. When using Metsulfuron Methyl DF for the first time on a particular grass, limit use to a single 1 oz container. If no injury occurs throughout the season a larger acreage may be treated.

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Application to some established grasses might cause temporary stunting, yellowing or seed head suppression (e.g., fescue, timothy).

Applications to newly established grasses (less than two years from seeding) might result in injury or loss.

Do not apply to forage grasses known to be sensitive to Metsulfuron Methyl 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 DF and will be killed or severely injured.

Grazing Restrictions: There are no grazing restrictions at rates of 1-2/3 oz/ac or less. At 1-1/3 to 3- 1/3 oz/ac, forage grasses may be cut for hay, fodder or green forage and fed to livestock (including lactating animals) 3 days after treatment.

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) are not within the scope of the Worker Protection Standard.

WEEDS CONTROLLED

1/3 to 1/2 ounce per acre

Annual sowthistle	Goldenrod
Aster	Lambsquarters
Bahiagrass	Marestail
Beebalm	Maximillion sunflower
Bittercress	Miners lettuce
Bitter sneezeweed	Pennsylvania smartweed
Blackeyed-susan	Plains coreopsis
Blue mustard	Plaintain
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 wild roses
Broom snakeweed*	Musk thistle***
Buckhorn plantain	Plumeless thistle
Common crupina	Prostrate knotweed
Common sunflower	Rosering gaillardia
Curly dock	Seaside arrowgrass
Dewberry	Sericea lespedeza
Dyer's wood	Teasel
Gorse	Wild caraway
Halogeton	
Henbit	

1 to 2 ounces per acre

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

1-1/2 to 2 ounces per acre

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

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 Metsulfuron Methyl DF and may be controlled with rates of 1/4 to 1/2 ounce per acre. Treatments of Metsulfuron Methyl DF 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 DF and herbicides with the same mode of action, the following tank mixes are recommended.

Dicamba + 2,4-D

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

Combine 1/2 ounce of Metsulfuron Methyl DF with 8 ounces of dicamba and 16 fluid ounces of 2,4-D for the control of spotted knapweed.

Combine 1 ounce of Metsulfuron Methyl DF 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 DF 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 DF 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 DF should be applied postemergence to young, actively growing weeds. Application may be made at any time of the year, except when the ground is frozen.

GRASS REPLANT INTERVALS

Following an application of Metsulfuron Methyl DF 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 DF Rate oz/a	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 DF Rate oz/a	Replant Interval (months)
Alkali Sacaton	1/2-1	1
	1-2	3
Bluestern, 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 DF degradation is slowed by cold or frozen soils, applications made in 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 DF. If species other than those listed above are to be planted into areas treated with Metsulfuron Methyl DF, a field bioassay should be performed, or previous experience may be used, to determine the feasibility of replanting treated sites.

TURF, INDUSTRIAL (UNIMPROVED ONLY)

Application Information

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

In addition to conventional spray equipment, Metsulfuron Methyl DF may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of Metsulfuron Methyl DF in the water phase.

Consult the "Weeds Controlled" table to determine which weeds will be controlled by the following recommendations:

Fescue and Bluegrass

Apply 1/4 to 1/2 ounce of Metsulfuron Methyl DF per acre.

Crested Wheatgrass and Smooth Brome

Apply 1/4 to 1 ounce of Metsulfuron Methyl DF per acre.

Bermudagrass

Apply 1/4 to 2 ounces of Metsulfuron Methyl DF 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 DF is recommended for growth suppression and seedhead inhibition in well-established fescue and bluegrass turf at the use rate of 1/4 to 1/2 ounce per acre.

Tank Mix Combination

Metsulfuron Methyl DF may be tank mixed with Embark³ for improved performance in the regulation of growth and seedhead suppression. Tank mix 1/4 to 1/2 ounce of Metsulfuron Methyl DF 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

-INDUSTRIAL TURF ONLY

-An application of Metsulfuron Methyl DF 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 DF is applied to turf that is under stress from drought, insects, disease, cold temperatures (winter injury) or poor fertility.

-Metsulfuron Methyl DF is not recommended for use on bahiagrass.

NATIVE GRASSES

Metsulfuron Methyl DF is recommended for weed control and suppression in the establishment and maintenance of native grasses. It may be used where blue grama, bluestems (big, little, plains, sand, ww spar) bromegrasses (meadow), buffalograss, green sprangletop, Indiangrass, kleingrass, lovegrasses (atherstone, sand, weeping, wilman), orchardgrass, sideoats grama, 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 DF at the rate of 1/10 ounce per acre for the control and suppression* of bur buttercup (testiculate), common purslane, common sunflower*, cutleaf eveningprimrose*, flkweed*, 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.

BRUSH CONTROL

Application Information

Metsulfuron Methyl DF 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 for multiflora rose, Metsulfuron Methyl DF 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 application 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	Broadcast
	Metsulfuron Methyl DF Rate oz/100 gal	Metsulfuron Methyl DF Rate oz/a
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 (Holodiscus)	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 Metsulfuron Methyl DF per 100 gallons of spray solution.

Application Timing

Make a foliar application of the recommended rate of Metsulfuron Methyl DF 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-

Accord²

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of Metsulfuron Methyl DF 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.

Arsenal¹ Herbicide

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

Garlon⁴ 3A or Garlon 4 (or generic equivalents)

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of Metsulfuron Methyl DF 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.

KRENITE⁹ S

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of Metsulfuron Methyl DF 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 K⁵

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of Metsulfuron Methyl DF 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 K⁵ + Arsenal¹ Herbicide

Combine 1 to 1-1/2 ounces of Metsulfuron Methyl DF 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 60 DF by mixing 1 ounce per gallon of water. Mix vigorously until the Metsulfuron Methyl 60 DF 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 Metsulfuron Methyl DF with companion herbicides, read and follow all use instructions, application rates, warnings and precautions appearing on the labels. Follow the most restrictive label instruction for each of the herbicides used.

SPRAY EQUIPMENT

Following a Metsulfuron Methyl DF 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 DF can kill or severely injure most agricultural crops. The selected sprayer should be equipped with an agitation system to keep Metsulfuron Methyl DF 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 Metsulfuron Methyl DF.
3. Continue agitation until the Metsulfuron Methyl DF is fully dispersed, at least 5 minutes.

4. Once the Metsulfuron Methyl DF is fully dispersed, maintain agitation and continue filling tank with water. Metsulfuron Methyl DF 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 re-agitate before using.
7. Metsulfuron Methyl DF spray preparations are stable if they are pH neutral or alkaline and stored at or below 100°F.
8. If Metsulfuron Methyl DF and a tank mix partner are to be applied in multiple loads, pre-slurry the Metsulfuron Methyl DF 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 DF.

SPRAYER CLEANUP

Spray equipment must be cleaned before Metsulfuron Methyl DF 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.

At the End of the Day

When multiple loads of Metsulfuron Methyl DF 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 gal of household ammonia* (contains 3% active) for every 100 gal of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 min. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank.
 3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
 4. Repeat step 2.
 5. Rinse the tank, boom, and hoses with clean water.
 6. If only Ammonia is used as a cleaner, the rinsate solution may be applied back to the crop(s) recommended on this label. Do not exceed the maximum labeled use rate. If other cleaners are used, consult the cleaner label for rinsate disposal instructions. If no instructions are given, dispose of the rinsate on site or at an approved waste disposal facility.
- *Equivalent amounts of an alternate-strength ammonia solution or other recommended cleaners can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions. Consult your agricultural dealer, applicator, or extension agent 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 DF 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.

VM METSULFURON METHYL DF

Specimen Label

-Pressure – Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.

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

Controlling Droplet Size – Aircraft

-Number of Nozzles – Use the minimum number of nozzles with the highest flow rate that provides uniform coverage.

-Nozzle Orientation – Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.

-Nozzle Type – Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.

-Boom Length – The boom length should not exceed 3/4 of the wing or rotor length. Longer booms increase drift potential.

-Application Height – Application more than 10 ft above the canopy increases the potential for spray drift.

BOOM HEIGHT

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

WIND

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

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

TEMPERATURE AND HUMIDITY

When making application in hot and 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.

SHIELDING 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 Metsulfuron Methyl DF 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 after treatment may result in off target movement and possible damage to susceptible crops when soil particles are moved by wind or water. Injury to crops may result if treated soil is washed, blown, or moved onto land used to produce crops. Exposure to Metsulfuron Methyl DF 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 DF. Do not treat frozen soil. Treated soil should be left undisturbed to reduce the potential for Metsulfuron Methyl DF 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.

-Do not use the equipment used to mix or apply Metsulfuron Methyl DF 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 1 2/3 ounces per acre and less. At use rates of 1 2/3 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.

-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

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 land fill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

IMPORTANT: Read the information below before using this product. If the terms are not acceptable, you should return the unopened product container immediately for a complete refund.

LIMITED WARRANTY, TERMS OF SALE, AND LIMITATION OF LIABILITY

Upon purchase or use of this product, purchaser and user agree to the following terms:

Warranty: Vegetation Management, LLC (the Company) warrants that this product conforms to the chemical description on the label in all material respects and is reasonably fit for the purpose referred to in the directions for use, subject to the exceptions noted below, which are beyond the Company's control. The Company makes no other representation or warranty, express or implied, concerning the product, including no implied warranty of merchantability or fitness for a particular purpose; no such warranty shall be implied by law, and no agent or representative is authorized to make any such warranty on the Company's behalf.

Terms of Sale: The Company's directions for use of this product should be followed carefully. 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, and the manner of use or application (including failure to adhere to label directions), all of which are beyond the Company's control. All such risks are assumed by the user.

Limitation of Liability: The exclusive remedy against the Company for any cause of action relating to the handling or use of this product is a claim for damages, and in no event shall damages or any other recovery of any kind exceed the price of the product which caused the alleged loss, damage, injury or other claim. Under no circumstances shall the Company be liable for any special, indirect, incidental or consequential damages of any kind, including loss of profits or income, and any such claims are hereby waived. Some states do not allow the exclusion or limitation of incidental or consequential damages.

The Company and the seller offer this product, and the purchaser and user accept this product, subject to the foregoing warranty, terms of sale and limitation of liability, which may be varied or modified only by an agreement in writing signed on behalf of the Company by an authorized representative.

- 1 Arsenal is a registered trademark of American Cyanamid Company
 - 2 Accord is a registered trademark of Monsanto Company.
 - 3 Embark is a registered trademark of PBI Gordon Corporation.
 - 4 Garlon is a registered trademark of Dow Agrosciences.
 - 5 Tordon is a registered trademark of Dow Agrosciences.
 - 6 Escort is a registered trademark of DuPont.
 - 7 OUST is a registered trademark of DuPont.
 - 8 VELPAR is a registered trademark of DuPont
 - 9 KRENITE is a registered trademark of DuPont
- Vegetation Manager is a trademark of Chemlink, LLC

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