

# Metcel™ VMF

## Herbicide

### Dry Flowable

#### Active Ingredient

By Weight

Metsulfuron methyl Methyl 2-[[[(4-methoxy-6-methyl- 1,3,5-triazin-2-yl)amino]- carbonyl]amino]sulfonyl]benzoate	60%
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#### Inert Ingredients

40%

TOTAL 100%

EPA Reg. No. 352-439-85588

### KEEP OUT OF REACH OF CHILDREN

## CAUTION

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

### FIRST AID

**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 further treatment advice.

**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 further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-888-261-1410 for emergency medical treatment information.

### 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

#### 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 cleaning equipment or 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.

## **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 if the precautions listed below are not followed.

- Do not apply Metcel™ VMF 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 product 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.

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

## **GENERAL INFORMATION**

Metcel™ VMF herbicide is a dispersible granule that is mixed in water and applied as a spray by ground or aerial application.

Metcel™ VMF herbicide is recommended for the control of annual and perennial weeds and unwanted woody plants on private, public and military lands, on rights-of-way, industrial sites, non-crop areas, ditchbanks of dry drainage ditches, certain types of unimproved turf grass, and conifer and hardwood plantations, including grazed areas on these sites. Do not use on irrigation ditches.

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

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

- weed spectrum and infestation intensity
- weed size at application
- environmental conditions at and following treatment
- soil pH, soil moisture, and soil organic matter.

Metcel™ VMF herbicide may be applied on conifer and hardwood plantations, and non-crop sites that contain areas of temporary surface water caused by the collection of water between planting beds, in equipment ruts, or in other depressions created by management activities. It is permissible to treat intermittently flooded low lying sites, seasonally dry flood plains and transitional areas between upland and lowland sites when no water is present. It is also permissible to treat marshes, swamps and bogs after water has receded as well as seasonally dry flood deltas. DO NOT make applications to natural or man-made bodies of water such as lakes, reservoirs, ponds, streams and canals.

## **ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY**

Metcel™ VMF herbicide 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 Metcel™ VMF herbicide, 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 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 Metcel™ VMF herbicide 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

When herbicides that affect the same biological site of action are used repeatedly over several years to control the same weed species in the same field, naturally-occurring resistant biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field. Adequate control of these resistant weed biotypes cannot be expected. If weed control is unsatisfactory, it may be necessary to retreat the problem area using a product affecting a different site of action.

To better manage herbicide resistance through delaying the proliferation and possible dominance of herbicide resistant weed biotypes, it may be necessary to change cultural practices within and between crop seasons such as using a combination of tillage, retreatment, tank-mix partners and/or sequential herbicide applications that have a different site of action. Weed escapes that are allowed to go to seed will promote the spread of resistant biotypes.

It is advisable to keep accurate records of pesticides applied to individual fields to help obtain information on the spread and dispersal of resistant biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative cultural practices or herbicide recommendations available in your area.

## INTEGRATED PEST MANAGEMENT

This product may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop systems in your area.

## DIRECTIONS FOR USE

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

Metcel™ VMF herbicide should be used only in accordance with recommendations on this label or in separately published Agsurf recommendations.

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

Do not apply more than 4 ounces of Metcel™ VMF herbicide 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.

## TANK MIXES

Metcel™ VMF herbicide may be tank mixed with other herbicides registered for the use sites described in this label. Use only those tank mix partners which are labeled for the appropriate use site. When tank mixing, use the most restrictive label limitations for each of the products being used in the tank mix.

## 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**

Metcel™ VMF herbicide is recommended for the control of many species of weeds and deciduous trees on sites where conifers are growing or are to be planted. Apply by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" and "Brush Species Controlled" for a listing of susceptible species.

### **Application Timing**

Apply Metcel™ VMF herbicide 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 Metcel™ VMF herbicide recommended for the most difficult to control species on the site.

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

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

**West**—Apply up to 2 ounces per acre prior to planting Douglas Fir, Sitka Spruce, Western Red Cedar, Western Hemlock, Ponderosa Pine, and Grand Fir in the Coast Rangeland and western slope of the Cascades in Oregon and Washington. These conifer species listed can be planted anytime after application. Other conifer species can be planted providing the user has prior experience indicating acceptable tolerance to Metcel™ VMF herbicide soil residues.

Without prior experience, it is recommended that other species be planted on a small scale to determine selectivity before large-scale plantings are made as unacceptable injury may occur. Agsurf will not assume responsibility for injury to any conifer species not listed on this label.

#### **Tank Mix Combinations—**

For broader spectrum control, the following products are recommended in combination with Metcel™ VMF herbicide.

#### **Glyphosate (4 pound active per gallon)**

Tank mix 1 to 2 ounces of Metcel™ VMF herbicide with 2 to 10 quarts of glyphosate per acre. Refer to the product container for a list of species controlled.

#### **Imazapyr (4 pound active per gallon)**

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

#### **Glyphosate (4 pound active per gallon) + Imazapyr (4 pound active per gallon)**

Tank mix 1/2 to 1 ounce of Metcel™ VMF herbicide with 16 to 64 fluid ounces of glyphosate and 10 to 12 fluid ounces of imazapyr per acre. Slash and loblolly pines may be transplanted the planting season following application. This combination controls cherry, dogwood, elms, oaks (red and water), persimmon, sassafras, sweetgum and suppresses hickory.

#### **“Velpar” L or “Velpar” DF**

Tank mix 1 to 2 ounces of Metcel™ VMF herbicide 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” Extra**

Tank mix 1/2 to 1 1/2 ounces of Metcel™ VMF herbicide with 2 to 3 ounces of “Oust” Extra per acre for herbaceous weed control. Refer to the product container and the "Weeds Controlled" section of this label for a listing of the weeds controlled. Loblolly and slash pines may be transplanted the planting season following application. Tank mix 2 ounces of Metcel™ VMF herbicide with 3 ounces of “Oust” Extra per acre for herbaceous weed control and early spring suppression of bull thistle and Canada thistle in the Coast Rangeland and western slope of the Cascade Mountains. Douglas fir may be transplanted at least 90 days following application.

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

Metcel™ VMF herbicide 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 Metcel™ VMF herbicide.

#### **Imazapyr (4 pound active per gallon)**

Tank mix 1 to 2 ounces of Metcel™ VMF herbicide with 8 to 16 fluid ounces of imazapyr per acre for application to loblolly pine. Refer to the imazapyr label regarding the use of surfactants and the appropriate application timing with respect to the age and development stage of the pines. This combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbeam, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, persimmon, and red maple.

#### **“Velpar” L or “Velpar” DF**

Tank mix 1 to 2 ounces of Metcel™ VMF herbicide with “Velpar” L or “Velpar” DF at the rates recommended on the container for various soil textures. This combination may be applied to loblolly and slash pines.

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

Metcel™ VMF herbicide 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 Metcel™ VMF herbicide 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 Metcel™ VMF herbicide.

#### **Imazapyr (4 pound active per gallon)**

Tank mix 1/2 to 1 ounce of Metcel™ VMF herbicide with 4 fluid ounces of imazapyr per acre. The tank mix may be used on loblolly pine.

#### **“Velpar” L or “Velpar” DF**

Tank mix 1/2 to 1 ounce of Metcel™ VMF herbicide with “Velpar” L or “Velpar” DF at the rates recommended on the container for various soil textures. This combination may be applied to loblolly and slash pines.

## **Release - Directed Spray in Conifers**

### **Western US**

To release conifers from competing brush species, such as, blackberry, salmonberry, snowberry, thimbleberry and wild roses, mix 2 to 4 ounces of Metcel™ VMF herbicide per 100 gallons of spray solution. Direct spray onto the foliage of competing brush species using a knapsack or backpack sprayer. For best results, apply any time after the brush species have reached full leaf stage but before autumn coloration. At application, the majority of the brush species should be less than six feet in height to help ensure adequate spray coverage. Thorough coverage of the target foliage is necessary to optimize results. Care should be taken to direct the Metcel™ VMF herbicide spray solution away from the conifer foliage.

#### **NOTE:**

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

## **IMPORTANT PRECAUTIONS**

### **—CONIFER PLANTATIONS ONLY**

- Applications of Metcel™ VMF herbicide 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 Metcel™ VMF herbicide 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 Metcel™ VMF herbicide to conifers grown as ornamentals.
- Metcel™ VMF herbicide 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**

Metcel™ VMF herbicide is recommended at rates of up to 2 ounces per acre for the control of many weed species on sites where yellow poplar is growing or is to be planted, and on sites where red alder is to be planted. Apply by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" sections of this label for a listing of susceptible species.

### **Application Timing**

Metcel™ VMF herbicide may be applied as a site preparation treatment prior to planting red alder or yellow poplar. As a prior to planting site preparation treatment for red alder, Metcel™ VMF herbicide may be tank mixed with other herbicides labeled for this use.

Metcel™ VMF herbicide may also be applied over-the-top of planted yellow poplar seedlings after the soil has settled around the root system, but before the seedlings have broken dormancy (prior to bud break).

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

Metcel™ VMF herbicide 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 Metcel™ VMF herbicide is applied just before weed emergence until shortly after weed emergence.

### **Tank Mix Combinations—**

Tank mix 1/2 ounce of Metcel™ VMF herbicide 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**

- Application of “Velpar” L and Metcel™ VMF herbicide 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 Metcel™ VMF herbicide 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 and/or red alder to the conditions of the site. Treatment of yellow poplar and/or red alder planted on a site inadequate to meet its requirements may injure or kill the seedlings.

## NON-AGRICULTURAL USES

### NON-AGRICULTURAL USE REQUIREMENTS

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

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

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

## NON-CROP SITES

### Application Information

Metcel™ VMF herbicide is recommended for general weed control on private, public and military lands as follows:

Uncultivated nonagricultural areas (such as airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - non-crop producing (such as farmyards, fuel storage areas, fence rows, soil bank land, barrier strips, etc.); industrial sites - outdoor (such as lumberyards, pipeline and tank farms, etc.) including grazed areas on these sites. 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.

Metcel™ VMF herbicide 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.

Applications may be made by ground or air. Use a sufficient volume of water to ensure thorough coverage of the target vegetation with the application equipment being used.

## NATIVE GRASSES

Metcel™ VMF herbicide 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, indiagrass, 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 Metcel™ VMF herbicide at the rate of 1/10 ounce per acre for the control and suppression\* of bur buttercup (testiculate), common purslane, common sunflower\*, cutleaf eveningprimrose\*, flixweed\*, lambsquarters\* (common and slimleaf), marestail\*, pigweed (redroot and tumble), snow speedwell, tansymustard\* and tumble mustard (Jim Hill mustard).

\* Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas.

Degree of suppression will vary with the size of weed and environmental conditions following treatment.

### Application Timing

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

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

## IMPORTANT PRECAUTIONS

### —NATIVE GRASSES

- Grass species or varieties may differ in their response to various herbicides. If no information is available, limit the initial use of Metcel™ VMF herbicide to a small area. Components in a grass seed mixture will vary in tolerance to Metcel™ VMF herbicide, so the final stand may not reflect the seed ratio.
- Under certain conditions such as heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after Metcel™ VMF herbicide application, temporary discoloration and/or grass injury may occur. Metcel™ VMF herbicide should not be applied to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, disease, or insect damage as grass injury may result. Severe winter stress, drought, disease, or insect damage before or following application also may result in grass injury.

## GRASS REPLANT INTERVALS

Following an application of Metcel™ VMF herbicide 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:

<b>Species</b>	<b>Rate (ounces per acre)</b>	<b>Replant Interval (months)</b>
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
	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:

<b>Species</b>	<b>Rate (ounces per acre)</b>	<b>Replant Interval (months)</b>
Alkali Sacaton	1/2—1	1
	1—2	3
Bluestem, Big	1/2—2	3
Brome, Mountain	1/2—1	1
	1—2	2
Grama, Blue	1/2—2	1
Grama, Sideoats	1/2	2
	>1/2	>3
	1/2	2
Switchgrass	1/2	2
	>1/2	>3
Wheatgrass, Thickspike	1/2—2	1
Wheatgrass, Western	1—2	2
	1/2—1	3

The recommended intervals are for applications made in the Spring to early Summer. Because Metcel™ VMF herbicide degradation is slowed by cold or frozen soils, applications made in 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 Metcel™ VMF herbicide. If species other than those listed above are to be planted into areas treated with Metcel™ VMF herbicide, a field bioassay should be performed, or previous experience may be used, to determine the feasibility of replanting treated sites.

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

Metcel™ VMF herbicide is recommended for the control or suppression of broadleaf weeds to aid in the establishment of the following perennial native or improved grasses:

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

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

**Use Rates and Application Timing for Grass Establishment Preplant (prior to planting) or Preemergence (after planting but before grass emergence)**

Do not use more than 1/10 ounce per acre of Metcel™ VMF herbicide for grass establishment. Apply Metcel™ VMF herbicide at 1/10 ounce per acre on all labeled grasses except orchardgrass and Russian wildrye grass. Do not apply Metcel™ VMF herbicide preplant or preemergence to orchardgrass and Russian wildrye grass as severe crop injury may result.

**Early postemergence to new plantings**

Apply Metcel™ VMF herbicide at 1/10 ounce per acre, plus a non-ionic surfactant at the rate of 2 to 4 pints per 100 gallons of spray solution on all labeled grasses anytime after grass emergence. Do not use a spray adjuvant other than non-ionic surfactant. Because grass species differ in time of emergence, apply only after the majority of grasses are in the 3 to 4 leaf stage.

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

Apply Metcel™ VMF herbicide at 1/10 ounce per acre plus a non-ionic surfactant at the rate of 2 to 4 pints per 100 gallons of spray solution, on all labeled grasses when the majority of the grasses have one or more leaves. Do not use a spray adjuvant other than non-ionic surfactant.

**APPLICATION INFORMATION FOR ESTABLISHED GRASSES**

**Use Rates for Established Grasses**

Apply up to 1 ounce Metcel™ VMF herbicide per acre as a broadcast application to established grasses. For spot applications, use 1 ounce per 100 gallons of water. Do not apply more than 1 2/3 ounces of Metcel™ VMF herbicide per acre per year. Refer to the Weeds Controlled section of this label for a listing of the weeds controlled by Metcel™ VMF herbicide and the appropriate use rate to obtain control.

**Application Timing – Established Grasses**

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

<b>Grass</b>	<b>Minimum time from Grass establishment Metcel™ VMF herbicide application</b>
Bermudagrass	2 months
Bluegrass, bromegrass, Orchardgrass	6 months
Timothy	12 months
Fescue	24 months

### **Fescue Precautions:**

Note that Metcel™ VMF herbicide may temporarily stunt tall fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Do not use more than 4/10 ounce per acre of Metcel™ VMF herbicide
- Tank mix Metcel™ VMF herbicide with 2,4-D
- Use the lowest recommended rate for target weeds
- Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution
- Make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall
- Do not use surfactant when liquid nitrogen is used as a carrier
- Do not use a spray adjuvant other than non-ionic surfactant

The first cutting yields may be reduced due to seedhead suppression resulting from treatment with Metcel™ VMF herbicide.

### **Timothy Precautions:**

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

- Do not use more than 4/10 ounce per acre Metcel™ VMF herbicide
- Tank mix Metcel™ VMF herbicide with 2, 4-D
- Use the lowest recommended rate for target weeds
- Use a non-ionic surfactant at 1/2 pint per 100 gallons of spray solution (1/16%)
- Make applications in the late summer or fall
- Do not use surfactant when liquid nitrogen is used as a carrier
- Do not use spray adjuvant other than non-ionic surfactant

Application of Metcel™ VMF herbicide to Pensacola bahiagrass, ryegrass (Italian or perennial) and Garrison's creeping foxtail may cause severe injury to and/or loss of forage.

### **Other Grasses:**

Varieties and species of forage grasses differ in their tolerance to herbicides. When using Metcel™ VMF herbicide on a particular grass for the first time, limit use to a small area. In no injury occurs throughout the season, larger acreage may be treated the following season.

Broadleaf forage species, such as alfalfa and clover, are highly sensitive to Metcel™ VMF herbicide and will be severely stunted or injured by Metcel™ VMF herbicide.

## **CROP ROTATION**

Before using Metcel™ VMF herbicide, carefully consider your crop rotation plans and options.

### **Minimum Rotational Intervals**

Minimum rotation intervals\* are determined by the rate of breakdown of Metcel™ VMF herbicide applied. Metcel™ VMF herbicide breakdown in the soil is affected by soil pH, presence of soil microorganisms, soil temperature, and soil moisture. Low soil pH, high soil temperature, and high soil moisture increase Metcel™ VMF herbicide breakdown in soil, while high soil pH, low soil temperature, and low soil moisture slow Metcel™ VMF herbicide breakdown. Of these 3 factors, only soil pH remains relatively constant. Soil temperature, and to a greater extent, soil moisture, can vary significantly from year to year and from area to area. For this reason, soil temperatures and soil moisture should be monitored regularly when considering crop rotations.

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

### **Soil pH Limitations**

Metcel™ VMF herbicide should not be used on soils having a pH above 7.9, as extended soil residual activity could extend crop rotation intervals beyond normal. Under certain conditions, Metcel™ VMF herbicide could remain in the soil for 34 months or more, injuring wheat and barley. In addition, other crops planted in high-pH soils can be extremely sensitive to low concentrations of Metcel™ VMF herbicide.

### **Checking Soil pH**

Before using Metcel™ VMF herbicide, determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0" to 4" samples from different areas of the field and analyze them separately. Consult local extension publications for additional information on recommended soil sampling procedures.

### **BIOASSAY**

A field bioassay must be completed before rotating to any crop or grass species/variety not listed in the Rotation Intervals Table, or if the soil pH is not in the specified range, or if the use rate applied is not specified in the table.

To conduct a field bioassay, grow test strips of the crop(s) or grass(es) you plan to grow the following year in fields previously treated with Metcel™ VMF herbicide. Crop or grass response to the bioassay will indicate whether or not to rotate to the crop(s) or grass(es) grown in the test strips.

If a field bioassay is planned, check with your local Agricultural dealer or Agsurf representative for information detailing the field bioassay procedure.

## Rotation Intervals for Overseeding and Renovation

Location	Crop or Grass Species	Maximum Metcel™ VMF Rate (oz per A)	Minimum Rotation Interval (months)
AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV	Alfalfa, red clover, white clover, sweet clover, bermudagrass, bluegrass, ryegrass, tall fescue	1/10 to 3/10	4
	Wheat (except durum)	1/10 to 3/10	1
	Durum, barley, oat	1/10 to 3/10	10
ALL STATES NOT INCLUDED ABOVE	Red clover, white clover, and sweet clover	1/10 to 2/10	12
	Bermudagrass, bluegrass, ryegrass	1/10 to 2/10	6
	Tall Fescue	1/10 to 2/10	18
	Wheat (except durum)	1/10 to 2/10	1
	Durum, barley, oat	1/10 to 2/10	10
ALL AREAS WITH SOIL PH OF 7.5 OR LESS	Russian wildrye	1/10 to 1/2	1
	Green needlegrass, switchgrass, sheep fescue	1/10 to 1	1
	Meadow brome, smooth brome, alta fescue, red fescue, meadow foxtail, orchardgrass, Russian wildrye, timothy	1/10 to 1	2
	Alkali sacaton, mountain brome, blue grama thickspike wheatgrass	1/10 to 1	1
ALL AREAS WITH SOIL PH OF 7.9 OR LESS	Sideoats grama, switchgrass	1/10 to 1/2	2
	Western wheatgrass	1/10 to 1	2
	Sideoats grama, switchgrass, big bluestem	1/10 to 1	3

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

### IMPORTANT PRECAUTIONS

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

## **WEEDS CONTROLLED**

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

Annual sowthistle  
Aster  
Bahagrass  
Beebalm  
Bittercress  
Bitter sneezeweed  
Blackeyed-susan  
Blue mustard  
Bur buttercup  
Chicory  
Clover  
Cocklebur  
Common chickweed  
Common groundsel  
Common purslane  
Common yarrow  
Conical catchfly  
Corn cockle  
Cow cockle  
Crown vetch  
Dandelion  
Dogfennel  
False chamomile  
Fiddleneck tarweed  
Field pennycress  
Flixweed

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

Blackberry  
Black henbane  
Broom snakeweed\*  
Buckhorn plantain  
Bull thistle  
Common crupina  
Common sunflower  
Curly dock  
Dewberry  
Dyer's woad  
Garlic mustard  
Gorse  
Halogeton  
Henbit

### **1 to 2 ounces per acre**

Common mullein  
Common tansy  
Field bindweed\*\*  
Greasewood  
Gumweed  
Houndstongue  
Lupine  
Old world climbing fern  
(Lygodium)  
Perennial pepperweed  
Poison hemlock

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

Canada thistle\*\*  
Dalmation toadflax\*\*  
Duncecap larkspur  
Russian knapweed\*\*

### **3 to 4 ounces per acre**

Kudzu

Goldenrod  
Lambsquarters  
Marestail/horseweed\*\*\*\*  
Maximillion sunflower  
Miners lettuce  
Pennsylvania smartweed  
Plains coreopsis  
Plantain  
Redroot pigweed  
Redstem filaree  
Rough fleabane  
Shepherd's purse  
Silky crazyweed (locoweed)  
Smallseed falseflax  
Smooth pigweed  
Sweet clover  
Tansymustard  
Treacle mustard  
Tumble mustard  
Wild carrot  
Wild garlic  
Wild lettuce  
Wild mustard  
Wooly croton  
Wood sorrel  
Yankeweed

Honeysuckle  
Multiflora rose and other  
wild roses  
Musk thistle\*\*\*  
Oxeye daisy  
Plumeless thistle  
Prostrate knotweed  
Rosering gaillardia  
Seaside arrowgrass  
Sericea lespedeza  
Tansy ragwort  
Teasel  
Wild caraway

Purple loosestrife  
Purple scabious  
Scotch thistle  
Scouringrush  
Salsify  
Snowberry  
St. Johnswort  
Sulphur cinquefoil  
Western salsify  
Whitetop (hoary cress)  
Wild Iris

Tall larkspur  
Wild parsnip  
Yellow toadflax\*\*

\* 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 Metcel™ VMF herbicide and may be controlled with rates of 1/4 to 1/2 ounce per acre. Treatments of Metcel™ VMF herbicide may be applied from rosette through bloom stages of development.

\*\*\*\* Certain biotypes of marestail/horsetail are less sensitive to Metcel™ VMF herbicide and may be controlled by tank mixes with herbicides with a different mode of action.

## Problem Weed Control

For broader spectrum control and for use on certain biotypes of broadleaf weeds which may be resistant to Metcel™ VMF herbicide and herbicides with the same mode of action, the following tank mixes are recommended.

### Dicamba + 2,4-D

Weed	Rate of Metcel™ VMF Herbicide	Rate of dicamba (fluid ounces/acre)	Rate of 2,4-D (fluid ounces/acre)
Kochia control	1/2	8	16
Spotted knapweed control	1/2	8	16
Rush skeletonweed suppression	1	8	16

## TURF, INDUSTRIAL (UNIMPROVED ONLY)

### Application Information

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

In addition to conventional spray equipment, Metcel™ VMF herbicide may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of Metcel™ VMF herbicide in the water phase. Consult the "Weeds Controlled" table to determine which weeds will be controlled by the following recommendations:

Turf Type	Rate of Metcel™ VMF herbicide (ounces/acre)
Fescue and Bluegrass	1/4 to 1/2
Crested Wheatgrass and Smooth Brome	1/4 to 1
Bermudagrass	1/4 to 2

### Application Timing

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

When a spring application is made on fescue or bluegrass, a second application may be made during the summer after full seedhead maturation.

### Growth Suppression and Seedhead Inhibition

#### (Chemical Mowing)

### Application Information

Metcel™ VMF herbicide 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

Metcel™ VMF herbicide may be tank mixed with "Embark" for improved performance in the regulation of growth and seedhead suppression. Tank mix 1/4 to 1/2 ounce of Metcel™ VMF herbicide 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.

### Fescue Precautions:

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

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

## IMPORTANT PRECAUTIONS

### —INDUSTRIAL TURF ONLY

- An application of Metcel™ VMF herbicide 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 Metcel™ VMF herbicide is applied to turf that is under stress from drought, insects, disease, cold temperatures (winter injury) or poor fertility.
- Metcel™ VMF herbicide is not recommended for use on bahiagrass.

## BRUSH CONTROL

### Application Information

Metcel™ VMF herbicide is recommended for the control of undesirable brush growing in non-crop areas including grazed areas on these sites. 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, Metcel™ VMF herbicide 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, particularly the terminal growing points, is necessary to optimize results.

### BRUSH SPECIES CONTROLLED

Species	High Volume Rate (ounces/100 gallon)	Broadcast Rate (ounces/acre)
Ash	1—2	1—3
Aspen	1—2	1—3
Black locust	1—2	1—3
Blackberry	1—2	1—3
Camelthorn	1—2	1—3
Cherry	1—2	1—3
Cottonwood	1—2	2—3
Eastern red cedar	1—2	2—3
Elder	1—2	2—3
Elm	1—2	1—3
Firs	3	1—2
Hawthorn	1—2	1—3
Honeysuckle	1—2	1/2—1
Mulberry	1—2	2—3
Multiflora rose	1—2	1—3
Muscadine (wild grape)	1—2	2—3
Oaks	1—2	1—3
Ocean spray ( <i>Holodiscus</i> )	1—2	2—3
Osage orange	1—2	2—3
Red maple	1—2	2—3
Salmonberry	1/2—1	1—3
Snowberry	1/2—1	1—3
Spruce (black and white)	3	2—3
Thimbleberry	1/2—1	1—3
Tree of heaven ( <i>Ailanthus</i> )	1—2	1—2
Wild roses	1/2—1	1—3
Willow	1/2—1	1—3
Yellow poplar	1/2—1	1—3

For low volume and ultra-low volume ground applications, mix 4 to 8 ounces of Metcel™ VMF herbicide per 100 gallons of spray solution.

### **Application Timing**

Make a foliar application of the recommended rate of Metcel™ VMF herbicide during the period from full leaf expansion in the spring until the development of full fall coloration on deciduous species to be controlled. Coniferous species may be treated at anytime during the growing season.

### **Spot Treatment**

Metcel™ VMF herbicide is recommended for the control of many species of weeds including noxious/invasive weeds in certain established grasses growing on non-crop areas.

Refer to the "Weeds Controlled" section for a listing of susceptible weed species and the application rate per acre per the target weed.

Or, mix one gram of Metcel™ VMF herbicide per one gallon of water along with a surfactant. Spray to the point of wetting the entire surface of the target weeds, approximately 40 gallons of solution per acre.

### **Tank Mix Combinations—**

Metcel™ VMF herbicide may be tank mixed with any product labeled for non-crop brush control at the application rates specified on the companion product's label for the pests specified on the product's companion label. Read and follow the label instructions of both products when tank mixing. Follow the most restrictive limitations of any of the product labels being tank mixed.

### **Low Rate Applications**

#### **Imazapyr (2 pound active per gallon)**

Combine 1 to 2 ounces of Metcel™ VMF herbicide with 1 to 4 pints of imazapyr 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 Metcel™ VMF herbicide, this combination controls black gum, hophornbeam, sassafras, sweetgum, Vaccinium species, dogwood, myrtle dahoon, hickories, and persimmon.

#### **Picloram (2 pound active per gallon) + Imazapyr (2 pound active per gallon)**

Combine 1 to 1 1/2 ounce of Metcel™ VMF herbicide with 2 to 8 fluid ounces of imazapyr and 1 to 2 pints of picloram per 100 gallons of water. Apply as a high volume spray. This tank mix controls cherry, elms, box elder, maples, hackberry, redbud, ash, oaks (including shingle oak), black locust and sassafras.

\*Picloram is a restricted use pesticide.

### **Spotgun Basal Soil Treatment**

For control of multiflora rose, prepare a spray suspension of Metcel™ VMF herbicide by mixing 1 ounce per gallon of water. Mix vigorously until the Metcel™ VMF herbicide 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 Metcel™ VMF herbicide 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.

## SPRAY EQUIPMENT

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

The selected sprayer should be equipped with an agitation system to keep Metcel™ VMF herbicide 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 Metcel™ VMF herbicide.
3. Continue agitation until the Metcel™ VMF herbicide is fully dispersed, at least 5 minutes.
4. Once the Metcel™ VMF herbicide is fully dispersed, maintain agitation and continue filling tank with water. Metcel™ VMF herbicide 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. Metcel™ VMF herbicide spray preparations are stable if they are pH neutral or alkaline and stored at or below 100° F.
8. If Metcel™ VMF herbicide and a tank mix partner are to be applied in multiple loads, pre-slurry the Metcel™ VMF herbicide in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the Metcel™ VMF herbicide.

## USE PRECAUTIONS

- Do not 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 product may be washed or moved into contact with their roots, as injury or loss of desirable trees or other plants may result
- 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 Metcel™ VMF herbicide may injure or kill most crops. Injury may be more severe when the crops are irrigated. Do not apply Metcel™ VMF herbicide when these conditions are identified and powdery, dry soil or light or sandy soils are known to be prevalent in the area being treated.
- Applications made where runoff water flows onto agricultural land may injure crops. Applications made during periods of intense rainfall, to soils saturated with water, to surfaces paved with materials such as asphalt or concrete, or to soils through which rainfall will not readily penetrate may result in runoff and movement of Metcel™ VMF herbicide. Do not treat frozen soil. Treated soil should be left undisturbed to reduce the potential for Metcel™ VMF herbicide 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.
- When used as directed, there are no grazing or haying restrictions for use rates of 1 2/3 ounce 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.

## SPRAYER CLEANUP

Spray equipment must be cleaned before Metcel™ VMF herbicide 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 Metcel™ VMF 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 an Agsurf-approved cleaner can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions. Consult your agricultural dealer, applicator, or Agsurf 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 Metcel™ VMF herbicide 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.**
- **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 3/4 of the wing or rotor length - longer booms increase drift potential.
- **Application Height** - Application more than 10 ft above the canopy increases the potential for spray drift.

## **BOOM HEIGHT**

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

## **WIND**

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. **AVOID GUSTY OR WINDLESS CONDITIONS.** Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

## **TEMPERATURE AND HUMIDITY**

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

## **TEMPERATURE INVERSIONS**

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

## **SHIELDED SPRAYERS**

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

## **STORAGE AND DISPOSAL**

**Pesticide Storage:** Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place.

**Pesticide Disposal:** Do not contaminate water, food, or feed by disposal. Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal: For Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. **For Fiber Sacks:** Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by State and local authorities. **For Fiber Drums With Liners:** Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner. **For Bags Containing Water Soluble Packets:** Do not reuse the outer box or the resealable plastic bag. When all water-soluble packets are used, the outer packaging should be clean and may be disposed of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by open burning. If burned, stay out of smoke. If the resealable plastic bag contacts the formulated product in any way, the bag must be triple rinsed with clean water. Add the rinsate to the spray tank and dispose of the outer wrap as described above. **For Metal Containers (non aerosol):** Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. **For Paper and Plastic Bags:** Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**NOTICE TO BUYER:** Purchase of this material does not confer any rights under patents of countries outside of the United States.

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**LIMITATION OF  
WARRANTY AND LIABILITY**

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