

DIRECTIONS FOR USE

- It is a violation of Federal law to use this product inconsistent with its labeling.
- This supplemental labeling must be in the possession of the user at the time of pesticide application.
- Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA registered label except as allowed in this supplemental labeling.
- These new uses can be found on the EPA stamped labels dated 4-16-09.
- **State Specific Restrictions:** The state of Arizona has not approved this product for use on agricultural sites. Do not use this product on uses considered by the Arizona statutes to be agricultural uses.

AGRICULTURAL USES CONIFER PLANTATIONS

Application Information

Quali-Pro MSM Turf Herbicide is used to control many species of weeds and deciduous trees on sites where conifers are growing or are to be planted. Apply by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" and "Brush Species Controlled" for a listing of susceptible species.

Application Timing

Apply Quali-Pro MSM Turf 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 Quali-Pro MSM Turf Herbicide specified for the most difficult to control species on the site.

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

Northeast and Lake States--Apply up to 2 oz 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 oz per acre prior to planting Douglas fir, Sitka Spruce, Western Red Cedar, Western Hemlock, Ponderosa Pine, and Grand Fir in the Coast Rangeland and western slope of the Cascades in Oregon and Washington. These conifer species listed can be planted any time after application. Other conifer species can be planted providing the user has prior experience indicating acceptable tolerance to soil residues of this product.

In the absence of prior experience, in order to avoid unacceptable injury, other species should be planted on a small scale to determine safety before large-scale plantings are made. Makhteshim Agan of North America, Inc will not be responsible for injury to any conifers not listed on this label.

Tank Mix Combinations

For broader spectrum control the following products may be used in combination with MSM Turf Herbicide.

Accord²

Tank mix 1 to 2 ounces of Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide 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, hophorn beam, persimmon, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, and red maple.

Accord² + Arsenal¹ Applicators Concentrate

Tank mix ½ to 1 ounce of Quali-Pro MSM Turf Herbicide with 16 to 64 fluid ounces of Accord and 10 to 12 fluid ounces of Arsenal Applicator's Concentrate per acre. Slash and loblolly pines may be transplanted the planting season following application. The combination controls cherry, dogwood, elms, oaks (red and water), persimmon, sassafras, sweetgum and suppresses hickory.



SUPPLEMENTAL LABELING

Quali-Pro MSM Turf

Herbicide

EPA Reg. No. 66222-146-73220

VELPAR[®] L or VELPAR[®] DF

Tank mix 1 to 2 ounces of Quali-Pro MSM Turf Herbicide per acre with VELPAR L or VELPAR DF at the rates specified on the container for various soil textures. Loblolly and slash pines may be transplanted the planting season following application. Refer to the product container for a list of species controlled.

OUST EXTRA⁷ (or Generic Sulfometuron Methyl)

Tank mix ½ to 1 ½ ounces of Quali-Pro MSM Turf Herbicide with 2 to 3 ounces of OUST EXTRA⁷ (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 Quali-Pro MSM Turf Herbicide with 3 ounces of OUST EXTRA⁷ (or generic equivalent) 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

Quali-Pro MSM Turf Herbicide is used for application over the top of established slash and loblolly pine to control the species listed in "Weeds Controlled" and "Brush Species Controlled" section of this label. Apply 1 to 4 ounces per acre to control the species indicated, including kudzu.

Tank Mix Combinations

For broader spectrum control the following products may be used in combination with MSM Turf Herbicide.

Arsenal Applicator's Concentrate

A tank mix of 1 to 2 ounces of Quali-Pro MSM Turf Herbicide with 8 to 16 fluid ounces of Arsenal Applicator's Concentrate per acre may be applied to loblolly pine. Refer to the Arsenal Applicator's Concentrate label regarding the use of surfactants and the appropriate application timing with respect to the age and development stage of the pines. The combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbeam, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, persimmon, and red maple.

VELPAR[®] L or VELPAR[®] DF

Tank mix 1 to 2 ounces of Quali-Pro MSM Turf Herbicide with VELPAR L OR VELPAR DF at the rates specified on the container for various soil textures. The combination may be applied to loblolly and slash pines.

Release

Herbaceous Weed Control

Quali-Pro MSM Turf Herbicide 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 specified application rates. Best results are obtained when Quali-Pro MSM Turf Herbicide is applied just before weed emergence until shortly after weed emergence.

Tank Mix Combinations

For broader spectrum control the following products may be used in combination with MSM Turf Herbicide:

Arsenal Applicators Concentrate¹

Tank mix 1/2 to 1 ounce of Quali-Pro MSM Turf Herbicide with 4 ounces of Arsenal Applicators Concentrate per acre. The tank mix may be used on loblolly pine.

OUST XP⁷

Tank mix 1/2 to 1 ½ ounces of A Quali-Pro MSM Turf Herbicide with 2 to 3 ounces of OUST XP⁷ (or generic equivalent) per acre. Best results are obtained when Quali-Pro MSM Turf Herbicide is applied just before weed emergence until shortly after weed emergence. The tank mix may be used on loblolly and slash pine.

VELPAR[®] L or VELPAR[®] DF

Tank mix 1/2 to 1 ounce of Quali-Pro MSM Turf Herbicide with VELPAR[®] L or VELPAR[®] DF at the rates specified on the container for various soil textures. The combination may be applied to loblolly and slash pines.

IMPORTANT PRECAUTIONS-CONIFER PLANTATIONS ONLY

- Applications of Quali-Pro MSM Turf 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 Quali-Pro MSM Turf 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.

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The logo for Quali-Pro, featuring the brand name in a bold, italicized, sans-serif font. The text is white and set against a dark green background that has a curved, banner-like shape.

SUPPLEMENTAL LABELING
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EPA Reg. No. 66222-146-73220

- Do not apply Quali-Pro MSM Turf Herbicide to conifers grown as ornamentals.
- Quali-Pro MSM Turf 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 section for conifer plantations.



SUPPLEMENTAL LABELING

Quali-Pro MSM Turf

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EPA Reg. No. 66222-146-73220

HARDWOOD PLANTATIONS

Application Information

Quali-Pro MSM Turf Herbicide may be used to control many species of weeds on sites where yellow poplar is growing or is to be planted, and on sites where red alder is to be planted. Apply at up to 2 ounces per acre by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" sections of this label for a listing of susceptible species.

Application Timing

This product may be applied as a site preparation treatment prior to planting red alder or yellow poplar, and may also be applied as a pre-planting site preparation treatment for red alder in tank mixes with other herbicides labeled for this use.

Quali-Pro MSM Turf Herbicide may also be applied over the top of planted yellow poplar seedlings after the soil has settled around the root systems but before the seedlings have broken dormancy (prior to bud break).

Release

Herbaceous Weed Control

Quali-Pro MSM Turf 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 specified application rates. Best results are obtained when Quali-Pro MSM Turf Herbicide is applied just before weed emergence until shortly after weed emergence.

Tank Mix Combinations

Tank mix 1/2 ounce of Quali-Pro MSM Turf Herbicide with 4 to 6 pints of VELPAR[®] L as directed on the package label for "RELEASE-HERBACEOUS WEED CONTROL" in pine plantations in the eastern U.S. Follow the VELPAR[®] L label instructions regarding altering the application rate by soil texture.

IMPORTANT PRECAUTIONS--HARDWOOD PLANTATIONS ONLY

- Application of VELPAR[®] L and Quali-Pro MSM Turf 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 Quali-Pro MSM Turf 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.
- A surfactant may not be used for applications made over the tops of trees.
- Careful consideration must be given by an experienced and knowledgeable forester to match the requirements of yellow poplar to the conditions of the site. Treatment of yellow poplar planted on a site inadequate to meet its requirements may injure or kill the seedlings.

NON-AGRICULTURAL USES

WEEDS CONTROLLED

1/3 to 1/2 ounce per acre

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

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Field pennycress
Flixweed

Wood sorrel
Yankee weed

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
Gorse
Halogeton
Henbit

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

1 to 2 ounces per acre

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

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

1 1/2 to 2 ounces per acre

Canada thistle**
Dalmatian toadflax**
Duncecap larkspur
Russian knapweed**

Tall larkspur
Wild parsnip
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 Quali-Pro MSM Turf Herbicide and may be controlled with rates of 1/4 to 1/2 ounce per acre. Treatments of Quali-Pro MSM Turf Herbicide may be applied from rosette through bloom stages of development.

**** Certain biotypes of maretail/horsetail are less susceptible to Quali-Pro MSM Turf Herbicide and may be controlled by tank mixes with herbicides with a different mode of action.

Tank Mix Combinations for Problem Weed Control

For broader spectrum control and for use on certain biotypes of broadleaf weeds which may be resistant to Quali-Pro MSM Turf Herbicide and herbicides with the same mode of action, the following tank mixes may be used:

Dicamba + 2,4-D

Combine 1/2 ounce of Quali-Pro MSM Turf Herbicide with 8 fluid ounces of dicamba and 16 fluid ounces of 2,4-D for the control of kochia.

Combine 1/2 ounce of Quali-Pro MSM Turf Herbicide with 8 ounces of dicamba and 16 fluid ounces of 2,4-D for the control of spotted knapweed.

Combine 1 ounce of Quali-Pro MSM Turf Herbicide with 8 fluid ounces of dicamba and 16 fluid ounces of 2,4-D for the suppression of rush skeletonweed.

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NONCROP (INDUSTRIAL) SITES

Application Information

Quali-Pro MSM Turf Herbicide may be used for general weed and brush control on non-crop and outdoor 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 governmental and private lands. It may also be used for the control of certain noxious and troublesome weeds.

Consult the "Weeds Controlled" and "Brush Species Controlled" tables to determine the appropriate application rate.

Quali-Pro MSM Turf 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.

Application Timing

For best results, Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide to non-crop areas, the treated sites may be replanted with various species of grasses at the intervals specified below.

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

Species	Quali-Pro MSM Turf Herbicide 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
	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	Quali-Pro MSM Turf Herbicide Rate oz/a	Replant Interval (months)
Alkali Sacaton	1/2 - 1	1
	1 - 2	3
Bluestem, Big	1/2 - 1	3
Brome, Mountain	1/2 - 1	1
	1 - 2	2
Gamma, Blue	1/2 - 2	1



SUPPLEMENTAL LABELING
Quali-Pro MSM Turf
Herbicide
EPA Reg. No. 66222-146-73220

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 specified intervals are for applications made in the Spring to early Summer. Because Quali-Pro MSM Turf 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 MSM Turf Herbicide. If species other than those listed above are to be planted into areas treated with Quali-Pro MSM Turf Herbicide 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

Quali-Pro MSM Turf Herbicide may be used for selective weed control in unimproved industrial turf where certain grasses are well established and desired as ground cover. Quali-Pro MSM Turf Herbicide may also be used for the control of certain noxious and troublesome weeds in turf.

In addition to conventional spray equipment, Quali-Pro MSM Turf Herbicide may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of Quali-Pro MSM Turf Herbicide in the water phase.

Consult the "Weeds Controlled" table to determine which weeds will be controlled by the following specified rates.

Fescue and Bluegrass

Apply 1/4 to 1/2 ounce of Quali-Pro MSM Turf Herbicide per acre.

Crested Wheatgrass and Smooth Brome

Apply 1/4 to 1 ounce of Quali-Pro MSM Turf Herbicide per acre

Bermudagrass

Apply 1/4 to 2 ounces of Quali-Pro MSM Turf Herbicide 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

Quali-Pro MSM Turf Herbicide may be used 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

Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf 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:

This product 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 of Quali-Pro MSM Turf Herbicide per acre
- Use a tank mix with 2,4-D
- Use the lowest specified rate for the target weeds
- Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution



SUPPLEMENTAL LABELING
Quali-Pro MSM Turf
 Herbicide
 EPA Reg. No. 66222-146-73220

- 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 if liquid nitrogen is used as a carrier
- Do not use a spray adjuvant unless it is a non-ionic surfactant

Yields from the first cutting may be reduced.

IMPORTANT PRECAUTIONS--INDUSTRIAL TURF ONLY

- An application of Quali-Pro MSM Turf Herbicide may cause temporary discoloration (chlorosis) of the grasses. Use the lower specified 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 Quali-Pro MSM Turf Herbicide is applied to turf that is under stress from drought, insects, disease, cold temperatures (winter injury) or poor fertility.
- Quali-Pro MSM Turf Herbicide is not for use on bahiagrass.

NATIVE GRASSES

Quali-Pro MSM Turf Herbicide may be used 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 Quali-Pro MSM Turf 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 this herbicide. Consult with your state experiment station, university, or extension agent or other local experts as to sensitivity to this herbicide. If inadequate information is available, limit the initial use of this product to a small area. The types of grass in a grass seed mixture will vary in tolerance to this product, so the grasses in the final stand may not reflect the same ratio as in the seed mix.

Do not apply to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, disease or insect damage as grass injury may result. Severe winter stress, drought, disease or insect damage before or following application also may result in grass injury.

RANGELAND

This product can be used to control broadleaf weeds in forage grasses growing in rangeland. It may also be tank-mixed with other pesticides labeled for use on rangeland. Read and follow the labels on all products used in a tank mix, and observe the most restrictive precautions on each product's label.

This product may be applied to rangeland by air or ground. Use an adequate spray volume to obtain thorough coverage of the target weeds. In Idaho, Oregon, and Washington states, use at least 3 gallons of spray solution per acre.

WHEN ESTABLISHING GRASS IN RANGELAND

Quali-Pro MSM Turf Herbicide can be used to control or suppress broadleaf weeds when establishing the following grasses planted in rangeland:

Blue Grama	Sideoats grama
Bluestems-	Switchgrass-
Big	Blackwell
Little	Wheatgrasses-
Plains	bluebunch
Sand	crested
WW spar	intermediate



SUPPLEMENTAL LABELING
Quali-Pro MSM Turf
 Herbicide
 EPA Reg. No. 66222-146-73220

Buffalograss	pubescent
Green sprangletop	Siberian
Kleingrass	slender
Lovegrasses-	steambank
Atherstone	tall
Sand	thickspike
Weeping	western
Wilman	Wildgrass-
Orchardgrass	Russian

If you need more information or advice, consult with the Natural Resource and Conservation Service, other government agencies or local experts.

Newly planted grasses often cannot compete effectively with weeds, and because of the severity of weed pressure in new grass stands, Quali-Pro MSM Turf Herbicide alone may not provide satisfactory results. An additional herbicide application or mowing may be necessary.

**Establishing Grass in Rangeland:
 Prior to Planting (Pre-Plant) or After Planting but Prior to Grass Emergence (Pre-Emergence)**

Do not use more than 1/10 ounce Quali-Pro MSM Turf Herbicide per acre when establishing grass in rangeland.

Use 1/10 ounce/acre Pre-Plant on all labeled grasses except orchardgrass and Russian wildrye grass.

Do not apply Pre-Plant or Pre-Emergence to orchardgrass or Russian wildrye grass as severe crop injury may result.

Early Post-Emergence to New Plantings

Use 1/10 ounce/acre, plus a non-ionic surfactant (at 2 to 4 pints/100 gallons of spray solution) on all labeled grasses any time after grass emergence.

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

Postemergence to Stands With 1 to 5 Leaf Grasses Planted the Previous Season

Apply at 1/10 ounce per acre plus a non-ionic surfactant at the rate of 2 to 4 pints/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 a non-ionic surfactant.

APPLICATION TO ESTABLISHED GRASSES IN RANGELAND

Rates

Use up to 1 ounce Quali-Pro MSM Turf Herbicide per acre as a broadcast spray when applying to established grasses in rangeland. For Spot Applications, use 1 ounce per 100 gallons of water. Do not apply more than 1 2/3 ounces per acre per year.

Refer to "Weeds Controlled" for a listing of weeds controlled and appropriate rates.

Timing

Apply to established native grasses such as bluestems and grama, and on other established grasses such as bermudagrass, bluegrass, bromegrass, fescue, orchardgrass and timothy that were planted during the previous growing season or earlier and are fully tillered, unless otherwise directed on this label. Timing information for application to several of these grass species are as follows:

Grass	Minimum Time from Grass Establishment to Application
Bermudagrass	2 months
Bluegrass, Bromegrass, Orchardgrass	6 months
Timothy	12 months
Fescue	24 months

Precautions:

Fescue:

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

- Do not use more than 4/10 ounce/acre
- Use a tank mix with 2,4-D



SUPPLEMENTAL LABELING
Quali-Pro MSM Turf
 Herbicide
 EPA Reg. No. 66222-146-73220

- Use the lowest specified rate for the 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 apply in the fall
- Do not use a surfactant if liquid nitrogen is used as a carrier
- Do not use a spray adjuvant unless it is a non-ionic surfactant

Yields from the first cutting may be reduced.

Timothy:

Do not apply unless timothy is at least 6 inches tall and actively growing, or crop yellowing and/or stunting may occur. To minimize these effects, observe the following:

- Do not use more than 4/10 ounce/acre
- Use a tank mix with 2,4-D
- Use the lowest specified rate for the target weeds
- Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution
- Make applications in the late summer or fall
- Do not use a surfactant if liquid nitrogen is used as a carrier
- Do not use a spray adjuvant unless it is a non-ionic surfactant

Other Rangeland Grasses:

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

Forage grasses differ in their tolerance to this product. When treating a particular grass with Quali-Pro MSM Turf Herbicide for the first time, use only on a small area. Larger areas may be treated the next season if no injury occurs.

Broadleaf forages such as alfalfa and clover will be severely stunted or damaged by treatment with MSM Turf Herbicide.

CROP ROTATION CONSIDERATIONS

To maintain flexibility in crop rotation plans, do not treat your entire pasture, rangeland or CRP acreage with this product at the same time.

Rotation Intervals

Minimum crop rotation intervals depend on breakdown rates of this product in the soil of treated areas. A number of conditions affect the breakdown rate, including soil moisture, soil temperature, soil pH, and soil microorganisms present. The rate of breakdown is faster in soils with low pH, high soil temperature and high soil moisture and is slower in soils with high pH, low soil temperature and low soil moisture. While soil pH remains relatively constant, soil temperature and soil moisture can vary from time to time and area to area, and these conditions should be monitored when making crop rotation decisions.

The minimum crop rotation interval from the last application of this product until the next planting date are shown below:

**Minimum Rotation Intervals
 (Pasture, Rangeland, and CRP for Overseeding and Renovation)**

Location	Crop/Grass	Maximum Rate Used (oz/ac)	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, oats	1/10 to 3/10	10
All Other States	Red clover, white clover, sweet clover	1/10 to 2/10	12
	Bermudagrass, bluegrass, ryegrass	1/10 to 2/10	6



SUPPLEMENTAL LABELING
Quali-Pro MSM Turf
 Herbicide
 EPA Reg. No. 66222-146-73220

Location	Crop/Grass	Maximum Rate Used (oz/ac)	Minimum Rotation Interval (months)
	Tall fescue	1/10 to 2/10	18
	Wheat (except durum)	1/10 to 2/10	1
	Durum, barley, oats	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
All Areas With Soil pH of 7.9 Or Less	Alkali sacaton, mountain brome, blue grass, thickspike wheatgrass	1/10 to 1	1
	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

Important Soil pH Limitations

This product should not be used on soils with a pH above 7.9 because soil residues will not break down quickly and could remain in the soil for 34 months or more, injuring wheat, barley and other crops.

Before using, check soil pH by taking several soil samples at a depth of 0 to 4 inches from representative areas of the field. Analyze the samples separately for pH value. If needed, obtain additional information on soil sampling procedures from your local extension service or local experts.

BIOASSAY PROCEDURES

Conduct a field bioassay on treated soils before planting a rotated crop or grass species not listed in the Rotation Interval table above, or if the soil pH is above 7.9, or if use rates other than those listed in the Rotation Interval table above were used. Plant test strips of the crops or grasses that you plan to grow the following year in treated fields and observe crop response. Do not plant until the test strips demonstrate that the crop response is acceptable. Consult local experts for further information.

GRAZING AND HAYING RESTRICTIONS:

NONE. However, coveralls and shoes plus socks must be worn if cutting within 4 hours of treatment.

RANGELAND PRECAUTIONS:

- Do not apply more than 1 2/3 ounces per acre per year.
- Limit the initial use of this product to small areas unless local response to this herbicide by the grass species or variety is known.
- Grass seed mixtures will vary in tolerance to this product, so final stands may not reflect the same ratio as in the seed mix.
- Do not apply to grass that is stressed by severe weather conditions, drought, low fertility, disease, insect damage, or water saturated soils, as injury is likely. Stress by these factors following application may also cause injury.
- This product may injure legumes that are undersown in rangeland or are found in seeding mixtures.
- When applying by ground to dry, dusty fields, control in the wheel-track areas may be reduced. Tank mixtures with 2,4-D or MCPA often improve weed control in such situations.
- Do not apply this product in California or on the following counties in Colorado: Alamosa, Conejos, Costilla, Rio Grande, and Saguache.



SUPPLEMENTAL LABELING

Quali-Pro MSM Turf

Herbicide

EPA Reg. No. 66222-146-73220

BRUSH CONTROL

Application Information

Quali-Pro MSM Turf Herbicide may be used for the control of undesirable brush growing in non-crop areas. Applications may be made by air, high volume ground application, low volume ground application and ultra-low volume ground application. Except as noted for multiflora rose, Quali-Pro MSM Turf 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 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
	Quali-Pro MSM Turf Herbicide Rate oz/100 gal	Quali-Pro MSM Turf Herbicide 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 (<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
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 Quali-Pro MSM Turf Herbicide per 100 gallons of spray solution.

Application Timing

Make a foliar application of the specified rate of Quali-Pro MSM Turf 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.

Tank Mix Combinations

Accord²

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide with 1 to 4 pints of Arsenal Herbicide per acre and apply as a broadcast spray. Aerial application should use a minimum of 15 gallon per acre spray volume. In addition to species listed above controlled by MSM Turf Herbicide,



SUPPLEMENTAL LABELING
Quali-Pro MSM Turf
Herbicide
EPA Reg. No. 66222-146-73220

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 Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide 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 ounce of Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide by mixing 1 ounce per gallon of water. Mix vigorously until the Quali-Pro MSM Turf 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 Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide 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 Quali-Pro MSM Turf Herbicide can kill or severely injure most agricultural crops. The selected sprayer should be equipped with an agitation system to keep Quali-Pro MSM Turf 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 MSM Turf Herbicide.
3. Continue agitation until the Quali-Pro MSM Turf Herbicide is fully dispersed, at least 5 minutes.
4. Once the Quali-Pro MSM Turf Herbicide is fully dispersed, maintain agitation and continue filling tank with water. Quali-Pro MSM Turf 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. Metsulfuron Methyl spray preparations are stable if they are pH neutral or alkaline and stored at or below 100°F.
8. If Quali-Pro MSM Turf Herbicide and a tank mix partner are to be applied in multiple loads, pre-slurry the Quali-Pro MSM Turf Herbicide in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the Quali-Pro MSM Turf Herbicide.



SUPPLEMENTAL LABELING
Quali-Pro MSM Turf
Herbicide
EPA Reg. No. 66222-146-73220

SPRAYER CLEANUP

Spray equipment must be cleaned before Quali-Pro MSM Turf 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 Quali-Pro MSM Turf Herbicide are applied, 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) specified 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 specified 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:

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

Note to User: Use this supplemental label only in states where the product is registered. For a listing of registered states, go to <http://www.quali-pro.com/>.

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