

## Phytotoxicity to ornamental horticulture plants from tools to manage broadleaf weeds and sedges.

### Ornamental Protocol Number: 06-010

**Objective:** Determine phytotoxicity of Manage (halosulfuron), Sulfentrazone 0.2G, and V-10142 to unlabelled perennial plants commonly grown in nurseries.

### Experimental Design:

**Plot Size:** Must be adequate to reflect actual use conditions.

**Replicates:** Minimum of 3 replications (preferably 4) with 3 plants per replicate

**Application Instructions:** Apply first application over the top of plants just breaking dormancy or, under climates where plants do not go totally dormant, apply prior to active growth in the spring. See table for product specific information.

**Plant Materials:** See attached list of plant materials. Plants grown in field containers are preferred to in-ground.

**Evaluations:** Record plant height & width at initial and final evaluations. At 1, 2, and 4 weeks after each application, record phytotoxicity on a scale of 0 to 10 (0 = No phytotoxicity; 10 = Complete kill). If appropriate, also include ratings for chlorosis, defoliation, stunting or other growth effects on a scale of 0 to 10 (0 = No effect; 10 = Complete plant affected). If any phytotoxicity is observed in treated plants, take pictures comparing treated and untreated plant material.

*If different application methods or evaluations are made, please clearly specify differences in final report and explain how they enhanced results.*

**Recordkeeping:** Keep detailed records of weather conditions including temperature and precipitation, soil-type or soil-less media, application equipment, irrigation, liner size, plant height & width, and plant growth stage at application and data collection dates.

### Treatments:

Product	Rate	Special Instructions	Contact Information to obtain materials and any needed adjuvants
Sedgehammer 75WG (halosulfuron)	1 oz per acre (0.047 lb ai)	Always use 0.25% v/v of a non ionic surfactant. If severe phyto symptoms do not occur and where feasible apply a second application 4-6 weeks later at identical rates.	Kory Wheeler 928-819-1592 <a href="mailto:Kwheeler@gowanco.com">Kwheeler@gowanco.com</a>
	2 oz per acre (0.094 lb ai)		
	4 oz per acre (0.188 lb ai)		
Sulfentrazone 0.2G (sulfentrazone – 0.2% active)	0.125 lb ai/acre	2 applications on a 4 week interval	FMC, Bobby Walls, 919-735-3862, <a href="mailto:bobby_walls@fmc.com">bobby_walls@fmc.com</a>
	0.25 lb ai/acre		
	0.5 lb ai/acre		
V-10142 75WG	0.5 lb ai/acre	2 applications on a 4 week interval	Valent, Joe Chamberlin, 770-985-0303, <a href="mailto:jcham@valent.com">jcham@valent.com</a>
	1.0 lb ai/acre		
	2.0 lb ai/acre		
Untreated	--	--	
Comparison Treatment			
Sulfentrazone 4F	4 fl oz per acre (0.125 lb ai/acre)	2 applications on a 4 week interval	FMC, Bobby Walls, 919-735-3862, <a href="mailto:bobby_walls@fmc.com">bobby_walls@fmc.com</a>
	8 fl oz per acre (0.25 lb ai/acre)		
	16 fl oz per acre (0.5 lb ai/acre)		

### Reports:

Reports must include:

Results summary (no more than one page)

Summary table with appropriate statistical analyses

Experimental design and materials and methods

Appendices: raw data and recordkeeping information as listed above

If pictures were taken, please include them.

A report submitted electronically is preferred but not required. If the report is provided electronically, the basic report can be sent in MS Word or WordPerfect, the recordkeeping information as pdf or other electronic documents, and the raw data in MS Excel or other suitable program such as ARM.

**Please direct questions to:** Cristi Palmer, IR-4 HQ, Rutgers University, 681 US Hwy 1 S, North Brunswick, NJ 08902-3390, Phone 732-932-9575 x629, [palmer@aesop.rutgers.edu](mailto:palmer@aesop.rutgers.edu) **OR** Ely Vea, 308 Aston Forest Lane, Crownsville, MD 21032, Phone & FAX#: 410-923-4880, E-mail: [evvea@comcast.net](mailto:evvea@comcast.net).

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Revised By: CLP

## Crop List

Crop		Product		Production Site	PRNumber	Priority	# of Trials Needed
Common Name	Latin Name	Trade Name	Active Ingredient				
Azalea, & Rhododendron	<i>Rhododendron sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field In-Ground	12114	A	1
Azalea, & Rhododendron	<i>Rhododendron sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	24533	A	
Baby's-Breath	<i>Gypsophila elegans</i>	SedgeHammer	Halosulfuron	Field In-Ground	13738	A	3
Baby's-Breath	<i>Gypsophila elegans</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25358	A	3
Boxwood	<i>Buxus sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25322	A	2
Bridal-Wreath	<i>Spiraea sp.</i>	SedgeHammer	Halosulfuron	Field Container	25341	A	3
Bridal-Wreath	<i>Spiraea sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25361	A	3
Fir, Douglas	<i>Pseudotsuga menziesii</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25357	A	3
Holly	<i>Ilex sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	24531	A	2
Holly, Dwarf Yaupon	<i>Ilex vomitoria 'nana'</i>	SedgeHammer	Halosulfuron	Field Container	25426	A	3
Holly, Dwarf Yaupon	<i>Ilex vomitoria 'nana'</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25427	A	3
Jasmine, Asian	<i>Trachelospermum asiaticum</i>	SedgeHammer	Halosulfuron	Field Container	25339	A	3
Maple, Red	<i>Acer rubrum</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25359	A	3
Rose	<i>Rosa sp.</i>	SedgeHammer	Halosulfuron	Field Container	25340	A	3
Rose	<i>Rosa sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25360	A	3
Arborvitae	<i>Thuja sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25362	B	3
Arborvitae	<i>Thuja sp.</i>	V-10142	V-10142	Field Container	25396	B	3
Azalea, & Rhododendron	<i>Rhododendron sp.</i>	V-10142	V-10142	Field Container	25383	B	3
Baby's-Breath	<i>Gypsophila elegans</i>	V-10142	V-10142	Field Container	25386	B	3
Boxwood	<i>Buxus sp.</i>	V-10142	V-10142	Field Container	25384	B	3
Bridal-Wreath	<i>Spiraea sp.</i>	V-10142	V-10142	Field Container	25392	B	3
Cherry (Non-Bearing)	<i>Prunus sp.</i>	SedgeHammer	Halosulfuron	Field Container	13735	B	3
Cherry (Non-Bearing)	<i>Prunus sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25369	B	3
Cherry (Non-Bearing)	<i>Prunus sp.</i>	V-10142	V-10142	Field Container	25406	B	3
Coneflower, Orange	<i>Rudbeckia fulgida speciosa</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25370	B	3
Coneflower, Orange	<i>Rudbeckia fulgida speciosa</i>	V-10142	V-10142	Field Container	25407	B	3
Craneberry-bush	<i>Viburnum trilobum</i>	SedgeHammer	Halosulfuron	Field Container	25458	B	3
Craneberry-bush	<i>Viburnum trilobum</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25453	B	3
Craneberry-bush	<i>Viburnum trilobum</i>	V-10142	V-10142	Field Container	25411	B	3
Daylily	<i>Heemerocallis sp.</i>	V-10142	V-10142	Field Container	25395	B	3
Euonymus	<i>Euonymus sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25007	B	2
Euonymus	<i>Euonymus sp.</i>	V-10142	V-10142	Field Container	25399	B	3

Crop		Product		Production Site	PRNumber	Priority	# of Trials Needed
Common Name	Latin Name	Trade Name	Active Ingredient				
Fernbush	<i>Chamaebatiaria sp.</i>	SedgeHammer	Halosulfuron	Field Container	25344	B	3
Fernbush	<i>Chamaebatiaria sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25365	B	3
Fernbush	<i>Chamaebatiaria sp.</i>	V-10142	V-10142	Field Container	25400	B	3
Fir, Douglas	<i>Pseudotsuga menziesii</i>	V-10142	V-10142	Field Container	25385	B	3
Fir, Fraser	<i>Abies fraseri</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25366	B	3
Fir, Fraser	<i>Abies fraseri</i>	V-10142	V-10142	Field Container	25401	B	3
Hellebore, Christmas rose, Lenten Rose	<i>Helleborus niger</i>	SedgeHammer	Halosulfuron	Field Container	25345	B	3
Hellebore, Christmas rose, Lenten Rose	<i>Helleborus niger</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25367	B	3
Hellebore, Christmas rose, Lenten Rose	<i>Helleborus niger</i>	V-10142	V-10142	Field Container	25402	B	3
Holly	<i>Ilex sp.</i>	V-10142	V-10142	Field Container	25388	B	3
Holly, Dwarf Yaupon	<i>Ilex vomitoria 'nana'</i>	V-10142	V-10142	Field Container	25428	B	3
Hosta	<i>Hosta sp.</i>	SedgeHammer	Halosulfuron	Field Container	25008	B	2
Hosta	<i>Hosta sp.</i>	V-10142	V-10142	Field Container	25403	B	3
Hydrangea, French	<i>Hydrangea macrophylla</i>	V-10142	V-10142	Field Container	25387	B	3
Jasmine, Asian	<i>Trachelospermum asiaticum</i>	V-10142	V-10142	Field Container	0	B	3
Juniper	<i>Juniperus sp.</i>	V-10142	V-10142	Field Container	25389	B	3
Lily, Easter	<i>Lilium longiflorum</i>	SedgeHammer	Halosulfuron	Field Container	25343	B	3
Lily, Easter	<i>Lilium longiflorum</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25364	B	3
Lily, Easter	<i>Lilium longiflorum</i>	V-10142	V-10142	Field Container	25398	B	3
Maple, Red	<i>Acer rubrum</i>	V-10142	V-10142	Field Container	25390	B	3
Mexican Heather, False Heather, Elfin Herb	<i>Cuphea hyssopifolia</i>	SedgeHammer	Halosulfuron	Field Container	25346	B	3
Mexican Heather, False Heather, Elfin Herb	<i>Cuphea hyssopifolia</i>	Sulfentrazone 0.2G	Sulfentrazone	Field In-Ground	25293	B	2
Mexican Heather, False Heather, Elfin Herb	<i>Cuphea hyssopifolia</i>	V-10142	V-10142	Field Container	25404	B	3
Oak, Northern Red	<i>Quercus rubra</i>	SedgeHammer	Halosulfuron	Field Container	25459	B	3
Oak, Northern Red	<i>Quercus rubra</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25460	B	3
Oak, Northern Red	<i>Quercus rubra</i>	V-10142	V-10142	Field Container	25462	B	3
Periwinkle	<i>Vinca sp.</i>	SedgeHammer	Halosulfuron	Field Container	25017	B	2
Periwinkle	<i>Vinca sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25018	B	2
Periwinkle	<i>Vinca sp.</i>	V-10142	V-10142	Field Container	25409	B	3
Rose	<i>Rosa sp.</i>	V-10142	V-10142	Field Container	25391	B	3
Sage, Ramona	<i>Salvia sylvestris</i>	SedgeHammer	Halosulfuron	Field Container	25348	B	3

Crop		Product		Production Site	PRNumber	Priority	# of Trials Needed
Common Name	Latin Name	Trade Name	Active Ingredient				
Sage, Ramona	<i>Salvia sylvestris</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25371	B	3
Sage, Ramona	<i>Salvia sylvestris</i>	V-10142	V-10142	Field Container	25408	B	3
Spruce, Norway	<i>Picea abies</i>	SedgeHammer	Halosulfuron	Field Container	25347	B	3
Spruce, Norway	<i>Picea abies</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25368	B	3
Spruce, Norway	<i>Picea abies</i>	V-10142	V-10142	Field Container	25405	B	3
Viburnum juddii	<i>Viburnum juddii</i>	SedgeHammer	Halosulfuron	Field Container	25457	B	3
Viburnum juddii	<i>Viburnum juddii</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25452	B	3
Viburnum juddii	<i>Viburnum juddii</i>	V-10142	V-10142	Field Container	25410	B	3
Viburnum, arrowwood	<i>Viburnum dentatum</i>	SedgeHammer	Halosulfuron	Field In-Ground	12461	B	3
Viburnum, arrowwood	<i>Viburnum dentatum</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25451	B	3
Viburnum, arrowwood	<i>Viburnum dentatum</i>	V-10142	V-10142	Field Container	25394	B	3
White Iceplant	<i>Delosperma alba</i>	SedgeHammer	Halosulfuron	Field Container	25342	B	3
White Iceplant	<i>Delosperma alba</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25363	B	3
White Iceplant	<i>Delosperma alba</i>	V-10142	V-10142	Field Container	25397	B	3
Yew	<i>Taxus sp.</i>	SedgeHammer	Halosulfuron	Greenhouse	21431	B	3
Yew	<i>Taxus sp.</i>	V-10142	V-10142	Field Container	25393	B	3
Abelia	<i>Abelia sp.</i>	SedgeHammer	Halosulfuron	Field Container	13670	C	3
Abelia	<i>Abelia sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25372	C	3
Abelia	<i>Abelia sp.</i>	V-10142	V-10142	Field Container	25412	C	3
Apple & Crabapple (Non-Bearing)	<i>Malus sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25376	C	3
Apple & Crabapple (Non-Bearing)	<i>Malus sp.</i>	V-10142	V-10142	Field Container	25416	C	3
Birch	<i>Betula sp.</i>	SedgeHammer	Halosulfuron	Field In-Ground	13710	C	2
Birch	<i>Betula sp.</i>	SedgeHammer	Halosulfuron	Field Container	25349	C	3
Birch	<i>Betula sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25373	C	3
Birch	<i>Betula sp.</i>	V-10142	V-10142	Field Container	25413	C	3
Canna	<i>Canna sp.</i>	SedgeHammer	Halosulfuron	Field Container	25350	C	3
Canna	<i>Canna sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25374	C	3
Canna	<i>Canna sp.</i>	V-10142	V-10142	Field Container	25414	C	3
Cape Jasmine, Radicans	<i>Gardenia augusta 'Radicans'</i>	SedgeHammer	Halosulfuron	Field Container	25352	C	3
Cape Jasmine, Radicans	<i>Gardenia augusta 'Radicans'</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25378	C	3
Cape Jasmine, Radicans	<i>Gardenia augusta 'Radicans'</i>	V-10142	V-10142	Field Container	25419	C	3
Coneflower, Orange	<i>Rudbeckia fulgida speciosa</i>	SedgeHammer	Halosulfuron	Field Container	20860	C	3

Crop		Product		Production Site	PRNumber	Priority	# of Trials Needed
Common Name	Latin Name	Trade Name	Active Ingredient				
Cotoneaster	<i>Cotoneaster sp.</i>	SedgeHammer	Halosulfuron	Field Container	13655	C	3
Cotoneaster	<i>Cotoneaster sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25375	C	3
Cotoneaster	<i>Cotoneaster sp.</i>	V-10142	V-10142	Field Container	25415	C	3
English Ivy	<i>Hedera helix L. ssp. Helix</i>	SedgeHammer	Halosulfuron	Field Container	25004	C	2
English Ivy	<i>Hedera helix L. ssp. Helix</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25005	C	2
English Ivy	<i>Hedera helix L. ssp. Helix</i>	V-10142	V-10142	Field Container	25418	C	3
Hosta	<i>Hosta sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25009	C	2
Jasmine, Asian	<i>Trachelospermum asiaticum</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25356	C	3
Juniper	<i>Juniperus sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	24532	C	1
Leadwort, Cape	<i>Plumbago auriculata</i>	SedgeHammer	Halosulfuron	Field Container	25355	C	3
Leadwort, Cape	<i>Plumbago auriculata</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25382	C	3
Leadwort, Cape	<i>Plumbago auriculata</i>	V-10142	V-10142	Field Container	25424	C	3
Lilyturf, Creeping	<i>Liriope sp.</i>	SedgeHammer	Halosulfuron	Field Container	25011	C	2
Lilyturf, Creeping	<i>Liriope sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	24745	C	2
Lilyturf, Creeping	<i>Liriope sp.</i>	V-10142	V-10142	Field Container	25421	C	3
Mondo Grass, Lilyturf, Ker-Gawl	<i>Ophiopogon sp.</i>	SedgeHammer	Halosulfuron	Field Container	25463	C	3
Mondo Grass, Lilyturf, Ker-Gawl	<i>Ophiopogon sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25380	C	3
Mondo Grass, Lilyturf, Ker-Gawl	<i>Ophiopogon sp.</i>	V-10142	V-10142	Field Container	25422	C	3
Pentas	<i>Pentas sp.</i>	SedgeHammer	Halosulfuron	Field Container	25354	C	3
Pentas	<i>Pentas sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25381	C	3
Pentas	<i>Pentas sp.</i>	V-10142	V-10142	Field Container	25423	C	3
Purple Coneflower	<i>Echinacea sp.</i>	SedgeHammer	Halosulfuron	Field Container	25351	C	3
Purple Coneflower	<i>Echinacea sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25377	C	3
Purple Coneflower	<i>Echinacea sp.</i>	V-10142	V-10142	Field Container	25417	C	3
Shrub Verbena	<i>Lantana sp.</i>	SedgeHammer	Halosulfuron	Field Container	25353	C	3
Shrub Verbena	<i>Lantana sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field In-Ground	24737	C	2
Shrub Verbena	<i>Lantana sp.</i>	Sulfentrazone 0.2G	Sulfentrazone	Field Container	25379	C	
Shrub Verbena	<i>Lantana sp.</i>	V-10142	V-10142	Field Container	25420	C	3
Total Trials							345