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IR-4 Ornamental Horticulture Program V-10142 Crop Safety

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Abstract

From 2006 to 2009, IR-4 conducted 293 trials with V-10142 0.5G and V-10142 75WDG (imzasulfuron) on more than 60 crops. This research was undertaken to determine the level of crop safety these formulations have when used as over-the-top applications. The imzasulfuron rates were 0.5, 1.0 and 2.0 pounds active ingredient per acre (lb ai per A) as the 1X, 2X and 4X rates. Of the tested crop and formulations, only 14 exhibited no or minimal transient injury after application at all three rates. Twelve species for V-10142 0.5G and 19 for V-10142 75WDG exhibited phytotoxicity at even the 0.5 lb ai per acre rate.

Introduction

Control of broadleaved weeds and sedges in the production of woody and herbaceous perennials can be problematic because nurseries grow many different types of plants and not all genera or species are listed on labels. These weeds can also be difficult to control in landscape settings for the same reason. A new herbicide imazasulfuron in two formulations, V-10142 0.5G and V-10142 75WDG, were tested between 2006 and 2009 on over 60 different plant species.

Materials and Methods

Two applications of either V-10142 0.5G or V-10142 75WDG (imazasulfuron) were made approximately 4 or 6 weeks apart. The application rates were 0.75, 1.5 and 3 lb ai per A, plus a water treated control. A minimum of four plants (replicate treatments) were required with many researchers exceeding this minimum. Phytotoxicity was recorded on a scale of 0 to 10 (0 = No phytotoxicity; 10 = Complete kill) at 1, 2, 4, 8, and 12 weeks after initial application. Some researchers also included readings 3 to 4 days after the initial and second applications. For more detailed materials and methods, please see Appendix 1: Protocols.

V-10142 0.5G and V-10142 75WDG were supplied to researchers (See list of researchers in Appendix 2) by Valent.

Results and Summary

Phytotoxicity

Based on the type and nature of injury seen with V-10142 0.5G and V-10142 75WDG applications in the research conducted in 2006, tested plant species were placed into three categories: 1) no significant phytotoxicity or growth differences from the untreated check or any injury was transitory, 2) no or minimal transitory injury seen at the 1X rate, but the 2X and/or 4X rates did cause significant phytotoxicity, 3) Significant injury sufficient to recommend growers not utilize this product, 4) more data is needed to make informed recommendations.

Out of the 59 genera/species tested through IR-4, only 5 treated with V-10142 0.5G exhibited no or minimal negative impact on a wide range of plant species (Table 1). Some minimal injury may be acceptable for growers if applications are made several weeks to months in advance of crop sale particularly for woody ornamental crops. In the research presented here, 3 plants exhibited significant injury at higher rates even though little injury was observed at 1X (Table 2). Twelve crops exhibited damage sufficient to recommend growers not utilize V-10142 0.5G as an over-the-top treatment (Table 3). Thirty-nine genera/species require additional data points to clarify recommendations (Table 4). Of these, 29 crops did exhibit no or minimal transitory injury in one or two trials.

Please see Table 9 for a list of individual trial summaries on V-10142 0.5G.

Table 1. List of V-10142 0.5G treated crops with no or minimal transitory injury.

Acer sp.
Buddleia davidii
Rhododendron sp.

Rosa sp.
Viburnum

Table 2. List of V-10142 0.5G treated crops with no or minimal transitory injury seen at the 1X rate, but the 2X or 4X rate did cause significant phytotoxicity

Abies fraseri
Buxus sp.

Cornus florida

Table 3. List of V-10142 0.5G treated crops exhibiting significant injury.

Abelia sp.
Berberis thunbergii
Clematis sp.
Cotoneaster horizontalis
Hydrangea sp.
Lagerstroemia indica

Lavandula angustifolia
Nepeta cataria
Nepeta x fassenii
Potentilla fruticosa
Spirea sp.
Syringa microphylla

Table 4. List of V-10142 0.5G treated crops where more information is needed.

Abies balsamea phanerolepis
Abies sp. *
Camellia sp. *
Euonymus alatus *
Euonymus fortunei *
Ilex crenata *
Ilex glabra *
Ilex vomitoria *
Juniperus andorra *
Juniperus chinensis *
Juniperus communis *
Juniperus conferta *
Loropetalum chinense rubrum
Magnolia grandiflora *
Magnolia sp. *
Magnolia stellata *
Malus domestica *
Nandina domestica *
Ophiopogon japonica *
Osmanthus heterophyllus *

Picea glauca
Picea omorika *
Pieris japonica *
Pinus mugo *
Pinus taeda *
Pseudotsuga menziesii
Quercus alba
Quercus rubrum *
Raphiolepis indica
Rhododendron catawbiense
Sabal minor *
Salvia sylvestris *
Sambucus canadensis *
Sedum x spectabile *
Syringa patula *
Taxus baccata
Taxus x media
Thuja occidentalis
Thuja plicata *

* no or minimal transient injury in the reported trials.

Out of the 50 genera/species tested through IR-4, only 9 treated with V-10142 75WDG exhibited no or minimal negative impact on a wide range of plant species (Table 5). Some minimal injury

may be acceptable for growers if applications are made several weeks to months in advance of crop sale particularly for woody ornamental crops. The only species where this seemed to apply was for certain rose cultivars (Table 6). Seventeen crops exhibited damage sufficient to recommend growers not utilize V-10142 75WDG as an over-the-top treatment (Table 7). Nineteen crops require additional data points to clarify recommendations (Table 8). Of these, three crops did exhibit no or minimal transitory injury in two trials. At least one more data point for each is recommended prior to adding these to the label.

Please see Table 10 for a list of individual trial summaries on V-10142 75WDG.

Table 5. List of V-10142 75WDG treated crops with no or minimal transitory injury.

<i>Buxus sp.</i>	<i>Ilex vomitoria 'nana'</i>
<i>Ilex cornuta</i>	<i>Quercus rubra</i>
<i>Ilex crenata</i>	<i>Rhododendron sp. (see Senesac 2006)</i>
<i>Ilex rotunda</i>	<i>Trachelospermum jasminoides</i>
<i>Ilex x meserveae</i>	

Table 6. List of V-10142 75WDG treated crops with no or minimal transitory injury seen at the 1X rate, but the 2X or 4X rate did cause significant phytotoxicity

<i>Delosperma sp.</i>	<i>Helleborus niger</i>	<i>Rosa sp. *</i>
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* Variable responses among cultivars, in general rose appeared to not be impacted but some cultivars did exhibit a negative response

Table 7. List of V-10142 75WDG treated crops exhibiting significant injury.

<i>Abelia X grandiflora</i>	<i>Hemerocallis sp.</i>
<i>Abies fraseri</i>	<i>Hydrangea macrophylla</i>
<i>Acer rubrum</i>	<i>Liriope sp.</i>
<i>Chamaebatiaria sp.</i>	<i>Prunus avium</i>
<i>Cotoneaster dammeri</i>	<i>Rudbeckia fuligida speciosa</i>
<i>Cotoneaster horizontalis</i>	<i>Salvia elegans</i>
<i>Echinacea sp.</i>	<i>Salvia nemorosa</i>
<i>Echinacea purpurea magnus</i>	<i>Spiraea sp. *</i>
<i>Gypsophila elegans</i>	<i>Viburnum sp.</i>
<i>Hedera helix</i>	

* Directed spray instead of over the top still caused significant injury.

Table 8. List of V-10142 75WDG treated crops where more information is needed.

Cuphea sp.
Euonymus sp.
*Gardenia radicans**
Hosta sp.
Illicium sp.
Juniperus sp.
*Lagerstroemia indica**
Lantana sp.
Magnolia grandiflora
Ophiopogon japonicus

Pentas sp.
Picea abies
Pinus sp.
Pseudotsuga menziesii
Taxodium distichum
Taxus sp.
Thuja sp.
Trachycarpus fortunei
*Vinca sp. **

* no or minimal transient injury in the reported trials.

Table 9. Detailed Summary of 2006 Crop Safety Testing with V-10142 75WG

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 3/15/10 are listed below.

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27078	Abelia	Abelia sp.	A. zanderi 'Little Richard'	Field Container	Senesac	2008	Over the top	High injury at 0.75, 1.5 and 3 lb ai per acre	20081219f.pdf
27078	Abelia	Abelia sp.	'Edward Goucher'	Field Container	Lieth	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420f.pdf
26816	Fir, Fraser	Abies fraseri		Field Container	Boydston	2007	Over the top	Significant injury and stunting at 0.75, 1.5 and 3 lb ai per acre; plants not saleable	20071120a.pdf
26816	Fir, Fraser	Abies fraseri		Field Container	Boydston	2008	Over the top	No injury but slight height reduction at 0.75, high at 1.5 and 3 lb ai per acre; 1X plants marketable	20090129g.pdf
27794	Fir, Fraser	Abies fraseri		Field In-Ground	Beste/Frank	2008	Over the top	Virtually no injury but reduced plant growth at 0.75, 1.5 and 3 lb ai per acre	20081217b.pdf
27081	Fir	Abies sp.	A. balsamea phanerolepis	Field Container	Freiberger	2009	Over the top	Slight injury at 0.75, moderate at 1.5 and 3 lb ai per acre.	20100129b.pdf
27081	Fir	Abies sp.	A. fraseri	Field Container	Boydston	2009	Over the top	No significant injury at 0.75, moderate at 1.5 and high at 3 lb ai per acre.	20091201o.pdf
27081	Fir	Abies sp.	Fir Idaho Grand	Field Container	Harvey	2009	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre.	20100208d.pdf
27086	Maple, Japanese	Acer palmatum		Field Container	Reding	2009	Over the top	No injury and no significant difference in growth or marketability with 0.75, 1.5 and 3 lb ai per acre.	20091130o.pdf
27086	Maple, Japanese	Acer palmatum	'Atropurpureum'	Field Container	Beste/Frank	2008	Over the top	No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre	20081224c.pdf
27086	Maple, Japanese	Acer palmatum	'Atropurpureum'	Field Container	Beste/Frank	2009	Over the top	No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all plants marketable.	20091230q.pdf
27086	Maple, Japanese	Acer palmatum	Maple Japanese	Field Container	Harvey	2009	Over the top	Moderate to high injury increasing with rates (0.75, 1.5 and 3 lb ai per acre).	20100208d.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27090	Maple, Red	Acer rubrum		Field Container	Senesac	2008	Over the top	Slight injury after 2nd application with complete recovery at 0.75, 1.5 and 3 lb ai per acre; no growth reduction	20081219f.pdf
27090	Maple, Red	Acer rubrum	'Summer'	Field Container	Gilliam	2008	Over the top	No injury at 0.75, 1.5 and 3.0 lb ai per acre with two applications.	20081224a.pdf
27095	Maple	Acer sp.	A. rubrum	Field Container	Freiberger	2009	Over the top	Very slight injury at 0.75, 1.5 and 3 lb ai per acre.	20100129b.pdf
27095	Maple	Acer sp.	A. rubrum	Field Container	Reding	2009	Over the top	No injury and no significant difference in growth or marketability with 0.75, 1.5 and 3 lb ai per acre.	20091130o.pdf
27095	Maple	Acer sp.	A. saccharum	Field Container	Senesac	2008	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre	20081219f.pdf
27102	Barberry	Berberis sp.	B. thunbergii 'Amber Glow'	Field Container	Uber	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420h.pdf
27102	Barberry	Berberis sp.	B. thunbergii atropurpureum 'Crimson Pygmy'	Field Container	Beste/Frank	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20081224c.pdf
27102	Barberry	Berberis sp.	B. thunbergii 'Crimson Pigmy'	Field Container	Lieth	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420f.pdf
27102	Barberry	Berberis sp.	B. thunbergii 'Crimson Pygmy'	Field Container	Williams	2008	Over the top	No injury at 150 and 300, slight injury at 600 lb per acre	20081030j.pdf
27105	Butterfly Bush	Buddleia davidii		Field Container	Derr	2008	Over the top	Slight, acceptable injury at 0.75, 1.5 and 3 lb ai per acre	20090420g.pdf
27105	Butterfly Bush	Buddleia davidii	'Nanho Blue'	Field Container	Mathers	2008	Over the top	No significant injury at 0.75, moderate and high at 1.5 and 3 lb ai per acre	20081030r.pdf
27105	Butterfly Bush	Buddleia davidii	'Pink Delight'	Field Container	Beste/Frank	2008	Over the top	No significant injury at 0.75, 1.5 and 3 lb ai per acre; reduced growth at 2X and 4X	20090130a.pdf
27108	Boxwood	Buxus sp.		Field Container	Lieth	2008	Over the top	Slight injury but unacceptable growth reduction at 0.75, 1.5 and 3 lb ai per acre	20090420f.pdf
27108	Boxwood	Buxus sp.	B. 'Green Mountain'	Field Container	Senesac	2008	Over the top	Slight injury at 0.75, moderate at 1.5 and 3 lb ai per acre; significant growth reduction	20081219f.pdf
27108	Boxwood	Buxus sp.	B. 'Wintergem'	Field Container	Trader	2008	Over the top	No significant injury at 0.75, 1.5 and 3 lb ai per acre	20080924f.pdf
27113	Camellia	Camellia sp.	C. japonica	Field Container	Wade	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20080915a.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27113	Camellia	Camellia sp.	C. japonica	Field Container	Wade	2009	Over the top	No injury or significant growth reduction at 0.375, 0.75 and 1.5 lb ai per acre	20090930a.pdf
27113	Camellia	Camellia sp.	C. sasanqua 'Pink Charm'	Field Container	Trader	2008	Over the top	No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre	20080924f.pdf
29259	Caryopteris	Caryopteris x clandonensis	'Sunshine Blue'	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27119	Clematis	Clematis sp.		Field Container	Derr	2008	Over the top	Unacceptable injury at 0.75, 1.5 and 3 lb ai per acre	20090420g.pdf
27119	Clematis	Clematis sp.	C. integrifolia	Field Container	Klett	2008	Over the top	Trial 1: Moderate to severe injury at 0.75, 1.5 and 3 lb ai per acre	20090319i.pdf
27119	Clematis	Clematis sp.	C. integrifolia	Field Container	Klett	2008	Over the top	Trial 2: Moderate to severe injury at 0.75, 1.5 and 3 lb ai per acre	20090319i.pdf
27129	Dogwood, Flowering	Cornus florida		Field Container	Ahrens/Mervosh	2008	Over the top	Slight injury at at 0.75, unacceptable at 1.5 and 3 lb ai per acre.	20100103e.pdf
27129	Dogwood, Flowering	Cornus florida		Field Container	Freiberger	2009	Over the top	Slight injury at 0.75, moderate at 1.5 and high with plant death at 3 lb ai per acre.	20100129b.pdf
27129	Dogwood, Flowering	Cornus florida		Field Container	Reding	2009	Over the top	No injury and no significant difference in growth or marketability with 0.75, 1.5 and 3 lb ai per acre.	20091130o.pdf
27134	Cotoneaster	Cotoneaster sp.	C. apiculata	Field Container	Mathers	2009	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre after 1st, unacceptable injury after 2nd application.	20091028b.pdf
27134	Cotoneaster	Cotoneaster sp.	C. glaucophyllus	Field Container	Uber	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420h.pdf
27134	Cotoneaster	Cotoneaster sp.	C. horizontalis 'Perpusillus'	Field Container	Lieth	2008	Over the top	Unacceptable injury and growth reduction at 0.75, 1.5 and 3 lb ai per acre	20090420f.pdf
27149	Winged Burning Bush	Euonymus alatus	E. alatus 'Compactus'	Field Container	Boydston	2008	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20090129g.pdf
27149	Winged Burning Bush	Euonymus alatus	E. fortunei 'Coloratus'	Field Container	Williams	2008	Over the top	No injury at 150, 300 and 600 lb per acre; slight width reduction	20081030j.pdf
27159	Hydrangea	Hydrangea sp.		Field Container	Derr	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420g.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27159	Hydrangea	Hydrangea sp.	H. macrophylla 'Nikko Blue'	Field Container	Fraelich	2008	Over the top	Significant injury (leaf burn) at 0.75, 1.5 and 3 lb ai per acre; only 3 of 9 plants marketable at 1X	20081030e.pdf
27159	Hydrangea	Hydrangea sp.	H. paniculata 'PeeGee'	Field Container	Mickelbart	2008	Over the top	Slight chlorosis increasing with rate (0.75, 1.5 and 3.0 lb ai per acre) with single application 3 weeks after transplanting.	20081029a.pdf
27162	Holly	Ilex sp.	I. crenata 'Convexa'	Field Container	Mathers	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre; significant growth reduction at 4X	20081030m.pdf
27162	Holly	Ilex sp.	I. glabra 'Densa'	Field Container	Senesac	2008	Over the top	No injury after 1st application; slight at 0.75, moderate at 1.5 and 3 lb ai per acre after 2nd application	20081219f.pdf
27162	Holly	Ilex sp.	I. vomitoria	Field Container	Lieth	2008	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre	20090420f.pdf
27165	Juniper	Juniperus sp.	J. andorra	Field Container	Harvey	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20080924d.pdf
27165	Juniper	Juniperus sp.	J. chinensis 'Sea Green'	Field Container	Mickelbart	2008	Over the top	No injury at 0.75, 1.5 and 3.0 lb ai per acre with single application 3 weeks after transplanting.	20081029a.pdf
27165	Juniper	Juniperus sp.	J. communis 'Gold Totem Pole'	Field Container	Senesac	2008	Over the top	Virtually no injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre	20081219f.pdf
27165	Juniper	Juniperus sp.	J. conferta	Field Container	Trader	2008	Over the top	No significant injury at 0.75 and 1.5, slight at 3 lb ai per acre; no growth reduction	20080924f.pdf
27168	Crape Myrtle	Lagerstroemia indica		Field Container	Gilliam	2008	Over the top	Significant injury, even mortality, at 0.75, 1.5 and 3.0 lb ai per acre.	20081224a.pdf
27168	Crape Myrtle	Lagerstroemia indica		Field Container	Derr	2008	Over the top	Unacceptable injury at 0.75, 1.5 and 3 lb ai per acre	20090420g.pdf
27168	Crape Myrtle	Lagerstroemia indica	'Natchez'	Field Container	Wade	2008	Over the top	Significant injury at 0.75, 1.5 and 3 lb ai per acre	20080915a.pdf
27173	Lavender	Lavandula sp.	L. angustifolia 'Munstead'	Field Container	Boydston	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090129n.pdf
27181	Loropetalum	Loropetalum sp.	L. chinense rubrum	Field Container	Czarnota	2008	Over the top	No injury at 0.75 and 1.5, slight at 3 lb ai per acre	20090724a.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27184	Magnolia	Magnolia sp.		Field Container	Reding	2009	Over the top	No injury and no significant difference in growth or marketability with 0.75, 1.5 and 3 lb ai per acre.	20091130o.pdf
27184	Magnolia	Magnolia sp.	M. grandiflora 'Alta'	Field Container	Wade	2009	Over the top	No injury or significant growth reduction at 0.375, 0.75 and 1.5 lb ai per acre	20090930a.pdf
27184	Magnolia	Magnolia sp.	M. stellata 'Royal Star'	Field Container	Beste/Frank	2008	Over the top	No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20090127b.pdf
27184	Magnolia	Magnolia sp.	M. stellata 'Waterlily'	Field Container	Beste/Frank	2009	Over the top	No significant injury at 0.75, 1.5 and 3 lb ai per acre; reduced growth and marketability at 2X and 4X.	20091230t.pdf
27189	Apple & Crabapple (Non-Bearing)	Malus sp.	'M.domestica'	Field Container	Mathers	2009	Over the top	No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre.	20091028f.pdf
27192	Heavenly Bamboo	Nandina domestica	'Firepower'	Field Container	Gilliam	2008	Over the top	No injury at 0.75, 1.5 and 3.0 lb ai per acre after the first application, but after the second minor to moderate injury occurred.	20081224a.pdf
27197	Catnip	Nepeta cataria	'Psfike'	Field Container	Klett	2008	Over the top	Trial 1: Moderate to severe injury (chlorosis and stunting) at 0.75, 1.5 and 3 lb ai per acre	20090319i.pdf
27197	Catnip	Nepeta cataria	'Psfike'	Field Container	Klett	2008	Over the top	Trial 2: Moderate to severe injury (chlorosis and stunting) at 0.75, 1.5 and 3 lb ai per acre	20090319i.pdf
27202	Catmint	Nepeta x faasseni		Field Container	Lieth	2008	Over the top	Unacceptable injury and growth reduction at 0.75, 1.5 and 3 lb ai per acre	20090420f.pdf
29246	Mondo Grass, Lilyturf, Ker-Gawl	Ophiopogon sp.	O. japonicas	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
29254	Holly Olive;False	Osmanthus heterophyllus	Holly Olive, False	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27208	Spruce	Picea sp.	P. glauca	Field Container	Freiberger	2009	Over the top	Very slight injury at 0.75, 1.5 and 3 lb ai per acre.	20100129b.pdf
27208	Spruce	Picea sp.	P. glauca 'Conica'	Field Container	Mathers	2009	Over the top	No injury or growth reduction at 2.1, significant at 0.75, 1.5 and 3 lb ai per acre	20091028g.pdf
27208	Spruce	Picea sp.	P. omorika	Field Container	Harvey	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20080924d.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27213	Andromeda	Pieris sp.	P. japonica 'Dorothy Wycoff'	Field Container	Beste/Frank	2009	Over the top	No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all plants marketable.	20091230n.pdf
27218	Pine	Pinus sp.	P. mugo	Field Container	Harvey	2008	Over the top	No injury at 0.75 and 1.5, very slight at 3 lb ai per acre	20080924d.pdf
27218	Pine	Pinus sp.	P. taeda	Field Container	Fraelich	2009	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all plants marketable.	20091231e.pdf
27218	Pine	Pinus sp.	P. taeda	Field Container	Wade	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20080915a.pdf
27218	Pine	Pinus sp.	Pine Mungo	Field Container	Harvey	2009	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre.	20100208d.pdf
27223	Cinquefoil	Potentilla sp.	P. fruticosa 'Goldfinger'	Field Container	Uber	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420h.pdf
27223	Cinquefoil	Potentilla sp.	P. fruticosa 'Monsidh'	Field Container	Klett	2008	Over the top	Trial 1: Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090319i.pdf
27223	Cinquefoil	Potentilla sp.	P. fruticosa 'Monsidh'	Field Container	Klett	2008	Over the top	Trial 2: Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090319i.pdf
26817	Fir, Douglas	Pseudotsuga menziesii		Field Container	Boydston	2009	Over the top	First Trial: No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all treated plants saleable.	20091201n.pdf
26817	Fir, Douglas	Pseudotsuga menziesii		Field Container	Boydston	2009	Over the top	Second Trial: No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all treated plants saleable.	20091201w.pdf
26817	Fir, Douglas	Pseudotsuga menziesii		Field Container	Freiberger	2009	Over the top	No significant injury at 0.75, moderate at 1.5 and 3 lb ai per acre.	20100129b.pdf
27229	Oak	Quercus sp.	Q. alba	Field Container	Freiberger	2008	Directly on soil surface	Slight injury at 0.75 and 1.5, moderate at 3 lb ai per acre	20090319c.pdf
27229	Oak	Quercus sp.	Q. rubra	Field Container	Beste/Frank	2009	Over the top	No significant injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre.	20091230r.pdf
27229	Oak	Quercus sp.	Q. rubra	Field Container	Mathers	2008	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre	20081030p.pdf
27234	Indian Hawthorn	Raphiolepis indica		Field Container	Gilliam	2008	Over the top	No injury at 0.75, 1.5 and 3.0 lb ai per acre with two applications.	20081224a.pdf
27234	Indian Hawthorn	Raphiolepis indica	'Indian Princess'	Field Container	Lieth	2008	Over the top	Unacceptable injury and growth reduction at 0.75, 1.5 and 3 lb ai per acre	20090420f.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27234	Indian Hawthorn	Raphiolepis indica	R. umbellata 'Eleanor Taber'	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27237	Azalea, & Rhododendron	Rhododendron sp.	'Fantastica'	Field Container	Senesac	2008	Over the top	Slight injury at 0.75 and 1.5, moderate at 3 lb ai per acre	20081219f.pdf
27237	Azalea, & Rhododendron	Rhododendron sp.	'Gwenda'	Field Container	Wade	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20080915a.pdf
27237	Azalea, & Rhododendron	Rhododendron sp.	'Midnight Flare'	Field Container	Trader	2008	Over the top	No significant injury at 0.75, slight and moderate at 1.5 and 3 lb ai per acre; no growth reduction	20080924f.pdf
27237	Azalea, & Rhododendron	Rhododendron sp.	R. catawbiense 'Chinoides'	Field Container	Ahrens/Mervosh	2008	Over the top	Unacceptable injury at 0.75, 1.5 and 3 lb ai per acre.	20100103e.pdf
27240	Rose	Rosa sp.		Field Container	Derr	2008	Over the top	No significant injury at 0.75, 1.5 and 3 lb ai per acre	20090420g.pdf
27240	Rose	Rosa sp.	'Nearly Wild'	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27240	Rose	Rosa sp.	'Nearly Wild'	Field Container	Wade	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20080915a.pdf
27240	Rose	Rosa sp.	R. woodsii	Field Container	Harvey	2008	Over the top	Virtually no injury at 0.75, minor at 1.5 and 3 lb ai per acre	20080924d.pdf
27240	Rose	Rosa sp.	'Raspberry Sunblaze'	Field Container	Boydston	2008	Over the top	No significant injury or height reduction at 0.75, unacceptable at 1.5 and 3 lb ai per acre; flower number reduced; some 1X plants probably marketable	20090129n.pdf
29241	Palmetto Palm	Sabal minor	Palmetto Palm	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27243	Sage, Ramona	Salvia sylvestris	S. 'May Night'	Field Container	Williams	2008	Over the top	Acceptable injury, no growth reduction at 150, 300 and 600 lb per acre	20090218a.pdf
29250	Elder, Elderberry	Sambucus sp.	S. canadensis 'Aurea'	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
28863	Stonecrop	Sedum sp.	S. x spectabile 'Autumn Joy'	Field Container	Williams	2008	Over the top	No injury or growth reduction at 150, 300 and 600 lb per acre	20090218a.pdf
27247	Bridal-Wreath	Spiraea sp.	'Dolchica'	Field Container	Trader	2008	Over the top	Moderate injury with complete recovery at 0.75, 1.5 and 3 lb ai per acre; no growth reduction	20080924f.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27247	Bridal-Wreath	Spiraea sp.	'Reeves'	Field Container	Gilliam	2008	Over the top	Moderate to significant injury at 0.75, 1.5 and 3.0 lb ai per acre with two applications; plant growth decreased as rate increased.	20081224a.pdf
27247	Bridal-Wreath	Spiraea sp.	S. japonica 'Magic Carpet'	Field Container	Ahrens/Mervosh	2008	Over the top	Slight injury at at 0.75, unacceptable at 1.5 and 3 lb ai per acre.	20100103e.pdf
27247	Bridal-Wreath	Spiraea sp.	S. thunbergii	Field Container	Mickelbart	2008	Over the top	No injury at 0.75, 1.5 and 3.0 lb ai per acre with single application 3 weeks after transplanting.	20081029a.pdf
27252	Lilac	Syringa sp.	'Miss Kim'	Field Container	Harvey	2008	Over the top	Virtually no injury at 0.75, 1.5 and 3 lb ai per acre	20080924d.pdf
27252	Lilac	Syringa sp.	S. microphylla 'Superb'	Field Container	Beste/Frank	2008	Over the top	High injury and growth reduction at 0.75, 1.5 and 3 lb ai per acre	20090316g.pdf
27252	Lilac	Syringa sp.	S. patula 'Miss Kim'	Field Container	Williams	2008	Over the top	Virtually no injury, no growth reduction at 150, 300 and 600 lb per acre	20090218a.pdf
27255	Yew	Taxus sp.	T. baccata	Field Container	Senesac	2008	Over the top	No significant injury at 0.75, slight at 1.5 and moderate at 3 lb ai per acre	20081219f.pdf
27255	Yew	Taxus sp.	T. x media 'Densiflora'	Field Container	Williams	2008	Over the top	No injury or growth reduction at 150, 300 and 600 lb per acre	20081030j.pdf
27255	Yew	Taxus sp.	T. x media 'Runyun'	Field Container	Mathers	2008	Over the top	Significant injury at 0.75, 1.5 and 3 lb ai per acre	20081030n.pdf
27263	Arborvitae	Thuja sp.	T. occidentalis 'Degroot Spire'	Field Container	Boydston	2008	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20090129g.pdf
27263	Arborvitae	Thuja sp.	T. occidentalis 'Emerald Green'	Field Container	Ahrens/Mervosh	2008	Over the top	Slight injury at 0.75, unacceptable at 1.5 and 3 lb ai per acre.	20100103e.pdf
27263	Arborvitae	Thuja sp.	T. occidentalis 'Smaragd'	Field Container	Harvey	2008	Over the top	No injury at 0.75 and 1.5, slight injury after 2nd application at 3 lb ai per acre	20080924d.pdf
27263	Arborvitae	Thuja sp.	T. plicata 'Green Giant'	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27272	Arrowwood	Viburnum sp.	'Northern Burgundy'	Field Container	Boydston	2008	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre; all plants marketable	20090129g.pdf
27272	Arrowwood	Viburnum sp.	V. burkwoodii	Field Container	Senesac	2008	Over the top	No injury or growth reduction at 0.75, 1.5 and 3 lb ai per acre	20081219f.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27272	Arrowwood	Viburnum sp.	V. plicatum tomentosum 'Shasta'	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27272	Arrowwood	Viburnum sp.	V. tinus	Field Container	Czarnota	2008	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre	20090724a.pdf
27272	Arrowwood	Viburnum sp.	V. x 'Juddi'	Field Container	Mickelbart	2008	Over the top	No injury at 0.75, 1.5 and 3.0 lb ai per acre with single application 3 weeks after transplanting.	20081029a.pdf

Table 10. Detailed Summary of 2006 Crop Safety Testing with V-10142 75WG

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 3/15/2010 are listed below.

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25412	Abelia	Abelia sp.	A. x grandiflora 'John Creech'	Field Container	Neal	2006	Over the top	Significant unacceptable injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070225f.pdf
25412	Abelia	Abelia sp.	A. x grandiflora 'Little Richard'	Field Container	Gilliam	2006	Over the top	Moderate to significant injury increasing with rate (0.5, 1.0, 2.0 lb ai per acre).	20070212a.pdf
25401	Fir, Fraser	Abies fraseri		Field Container	Altland	2006	Over the top	Significant injury at all rates (0.5, 1 and 2 lb ai/A).	20070110p.pdf
25401	Fir, Fraser	Abies fraseri		Field Container	Freiberger	2006	Over the top	Slight injury after 1st, high after 2nd application at all rates (0.5, 1 and 2 lb ai per acre); some growth reduction	20070405.pdf
25938	Fir, Fraser	Abies fraseri		Field In-Ground	Ahrens/Mervosh	2006	Over the top	No injury to dormant trees, unacceptable injury to actively growing trees at all rates (0.5, 1 and 2 lb ai per acre)	20070418e.pdf
25390	Maple, Red	Acer rubrum		Field Container	Altland	2006	Over the top	Significant injury with single application at 2X and 4X rates (1 and 2 lb ai/A)	20070110p.pdf
25390	Maple, Red	Acer rubrum		Field Container	Fraelich	2006	Over the top	No injury at 0.5 lb ai per acre, very slight at 2X and 4X rates; no growth reduction	20061212e.pdf
25390	Maple, Red	Acer rubrum		Field Container	Freiberger	2006	Over the top	Slight injury after 1st, moderate after 2nd application at all rates (0.5, 1 and 2 lb ai per acre)	20070405.pdf
25918	Maple, Red	Acer rubrum		Field In-Ground	Beste/Frank	2006	Ground broadcast	Significant injury and growth reduction at 0.5, 1 and 2 lb ai per acre	20070307a.pdf
28471	Lily-Of-The-Nile	Agapanthus sp.	A. africanus 'Peter Pan'	Field Container	Uber	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420h.pdf
25384	Boxwood	Buxus sp.	B. microphylla asiaticum 'Winter Gem'	Field Container	Fraelich	2006	Over the top	No injury but moderate stunting at all rates (0.5, 1 and 2 lb ai/A).	20061212b.pdf
25384	Boxwood	Buxus sp.	B. microphylla 'Green Beauty'	Field Container	Wilen	2006	Over the top	Acceptable injury at all rates (0.5, 1 and 2 lb ai/A).	20061201i.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25384	Boxwood	Buxus sp.	B. microphylla 'Green Velvet'	Field Container	Beste/Frank	2006	Over the top	Slight injury but no growth reduction at all rates (0.5, 1 and 2 lb ai/A) by trial's end; all plants marketable	20070111w.pdf
25384	Boxwood	Buxus sp.	B. microphylla var. koreana	Field Container	Gilliam	2006	Over the top	Very slight to moderate injury increasing with rate along with a reduction in plant size (0.5, 1.0, 2.0 lb ai per acre).	20070212a.pdf
25384	Boxwood	Buxus sp.	'Green Mountain'	Field Container	Mathers	2006	Over the top	Slight injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
25400	Fernbush	Chamaebatiaria sp.		Field Container	Klett	2006	Over the top	Experiment A: No significant injury after 1st application at all rates (0.5, 1 and 2 lb ai per acre), slight to moderate after 2nd application	20070108a.pdf
25400	Fernbush	Chamaebatiaria sp.		Field Container	Klett	2006	Over the top	Experiment B: Moderate to high injury with increasing rates (0.5, 1 and 2 lb ai per acre)	20070108a.pdf
25400	Fernbush	Chamaebatiaria sp.		Field Container	Klett	2006	Over the top	Experiment C: Moderate injury at all rates (0.5, 1 and 2 lb ai per acre)	20070108a.pdf
25415	Cotoneaster	Cotoneaster sp.	C. dammeri 'Skolghomen'	Field Container	Beste/Frank	2006	Over the top	Significant injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A); market value reduced	20070111t.pdf
25415	Cotoneaster	Cotoneaster sp.	C. horizontalis	Field Container	Neal	2006	Over the top	Significant injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070225f.pdf
25404	Mexican Heather, False Heather, Elfin Herb	Cuphea hyssopifolia	C. allyson	Field Container	Derr	2006	Over the top	Slight injury increasing with rate (0.5, 1 and 2 lb ai/A).	20061110l.pdf
25404	Mexican Heather, False Heather, Elfin Herb	Cuphea hyssopifolia	C. hyssopifolia 'Itsy Bitsy White'	Field Container	Lieth	2006	Over the top	High injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A) and plants were unmarketable	20061201g.pdf
25397	Delosperma sp.	Delosperma sp.	'Kelaidis'	Field Container	Klett	2006	Over the top	Experiment A: No significant injury at 0.5 lb ai per acre, moderate to high at 1 and 2 lb ai	20070108a.pdf
25397	Delosperma sp.	Delosperma sp.	'Kelaidis'	Field Container	Klett	2006	Over the top	Experiment B: No significant injury at 0.5 lb ai per acre, moderate at 1 and 2 lb ai	20070108a.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25397	Delosperma sp.	Delosperma sp.	'Kelaidis'	Field Container	Klett	2006	Over the top	Experiment C: Slight transient injury at 0.5 lb ai per acre, moderate to high at 1 and 2 lb ai	20070108a.pdf
25417	Purple Coneflower	Echinacea sp.		Field Container	Klett	2006	Over the top	Experiment A: Moderate to high injury at all rates (0.5, 1 and 2 lb ai per acre)	20070108a.pdf
25417	Purple Coneflower	Echinacea sp.		Field Container	Klett	2006	Over the top	Experiment B: No significant injury after 1st application at all rates (0.5, 1 and 2 lb ai per acre, moderate after 2nd application at 1 and 2 lb ai	20070108a.pdf
25417	Purple Coneflower	Echinacea sp.		Field Container	Klett	2006	Over the top	Experiment C: Slight to high injury at all rates (0.5, 1 and 2 lb ai per acre)	20070108a.pdf
25417	Purple Coneflower	Echinacea sp.	E. purpurea magnus	Field Container	Fraelich	2006	Over the top	Very slight, transient injury at 0.5 lb ai per acre, slight at 1.0 lb ai per acre, moderate at 2.0 lb ai per acre; no stunting at 0.5 and 1.0 lb ai per acre, moderate at 2.0 lb ai per acre.	20061212j.pdf
25417	Purple Coneflower	Echinacea sp.	E. purpurea 'Magnus'	Field Container	Boydston	2006	Over the top	Trial 1: Significant injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A).	20061109i.pdf
25417	Purple Coneflower	Echinacea sp.	E. purpurea 'Magnus'	Field Container	Boydston	2006	Over the top	Trial 2: Severe injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A).	20061109j.pdf
25399	Euonymus	Euonymus sp.	E. alata 'Compacta'	Field Container	Mathers	2006	Over the top	Very slight to slight injury increasing with rate (0.5, 1 and 2 lb ai/A).	20070110l.pdf
25399	Euonymus	Euonymus sp.	E. alatus 'Compactus'	Field Container	Ahrens/Mervosh	2006	Over the top	Unacceptable injury at all rates (0.5, 1 and 2 lb ai per acre)	20070418c.pdf
25399	Euonymus	Euonymus sp.	E. fortunei 'Gracilis'	Field Container	Lieth	2006	Over the top	Very slight injury but over 40% growth reduction at all rates (0.5, 1 and 2 lb ai/A)	20070110j.pdf
25399	Euonymus	Euonymus sp.	E. japonicus 'Aureo Marginatus'	Field Container	Wilen	2006	Over the top	Moderate injury at all rates (0.5, 1 and 2 lb ai/A).	20061201i.pdf
25399	Euonymus	Euonymus sp.	E. patens 'Manhattan'	Field Container	Beste/Frank	2006	Over the top	No significant injury or growth reduction at all rates (0.5, 1 and 2 lb ai/A) by trial's end; plants marketable	20070111z.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
28259	Golden Bells	Forsythia sp.	F. x intermedia 'Golden Bell'	Field Container	Mickelbart	2008	Over the top	Slight chlorosis increasing with rate (0.75, 1.5 and 3.0 lb ai per acre) with single application 3 weeks after transplanting.	20081029a.pdf
26080	Ash, Green	Fraxinus pennsylvanica		Field In-Ground	Beste/Frank	2006	Over the top	Slight injury and moderate growth reduction at all rates (0.5, 1 and 2 lb ai per acre); reduced market value at 2X and 4x	20070412l.pdf
25419	Cape Jasmine, Radicans	Gardenia augusta 'Radicans'		Field Container	Derr	2006	Over the top	No injury at all rates (0.5, 1 and 2 lb ai/A).	20061110l.pdf
25419	Cape Jasmine, Radicans	Gardenia augusta 'Radicans'	'Radicans'	Field Container	Fraelich	2006	Over the top	Slight, transient injury at 1 and 2 lb ai per acre; slight stunting at 0.5 lb ai per acre, moderate at 1 and 2 lb ai per acre.	20061212l.pdf
25386	Baby's Breath	Gypsophila elegans		Field Container	Senesac	2006	Over the top	High injury at all rates (0.5, 1 and 2 lb ai/A).	20061108h.pdf
26040	Baby's Breath	Gypsophila paniculata	'Festival Star'	Field Container	Lieth	2006	Over the top	Unacceptable injury and growth reduction at 0.5, 1 and 2 lb ai per acre	20070717d.pdf
25418	English Ivy	Hedera helix L. ssp. Helix		Field Container	Boydston	2006	Over the top	Severe injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A).	20061109k.pdf
25418	English Ivy	Hedera helix L. ssp. Helix	'Glacier ivy'	Field Container	Fraelich	2006	Over the top	Severe injury and stunting at all rates (0.5, 1 and 2 lb ai/A).	20061212k.pdf
25402	Hellebore, Christmas rose, Lenten Rose	Helleborus niger		Field Container	Klett	2006	Over the top	Experiment A: No significant injury at all rates (0.5, 1 and 2 lb ai per acre)	20070108a.pdf
25402	Hellebore, Christmas rose, Lenten Rose	Helleborus niger		Field Container	Klett	2006	Over the top	Experiment B: No significant injury at all rates (0.5, 1 and 2 lb ai per acre)	20070108a.pdf
25402	Hellebore, Christmas rose, Lenten Rose	Helleborus niger		Field Container	Klett	2006	Over the top	Experiment C: No significant injury after 1st application at all rates (0.5, 1 and 2 lb ai per acre), light to moderate injury after 2nd application at 2X and 4X	20070108a.pdf
25402	Hellebore, Christmas rose, Lenten Rose	Helleborus niger	'Pink Lady'	Field Container	Boydston	2006	Over the top	Very slight injury at 0.5, 1 and 2 lb ai per acre; most plants did not survive severe winter	20100129a.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25395	Daylily	Hemerocallis sp.	H. hybrida	Field Container	Fraelich	2006	Over the top	Slight injury at 0.5 lb ai per acre, severe at 1 and 2 lb ai per acre; growth reduction at higher rates	20061212g.pdf
25395	Daylily	Hemerocallis sp.	'Stella de Oro'	Field Container	Beste/Frank	2006	Over the top	Unacceptable injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A)	20070111y.pdf
25395	Daylily	Hemerocallis sp.	'Stella de Oro'	Field Container	Lieth	2006	Over the top	High injury at all rates (0.5, 1 and 2 lb ai/A); plants unmarketable	20070110i.pdf
25395	Daylily	Hemerocallis sp.	'Stella d'Oro'	Field Container	Mathers	2006	Over the top	Slight to moderate injury increasing with rate after first application, but moderate injury was observed after second application at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
25403	Hosta	Hosta sp.	'Gold Standard'	Field Container	Fraelich	2006	Over the top	Moderate injury and stunting at 0.5 lb ai per acre, severe at 1 and 2 lb ai per acre.	20061212h.pdf
25403	Hosta	Hosta sp.	H. plantaginea 'Royal Standard'	Field Container	Gilliam	2006	Over the top	Very slight injury at all rates and a reduction in plant size (0.5, 1.0, 2.0 lb ai per acre).	20070212a.pdf
25387	Hydrangea, French	Hydrangea macrophylla	'Nikko Blue'	Field Container	Lieth	2006	Over the top	High injury at all rates (0.5, 1 and 2 lb ai/A); plants unmarketable	20070110h.pdf
25388	Holly	Ilex sp.	I. cornuta 'bufordii nana'	Field Container	Neal	2006	Over the top	No significant injury at 0.5, 1.0 and 2.0 lb ai per acre.	20070225f.pdf
25388	Holly	Ilex sp.	I. cornuta 'Carissa'	Field Container	Fraelich	2006	Over the top	No injury or growth reduction at all rates (0.5, 1 and 2 lb ai/A).	20061212c.pdf
25388	Holly	Ilex sp.	I. crenata 'Compacta'	Field Container	Beste/Frank	2006	Over the top	No injury or growth reduction at all rates (0.5, 1 and 2 lb ai/A) by trial's end; all plants marketable	20070112a.pdf
26586	Holly	Ilex sp.	I. rotunda	Field In-Ground	Czarnota	2006	Over the top	Very slight injury at 0.4 lb ai per acre	20070225c.pdf
25388	Holly	Ilex sp.	I. x meserveae 'Blue Prince'	Field Container	Mathers	2006	Over the top	No injury at any rate (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
25388	Holly	Ilex sp.	I. x meserveae 'Blue Princess'	Field Container	Altland	2006	Over the top	No injury at any rate (0.5, 1 and 2 lb ai/A)	20070110p.pdf
25428	Holly, Dwarf Yaupon	Ilex vomitoria 'nana'		Field Container	Gilliam	2006	Over the top	No injury or growth reduction at 0.5, 1.0, and 2.0 lb ai per acre.	20070212a.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25428	Holly, Dwarf Yaupon	Ilex vomitoria 'nana'		Field Container	Neal	2006	Over the top	No significant injury at 0.5, 1.0, and 2.0 lb ai per acre.	20070225f.pdf
26581	Anise Tree	Illicium sp.	I. parviflorum	Field In-Ground	Czarnota	2006	Over the top	No injury at 0.4 lb ai per acre	20070225c.pdf
25389	Juniper	Juniperus sp.	J. conferta 'Blue Pacific'	Field Container	Gilliam	2006	Over the top	Slight to moderate injury increasing with rate (0.5, 1.0, 2.0 lb ai per acre) with a significant reduction in plant size.	20070212a.pdf
25389	Juniper	Juniperus sp.	J. horizontalis 'Wiltonii'	Field Container	Fraelich	2006	Over the top	No injury; slight stunting at 0.5 lb ai per acre, moderate at 2X and 4X rates	20061212d.pdf
25389	Juniper	Juniperus sp.	J. sabina 'Calgary Carpet'	Field Container	Altland	2006	Over the top	Significant injury at all rates (0.5, 1 and 2 lb ai/A)	20070110p.pdf
25389	Juniper	Juniperus sp.	J. squamata 'Blue Carpet'	Field Container	Mathers	2006	Over the top	Slight to moderate injury, abating somewhat over time (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
26564	Crape Myrtle	Lagerstroemia indica		Field In-Ground	Czarnota	2006	Over the top	No injury at 0.4 lb ai per acre	20070225c.pdf
26622	Crape Myrtle	Lagerstroemia indica	L. x Tuscarora	Field Container	Neal	2006	Over the top	Slight transient injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070225f.pdf
25420	Shrub Verbena	Lantana sp.		Field Container	Derr	2006	Over the top	Slight injury at all rates	20061110l.pdf
28474	Privet	Ligustrum sp.	L. lucidum	Field Container	Uber	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420h.pdf
25398	Lily, Easter	Lilium longiflorum	'Nellie White'	Field Container	Lieth	2006	Over the top	Unacceptable injury and growth reduction at 0.5, 1 and 2 lb ai per acre	20070717i.pdf
25421	Lilyturf, Creeping	Liriope sp.	L. muscari variegata	Field Container	Neal	2006	Over the top	Significant injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070225f.pdf
25421	Lilyturf, Creeping	Liriope sp.	L. muscari variegata 'Aztec'	Field Container	Derr	2006	Over the top	Slight injury but shoot weight decreased significantly as rate increased	20061110l.pdf
26565	Magnolia, Southern	Magnolia grandiflora		Field In-Ground	Czarnota	2006	Over the top	No injury at 0.4 lb ai per acre	20070225c.pdf
25414	Magnolia, Southern	Magnolia grandiflora	'Cherry'	Field Container	Fraelich	2006	Over the top	Severe injury (leaf burn) and growth reduction at all rates	20061212i.pdf
27715	None	None		Field In-Ground	Mathers	2007	Pre	Good control at 0.75 lb ai per acre.	20091028i.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
27715	None	None		Field In-Ground	Mathers	2007	Pre	Good initial control decreasing over time at 0.75 lb ai per acre; equal to Casoron	20091028i.pdf
27715	None	None		Field In-Ground	Neal	2007	Pre	Good to excellent control at 0.75 lb ai per acre	20080204e.pdf
27715	None	None		Field In-Ground	Senesac	2007	Pre	Fair to excellent control at 0.75 lb ai per acre	20080128a.pdf
27715	None	None		Field In-Ground	Senesac	2007	Post + 4 weeks	Good to excellent control at 0.75 lb ai per acre	20080128a.pdf
25422	Mondo Grass, Lilyturf, Ker-Gawl	Ophiopogon sp.	O. japonicus variegata	Field Container	Derr	2006	Over the top	No injury at all rates	20061110l.pdf
25423	Pentas	Pentas sp.	'Ruby Red'	Field Container	Derr	2006	Over the top	Slight injury at all rates	2006110l.pdf
28478	Photinia	Photinia sp.	P. fraseri	Field Container	Uber	2008	Over the top	Severe injury at 0.75, 1.5 and 3 lb ai per acre	20090420.pdf
25405	Spruce, Norway	Picea abies		Field Container	Altland	2006	Over the top	Slight transient injury only at 4x rate (2 lb ai/A) after the first application, but no significant injury after the second	20070110p.pdf
25405	Spruce, Norway	Picea abies		Field Container	Freiberger	2006	Over the top	Slight injury at all rates (0.5, 1 and 2 lb ai per acre); no growth reduction	20070405.pdf
25984	Pine, White	Pinus strobus		Field Container	Beste/Frank	2006	Over the top	No significant injury or growth reduction at all rates (0.5, 1 and 2 lb ai per acre); all plants marketable	20070412k.pdf
25981	Pine, Loblolly	Pinus taeda		Field Container	Beste/Frank	2006	Over the top	No significant injury or growth reduction at all rates (0.5, 1 and 2 lb ai per acre); all plants marketable	20070412j.pdf
25406	Cherry (Non-Bearing)	Prunus sp.	P. avium	Field Container	Altland	2006	Over the top	Significant injury with single application at all rates (0.5, 1 and 2 lb ai/A)	20070110p.pdf
25927	Cherry (Non-Bearing)	Prunus sp.	P. serotina	Field In-Ground	Beste/Frank	2006	Over the top	Unacceptable injury and growth reduction at all rates (0.5, 1 and 2 lb ai per acre)	20070412f.pdf
25385	Fir, Douglas	Pseudotsuga menziesii		Field Container	Altland	2006	Over the top	Significant injury at all rates (0.5, 1 and 2 lb ai/A)	20070110p.pdf
25385	Fir, Douglas	Pseudotsuga menziesii		Field Container	Boydston	2006	Over the top	Significant stunting at 4X, plants treated with lower rates marketable	20061109e.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25385	Fir, Douglas	Pseudotsuga menziesii		Field Container	Freiberger	2006	Over the top	Slight injury after 1st, high after 2nd application at all rates (0.5, 1 and 2 lb ai per acre); some growth reduction	20070405.pdf
25940	Fir, Douglas	Pseudotsuga menziesii		Field In-Ground	Ahrens/Mervosh	2006	Over the top	No injury to dormant trees, acceptable injury to actively growing trees at all rates (0.5, 1 and 2 lb ai per acre)	20070418d.pdf
25940	Fir, Douglas	Pseudotsuga menziesii		Field In-Ground	Beste/Frank	2006	Over the top	Significant injury with complete recovery at the 4x rate (2 lb ai per acre); growth reduction at 2X and 4X rates; no reduction in market value	20070412i.pdf
26081	Oak, Pin	Quercus palustris		Field In-Ground	Beste/Frank	2006	Over the top	Significant injury and growth reduction at all rates (0.5, 1 and 2 lb ai per acre); all plants marketable	20070412g.pdf
25462	Oak, Northern Red	Quercus rubra		Field Container	Altland	2006	Over the top	Virtually no injury at any rate (0.5, 1 and 2 lb ai/A)	20070110p.pdf
25462	Oak, Northern Red	Quercus rubra		Field Container	Fraelich	2006	Over the top	Very slight, transient injury at 4X rate, no growth reduction	20061212m.pdf
25462	Oak, Northern Red	Quercus rubra		Field Container	Freiberger	2006	Over the top	Slight injury after 1st, moderate after 2nd application at all rates (0.5, 1 and 2 lb ai per acre); some growth reduction	20070405.pdf
25920	Oak, Northern Red	Quercus rubra		Field In-Ground	Beste/Frank	2006	Ground broadcast Foliar	No significant injury but plant size reduced at 0.5, 1 and 2 lb ai per acre; no reduction in crop marketability	20070307b.pdf
25383	Azalea, & Rhododendron	Rhododendron sp.	'Congo'	Field Container	Gilliam	2006	Over the top	No injury after the first application, but slight injury increasing with rate (0.5, 1.0, 2.0 lb ai per acre) after the second and there was a reduction in plant size.	20070212a.pdf
25383	Azalea, & Rhododendron	Rhododendron sp.	'Crete'	Field Container	Senesac	2006	Over the top	Moderate injury at all rates	20061108h.pdf
25383	Azalea, & Rhododendron	Rhododendron sp.	'Fashion'	Field Container	Fraelich	2006	Over the top	Very slight, slight and moderate injury at 0.5 lb ai per acre, 1 and 2 lb ai per acre; no growth reduction	20061212a.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25383	Azalea, & Rhododendron	Rhododendron sp.	'Girard Rose'	Field Container	Beste/Frank	2006	Over the top	No injury or growth reduction at all rates (0.5, 1 and 2 lb ai/A); all plants marketable	20070111v.pdf
25383	Azalea, & Rhododendron	Rhododendron sp.	'Nuccio's Wild Cherry'	Field Container	Wilen	2006	Over the top	Acceptable injury at all rates (0.5, 1 and 2 lb ai/A).	20061201i.pdf
25383	Azalea, & Rhododendron	Rhododendron sp.	'Pink Gumpo'	Field Container	Neal	2006	Over the top	No significant injury at 0.5, 1.0, and 2.0 lb ai per acre.	20070225f.pdf
25383	Azalea, & Rhododendron	Rhododendron sp.	R. catawbiense 'English Roseum'	Field Container	Beste/Frank	2006	Over the top	Moderate to significant injury increasing with rate after both applications (0.5, 1.0, 2.0 lb ai per acre), but this chlorosis and slight leaf distortion was transient so that by the end of the experiment all plants except the 4X rate were marketable.	20070111u.pdf
25383	Azalea, & Rhododendron	Rhododendron sp.	R. 'P.J.M.'	Field Container	Ahrens/Mervosh	2006	Over the top	Acceptable injury at 0.5 lb ai per acre, unacceptable at 1 and 2 lb ai	20070418f.pdf
25391	Rose	Rosa sp.	'Beloved'	Field Container	Gilliam	2006	Over the top	No injury or growth reduction at 0.5, 1.0, and 2.0 lb ai per acre.	20070212a.pdf
25391	Rose	Rosa sp.	'Moonshadow'	Field Container	Gilliam	2006	Over the top	No injury or growth reduction at 0.5, 1.0, and 2.0 lb ai per acre.	20070212a.pdf
25391	Rose	Rosa sp.	'Nearly Wild'	Field Container	Lieth	2006	Over the top	Significant injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A); product should not be used on rose.	20070511a.pdf
25391	Rose	Rosa sp.	'Orange & Lemons'	Field Container	Mathers	2006	Over the top	Moderate to significant injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
25391	Rose	Rosa sp.	R. hybrida 'Red Sunblaze'	Field Container	Boydston	2006	Over the top	No injury at 0.5 lb ai per acre, significant injury and growth reduction at higher rates	20061109f.pdf
25391	Rose	Rosa sp.	R. multiflora	Field Container	Freiberger	2006	Over the top	Moderate injury at 0.5 lb ai per acre, high at higher rates; some growth reduction	20070405.pdf
25391	Rose	Rosa sp.	'Sea Foam'	Field Container	Senesac	2006	Over the top	High injury at all rates (0.5, 1 and 2 lb ai/A).	20061108h.pdf
25391	Rose	Rosa sp.	'Solstice'	Field Container	Gilliam	2006	Over the top	No injury or growth reduction at 0.5, 1.0, and 2.0 lb ai per acre.	20070212a.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25407	Coneflower, Orange	Rudbeckia fulgida speciosa	'Becky'	Field Container	Derr	2006	Over the top	Significant injury at all rates (0.5, 1 and 2 lb ai/A).	2006110l.pdf
25407	Coneflower, Orange	Rudbeckia fulgida speciosa	R. 'Goldsturm'	Field Container	Boydston	2006	Over the top	Significant injury at all rates (0.5, 1.0, 2.0 lb ai per acre) such that more than 50% were not saleable at the end of the experiment.	20070112p.pdf
25407	Coneflower, Orange	Rudbeckia fulgida speciosa	'Viettas Little Suzie'	Field Container	Mathers	2006	Over the top	Moderate to significant injury including mortality with increasing rates (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
25408	Sage, Ramona	Salvia sylvestris	S. elegans 'Tangerine'	Field Container	Derr	2006	Over the top	Severe injury at all rates (0.5, 1 and 2 lb ai/A).	2006110l.pdf
25408	Sage, Ramona	Salvia sylvestris	S. nemorosa 'May Night'	Field Container	Lieth	2006	Over the top	High injury and growth reduction at all rates; plants unmarketable (0.5, 1 and 2 lb ai/A).	20061123f.pdf
25408	Sage, Ramona	Salvia sylvestris	S. nemorosa 'Snow Hill'	Field Container	Boydston	2006	Over the top	Severe injury and growth reduction at all rates (0.5, 1 and 2 lb ai/A).	20061009g.pdf
25392	Bridal-Wreath	Spiraea sp.	'Gooldflame'	Field Container	Ahrens/Mervosh	2006	Over the top	Severe injury at all rates (0.5, 1 and 2 lb ai per acre)	20070418a.pdf
25392	Bridal-Wreath	Spiraea sp.	S. bumalda 'Anthony Waterer'	Field Container	Beste/Frank	2006	Over the top	Significant reduction of plant size, flower number and marketability at all rates (0.5, 1 and 2 lb ai/A)	20070111x.pdf
25392	Bridal-Wreath	Spiraea sp.	S. decumbens	Field Container	Senesac	2006	Over the top	Moderate, transient injury with complete recovery at lower rates (0.5, 1 and 2 lb ai/A).	20061108h.pdf
25392	Bridal-Wreath	Spiraea sp.	S. japonica 'Little Princess'	Field Container	Neal	2006	Over the top	Significant injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070225f.pdf
25392	Bridal-Wreath	Spiraea sp.	S. prunifolia	Field Container	Freiberger	2007	Directed spray	Moderate injury at 0.75, slight at 1.5 and 3 lb ai per acre; data may not be reliable	20080227l.pdf
25392	Bridal-Wreath	Spiraea sp.	S. x bumalda 'Gold Mound'	Field Container	Derr	2006	Over the top	Severe injury at all rates (0.5, 1 and 2 lb ai/A).	20061110l.pdf
25392	Bridal-Wreath	Spiraea sp.	S. x bumalda 'Goldmound'	Field Container	Mathers	2006	Over the top	Slight to significant injury increasing with time and second application (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
24938	Bald Cypress	Taxodium distichum		Field In-Ground	Czarnota	2006	Over the top	No injury at 0.4 lb ai per acre	20070225c.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25393	Yew	Taxus sp.	T. cuspidata	Field Container	Fraelich	2006	Over the top	No injury or growth reduction at all rates (0.5, 1 and 2 lb ai/A).	20061212f.pdf
25393	Yew	Taxus sp.	Taxus x media 'Fairview'	Field Container	Lieth	2006	Over the top	No injury but significant growth reduction at 0.5, 1 and 2 lb ai per acre	20070717l.pdf
25396	Arborvitae	Thuja sp.	'Emerald Green'	Field Container	Ahrens/Mervosh	2006	Over the top	Moderate to high injury with increasing rates (0.5, 1 and 2 lb ai per acre)	20070418b.pdf
26569	Arborvitae	Thuja sp.	T. occidentalis	Field In-Ground	Czarnota	2006	Over the top	No injury at 0.4 lb ai per acre	20070225c.pdf
25396	Arborvitae	Thuja sp.	T. occidentalis 'Emerald Green'	Field Container	Lieth	2006	Over the top	High injury and growth reduction at all rates; plants unmarketable (0.5, 1 and 2 lb ai/A).	20061201h.pdf
25668	Jasmine, Asian	Trachelospermum asiaticum		Field Container	Gilliam	2006	Over the top	No injury or growth reduction at 0.5, 1.0, and 2.0 lb ai per acre.	20070212a.pdf
25668	Jasmine, Asian	Trachelospermum asiaticum	'Green'	Field Container	Fraelich	2006	Over the top	No injury or growth reduction at all rates (0.5, 1 and 2 lb ai/A).	20061212n.pdf
26464	Jasmine, Star;Confederate	Trachelospermum jasminoides		Field Container	Wilen	2006	Over the top	Acceptable injury at all rates (0.5, 1 and 2 lb ai/A).	20061201i.pdf
26575	Palm, Windmill	Trachycarpus fortunei		Field In-Ground	Czarnota	2006	Over the top	No injury at 0.4 lb ai per acre	20070225c.pdf
25394	Viburnum, arrowwood	Viburnum dentatum		Field Container	Freiberger	2006	Over the top	High injury and growth reduction at all rates (0.5, 1 and 2 lb ai per acre)	20070405.pdf
25394	Viburnum, arrowwood	Viburnum dentatum		Field Container	Mathers	2006	Over the top	Moderate persistent injury at all rates (0.5, 1.0, 2.0 lb ai per acre).	20070110l.pdf
25394	Viburnum, arrowwood	Viburnum dentatum	'Autumn Jazz'	Field Container	Altland	2006	Over the top	Significant injury with single application at all rates (0.5, 1 and 2 lb ai/A)	20070110p.pdf
25394	Viburnum, arrowwood	Viburnum dentatum	V. 'Chicago Lustre'	Field Container	Beste/Frank	2006	Over the top	Significant, but transient injury at all rates (0.5, 1.0, 2.0 lb ai per acre) with significant size reduction at the 4X rate.	20070112b.pdf
26503	Arrowwood	Viburnum sp.	V. carlesii	Field Container	Altland	2006	Over the top	Significant injury with single application at all rates (0.5, 1 and 2 lb ai/A)	20070110p.pdf
26503	Arrowwood	Viburnum sp.	V. tinus compacta	Field Container	Neal	2006	Over the top	Moderate to significant injury increasing with rate (0.125, 0.25, 0.5 lb ai per acre).	20070225f.pdf

PR #	Crop			Production Site	Researcher (s)	Year	Application Method	Results	File Name
	Common Name	Latin Name	Cultivar						
25409	Periwinkle	Vinca sp.	V. minor 'Bowles'	Field Container	Lieth	2006	Over the top	No injury or growth reduction at all rates (0.5, 1 and 2 lb ai/A)	20070110k.pdf
25409	Periwinkle	Vinca sp.	V. minor 'Myrtle'	Field Container	Boydston	2006	Over the top	No injury at all rates (0.5, 1 and 2 lb ai/A).	20061109h.pdf

Label Suggestions

If V-10142 0.5G and V-10142 75WDG will be commercialized, it is suggested that the initial label(s) be quite restrictive with over-the-top applications along with fully listing those species exhibiting sensitivity to treatment.

Appendix 1: Protocols

2008/2009 Crop Safety with Over-the-top Applications of Select Herbicide Materials

Final Draft

Ornamental Protocol Number: 08-010

Objective: Determine phytotoxicity of BAS 656EC, BAS 659G, Broadstar 0.25G VC1604, Mesotrione G, and V-10161 G to woody ornamental plants and BAS 659G on herbaceous perennials.

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: Depending upon research site and plant materials, various experiments can be established. Two applications are to be made approximately 6 weeks apart, with the first application within 7 days after potting, preferable between 24 and 48 hours. However, plant materials must have broken dormancy prior to first application. See notes below for Broadstar New Formulation. For liquid applications, use a minimum of 20 gal per acre. Applications should be made over the top of the plants using application equipment consistent with conventional commercial equipment. For all materials, target dry foliage. If dew is present at the time of application, note it. Irrigate with ½ inch water between 1 and 4 hours after application. Note: Liquid materials need at least 1 hour drying time prior to irrigation.

Plant Materials: *Contact your Regional Coordinator for an up-to-date list.* Plants grown in field containers are preferred to in-ground.

Evaluations: Record plant height & width at initial and final evaluations only. 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.

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
BAS 656h 63.9%EC (dimethenamid-p)	21 fl oz per acre (0.97 lb ai)	Woody ornamentals only	BASF, Kathie Kalmowitz, 919-270-4592, kathie.kalmowitz@basf.com
	42 fl oz per acre (1.94 lb ai)		
	84 fl oz per acre (3.88 lb ai)		
BAS 659h 1.75G (dimethenamid-p + pendimethalin)	150 lb per acre (2.65 lb ai)		BASF, Kathie Kalmowitz, 919-270-4592, kathie.kalmowitz@basf.com
	300 lb per acre (5.3 lb ai)		
	600 lb per acre (10.6 lb ai)		
Broadstar 0.25G VC1604	150 lb per acre (0.375 lb ai)	Do not apply at the first application timing within 7 days after potting; <i>only apply at the second application timing.</i>	Valent, Joe Chamberlin, 770-985-0303, jcham@valent.com
	300 lb per acre (0.75 lb ai)		
	600 lb per acre (1.5 lb ai)		
Mesotrione G	100 lb product per acre (2.1 lb ai/A)	Woody ornamentals only	Syngenta, Nancy Rechsigl, 941-708-9338, nancy.rechsigl@syngenta.com
	200 lb product per acre (4.2 lb ai/A)		
	300 lb product per acre (6.3 lb ai/A)		
V-10142 0.5G	150 lb per acre (0.75 lb ai/acre)		Valent, Joe Chamberlin, 770-985-0303, jcham@valent.com
	300 lb per acre (1.5 lb ai/acre)		
	600 lb per acre (3.0 lb ai/acre)		
Untreated	--	--	

Reports:

Reports submitted electronically on the standard IR-4 Ornamental Horticulture Research Report Form are preferred.

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 x4629, palmer@aesop.rutgers.edu **OR** Ely Vea, 308 Aston Forest Lane, Crownsville, MD 21032, Phone & FAX#: 410-923-4880, E-mail: evvea@comcast.net.

Draft Date: 3/4/08

Revised By: CLP

2008/2009 Crop Safety with Over-the-top Applications of Select Herbicide Materials

Final Draft

Ornamental Protocol Number: 08-010

Objective: Determine phytotoxicity of BAS 656EC, BAS 659G, Broadstar 0.25G VC1604, Mesotrione G, and V-10161 G to woody ornamental plants and BAS 659G on herbaceous perennials.

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: Depending upon research site and plant materials, various experiments can be established. Two applications are to be made approximately 6 weeks apart, with the first application within 7 days after potting, preferable between 24 and 48 hours. However, plant materials must have broken dormancy prior to first application. See notes below for Broadstar New Formulation. For liquid applications, use a minimum of 20 gal per acre. Applications should be made over the top of the plants using application equipment consistent with conventional commercial equipment. For all materials, target dry foliage. If dew is present at the time of application, note it. Irrigate with ½ inch water between 1 and 4 hours after application. Note: Liquid materials need at least 1 hour drying time prior to irrigation.

Plant Materials: *Contact your Regional Coordinator for an up-to-date list.* Plants grown in field containers are preferred to in-ground.

Evaluations: Record plant height & width at initial and final evaluations only. 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.

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
BAS 656h 63.9%EC (dimethenamid-p)	21 fl oz per acre (0.97 lb ai)	Woody ornamentals only	BASF, Kathie Kalmowitz, 919-270-4592, kathie.kalmowitz@basf.com
	42 fl oz per acre (1.94 lb ai)		
	84 fl oz per acre (3.88 lb ai)		
BAS 659h 1.75G (dimethenamid-p + pendimethalin)	150 lb per acre (2.65 lb ai)		BASF, Kathie Kalmowitz, 919-270-4592, kathie.kalmowitz@basf.com
	300 lb per acre (5.3 lb ai)		
	600 lb per acre (10.6 lb ai)		
Broadstar 0.25G VC1604	150 lb per acre (0.375 lb ai)	Do not apply at the first application timing within 7 days after potting; <i>only apply at the second application timing.</i>	Valent, Joe Chamberlin, 770-985-0303, jcham@valent.com
	300 lb per acre (0.75 lb ai)		
	600 lb per acre (1.5 lb ai)		
Mesotrione G	100 lb product per acre (2.1 lb ai/A)	Woody ornamentals only	Syngenta, Nancy Rechsigl, 941-708-9338, nancy.rechsigl@syngenta.com
	200 lb product per acre (4.2 lb ai/A)		
	300 lb product per acre (6.3 lb ai/A)		
V-10142 0.5G	150 lb per acre (0.75 lb ai/acre)		Valent, Joe Chamberlin, 770-985-0303, jcham@valent.com
	300 lb per acre (1.5 lb ai/acre)		
	600 lb per acre (3.0 lb ai/acre)		
Untreated	--	--	

2009 Crop Safety with Over-the-top Applications of Select Herbicide Materials

Final

Ornamental Protocol Number: 09-011

Objective: Determine phytotoxicity of Broadstar 0.25G VC1604, Freehand, Snapshot, sulfosulfuron, Tower EC, and V-10142 G and to ornamental horticulture plants.

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: Depending upon research site and plant materials, various experiments can be established. Two applications are to be made approximately 6 weeks apart, with the first application within 7 days after potting, preferable between 24 and 48 hours. However, plant materials must have broken dormancy prior to first application. See notes below for Broadstar 0.25G VC1604. For liquid applications, use a minimum of 20 gal per acre. Applications should be made over the top of the plants using application equipment consistent with conventional commercial equipment. For all materials, target dry foliage. If dew is present at the time of application, note it. Irrigate with $\frac{1}{2}$ inch water between 1 and 4 hours after application. Note: Liquid materials need at least 1 hour drying time prior to irrigation.

Plant Materials: *Contact your Regional Coordinator for an up-to-date list.* Plants grown in field containers are preferred to in-ground.

Treatments: See table on next page.

Evaluations: Record plant height & width at *initial and final evaluations only*. 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.

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.

Reports:

Reports submitted electronically on the standard IR-4 Ornamental Horticulture Research Report Form are preferred.

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 x4629, palmer@aesop.rutgers.edu OR Ely Vea, 308 Aston Forest Lane, Crownsville, MD 21032, Phone & FAX#: 410-923-4880, E-mail: evvea@comcast.net.

Draft Date: 3/23/09

Revised By: CLP

Treatments:

Product	Prior ity	Rate Product (ai) per acre	Special Instructions	Contact Information to obtain materials
Broadstar 0.25G VC1604 (flumioxazin)	A/B	150 lb (0.375 lb ai)	Test only on woody ornamentals. If root ball of liner is less than 4" in diameter, only apply at second application timing. If root ball is 4" or greater in diameter, apply at both application timings.	Valent, Joe Chamberlin, 770-985-0303, jcham@valent.com
		300 lb (0.75 lb ai)		
		600 lb (1.5 lb ai)		
Freehand 1.75G (dimethenamid-p + pendimethalin)	A/B	150 lb (2.65 lb ai)		BASF, Kathie Kalmowitz, 919-270-4592, kathie.kalmowitz@basf.com
		300 lb (5.3 lb ai)		
		600 lb (10.6 lb ai)		
Mesotrione SC	C	6 oz (0.187 lb ai)	Certain woody ornamentals and ornamental grasses only	Syngenta, Nancy Rechsigl, 941-708-9338, nancy.rechsigl@syngenta.com
		8 oz (0.25 lb ai)		
		12 oz (0.37 lb ai)		
Snapshot (trifluralin + isoxaben)	B/C	100 lb (2.5 lb ai)		Dow Agrosiences, Raymond Miller, (817) 570-7169, RCMiller2@dow.com
		200 lb (5.0 lb ai)		
		400 lb (10.0 lb ai)		
Sulfosulfuron	C	1.25 oz		Monsanto, James Cole, 314- 694-4322, james.t.cole@monsanto.com
		2.5 oz		
		5.0 oz		
Tower 63.9%EC (dimethenamid-p)	A/B	21 fl oz (0.97 lb ai)		BASF, Kathie Kalmowitz, 919-270-4592, kathie.kalmowitz@basf.com
		42 fl oz (1.94 lb ai)		
		84 fl oz (3.88 lb ai)		
V-10142 0.5G (imazosulfuron)	A/B	150 lb (0.75 lb ai)	Test only on Conifers and finish ongoing woody ornamentals species trials.	Valent, Joe Chamberlin, 770-985-0303, jcham@valent.com
		300 lb (1.5 lb ai)		
		600 lb (3.0 lb ai)		
Untreated		--	--	

Appendix 2: Contributing Researchers

Dr. John Ahrens	Connecticut Agricultural Experiment Station Valley Laboratory 153 Cook Hill Road, P.O. Box 248 Windsor, CT
Dr. Ed Beste	University of Maryland LESREC – Salisbury Facility 27664 Nanticoke Road Salisbury, MD 21801
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Mr. Buzz Uber	Crop Inspection Service 31130 Hilltop Drive Valley Center, CA 92082
Mr. Paul Wade	USDA-ARS US Vegetable Laboratory 2700 Savannah Highway Charleston, SC 29414
Dr. David Williams	University of Illinois PSL, 1201 S. Dorner Urbana, IL 61801

Appendix 3: Submitted Data

Researcher reports included in the printed copy of this report are those received by 3/15/10. Reports on following pages are in alphanumeric order of author and PR number. Electronic reports can be found at <http://ir4.rutgers.edu/Ornamental/Ornamentals.cfm>.