http://ir4.rutgers.edu/Ornamental/ornamentalSummaryReports.cfm

IR-4 Ornamental Horticulture Program
Pendimethalin + Dimethenamid-p Crop Safety

Authors: Cristi L. Palmer, Edith Lurvey, Kathleen Hester and Ely Vea
Date: May 8, 2013

Acknowledgements
Susan Bierbrunner
Diane Infante
Lori Harrison
Karen Sims
Roxanne Fish
Barbara Anderson

Table of Contents

Table of Tables

Abstract

From 2007 to 2013, IR-4 completed 598 trials on Freehand G (BAS 649 G; dimethenamid-p + pendimethalin). The data contained in this report was generated to register uses of dimethenamid-p + pendimethalin on and around ornamental horticulture plants with broadcast applications, including over the top of established plants. The Freehand rates in this testing program were 2.64, 4.3 and 10.6 pounds active ingredient per acre (lb ai per A) as the 1X, 2X and 2X rates. Freehand G had been applied to 166 plant genera or species. Of these genera and species, 71 exhibited no or minimal transient injury after application at all three rates. Thirty three (33) crops exhibited little or no phytotoxicity at 2.64 lb ai per acre, but did have some injury at 4.3 and/or 10.6 lb ai per acre, or showed injury after the second application. Of the forty nine (49) crops that still need additional information, there are twelve (12) genera or species in which three or more trials do not show significant injury, but one or more additional trials shows some sort of notable injury, necessitating additional research. Additional trials are also indicated to establish species or cultivar sensitivities.

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. Four herbicides, Freehand G (BAS 649 G; dimethenamid-p + pendimethalin), F6874 0.3G (sulfentrazone + prodiamine), Mesotrione SC, and Tower EC (BAS 646 EC; dimethenamid-p), were chosen for 2007 research activities into level of crop safety on over 40 different plant species. In 2008, 2010 and 2011 Freehand (dimethenamid-p + pendimethalin), was again tested in a study with other products, including Broadstar 0.24G VC1602 (flumioxazin), EXC3898 G (mesotrione), Tower EC and V-10122 G (sulfosulfuron). The priority for herbicide crop safety shifted to primarily to liquid herbicides in 2012; however, additional research was conducted on granular broadcast materials including Freehand. This summary covers the results from Freehand G from 2007 through 2014.

Materials and Methods

In the 2007 protocol, two applications of Freehand G were made approximately 8 weeks apart. In the 2008, and 2010 through 2014 protocols, two applications of Freehand G were made approximately 6 weeks apart. The application rates were 2.64, 4.3 and 10.6 lb ai per acre, 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, 2, 8, and 12 weeks after initial application. Some researchers also included readings 3 to 2 days after the initial and second applications. For more detailed materials and methods, please see http://ir4.rutgers.edu/Ornamental/Ornamentals.cfm.

Freehand G was supplied to researchers (See list of researchers in Appendix 1) by BASF Corporation.

Results and Summary

Phytotoxicity

Based on the type and nature of injury seen with Freehand G applications in the conducted research, tested plant species were placed into four 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, and 4) more data is needed to make informed recommendations.

Freehand G exhibited no or minimal negative impact on 71 plant genera or species with Broadcast applications (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. Of the plants showing little or no injury 59 genera or species were already on the label, partially based on previous summary reports. In the research presented here, thirty-three (33) plants exhibited significant injury at higher rates or after the second application even though little or no injury was observed at lower rates or before the second application (Table 2).

Twenty (20) crops tested from 2007 to 2014 exhibited damage sufficient to recommend growers not utilize Freehand G as an over-the-top treatment for pre-emergent weed control (Table 3). Note that some of two of these crops (*Gazania spp*. and *Lobelia spp*.) are already labeled, so the addition of a cautionary note is suggested. For 49 genera/species, more information is needed either because only 1 or 2 trials were conducted or because consistent results were not achieved across research sites (Table 4).

Please see Table 5 for a list of individual trial summaries on Freehand G.

Table 1. List of Freehand G treated crops with no or minimal transitory injury.

Abies fraseri[1]
Acer palmatum[1]
Acer negundo[1]
Agastache spp.[1, 2]
Agave sp.
Aloe sp.
Amelanchier spp. [1]
Anemone hupehensis [1, 2]
Berberis spp.[1]
Buddleia davidii [1]
Buxus macrophylla [1, 2]
Callistemon spp. [1]
Camellia spp.[1]
Cercis canadensis[1]
Clematisintegrifolia [1, 2]
Cornus florida[1, 2]
Cornus kousa
Cotoneaster spp.[1]
Cryptomeria japonica[1]
Cupressocyparis leylandii[1]
Dendranthema x morifolium
Dianthus gratianopolitanus [1, 2]
Eupatorium spp. [1, 2]
Fothergilla gardenii
Forsythia x intermedia [1]
Gaura lindheimeri [1] (see Klett)
Gladiolus spp. [1]
Gleditsia triacanthos[1]
Hemerocallis spp. [1,2]
Hibiscus spp. [1, 2]
Hosta spp. [1]
Hydrangea macrophylla[,4]
Ilex spp. [1, 2]
I. cornuta[1]
I. crenata[1]
Ipomea batata[1] (See Senesac)
Iris spp. [1]
Juniperus spp. [1, 2]
Lagerstroemia indica [1]
Lantana spp. [1]
Liriope muscari [1]
Lobularia maritima[1]
Magnolia spp. [1, 2, 4]
Mahonia aquifolium [1, 2]
Malus spp. [1]
Miscanthus spp.[1]
Ophiopogon japonicas
Pachysandra terminalis [1]
Petunia spp. [1]
Picea spp. [1]
Pieris japonica
Pinus spp. [1, 2] (see Senesac 2008)
Potentilla fruticosa [1, 2] (See Uber)
Pseudotsuga menziesii[1]
Quercus shumardii
Raphiolepis indica [1]
Rhododendron spp. [1, 2]
Rosa spp. [1, 2]
Sabal minor[1]
Salvia spp. [1, 2]
Spiraea spp. [1, 2, 4]
Stewartia pseudocamellia[1]
Syringa spp. [1]
Taxodium distichum
Taxus spp. [1]
Ternstroemia spp. (see Gilliam)
Teucrium chamaedrys
Thuja spp. [1] (See Lieth)
Tsuga heterophylla[,3, 4] (Beste & Frank)
Verbena spp. [1] (See Gilliam)
Viburnum spp. [1, 2, 3, 4]
Zelkova serrata[1]

[1] Registered already
[2] More information on cultivar differences might be warranted.
[3] Perhaps a single application only could be a label restriction.
[4] Listed on label as sensitive with special precautions

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

Acer rubrum[1]
Achillea millefolium[1, 2]
Amelanchier spp. [1, 3] (see Mathers)
Asclepias incarnata[, 2] ^ (see Beste/Frank)
Asclepias tuberosa [3,4]^
Campanula spp. [1]
Canna spp. [1]
Catharanthus roseus [1]
Ceanothus spp.[1, 2]
Chamaecyparis spp. [1, 3]
Chelone spp. [1, 4]
Cortaderia spp. (see Boydston)
Cotoneaster spp.[1]
Dryopteris erythrosora[1] (see Neal)
Echinacea purpurea [1,4] (See Klett)
Helianthus spp.[1]^
Heuchera sanguinea[1]
Iberis sempervirens (see Klett)
Itea virginica
Lavandula angustifolia[1] (see Neal)
Leucanthemum maximum[1]
Liatris spicata
Ligustrum spp.[1, 3]
Loropetalum chinense [1, 4]
Oenothera spp.[1]
Phlox subulata [1, 4]
Photinia fraseri [1, 3]
Picea spp.[1]
Quercus spp.[1]
Sambucus spp.[1]
Sedum spp.[1, 4] (see Boydston)
Solidago spp. [1, 4]
Vinca spp.[4]

Table 3. List of Freehand G treated crops exhibiting significant injury.

Amsonia hubrichtii [4]
Aquilegia spp.[4]
Armeria maritime [4]
Calamagrostis acutiflora [5]
Coreopsis auriculata[4]
Festuca ovina glauca [5]
Gazania spp.[1]
Impatiens spp. [4]*(New Guinea Hybrids)*
Lamium spp.[4]
Lobelia spp.[1]
Matthiola incana
Muhlenbergia capillaris [5]
Muhlenbergia dubia [5]
Osmuda regalis
Pennisetum setaceum [5]
Phlox paniculata [4]
Rudbeckia sp.
Scabiosa spp.[4]
Scaevola spp.[1]
Veronica spicata[, 4]

[1] Registered already
[2] More information on cultivar or species differences might be warranted.
[3] Perhaps a single application only could be a label restriction.
[4] Listed on label as sensitive plant.
[5] Ornamental Grass, Freehand 1.74G should not be applied, as per label.
^Have three trials, but there are some indications of injury, more trials recommended.

Table 4. List of Freehand G treated crops where more information is needed.

Acer spp.[1]
- *A. ginnala*
- *A. saccharinum*[1]

Aesculus pavia
Agapanthus spp.[1]^
Allamanda cathartica [1]
Asclepias incarnate
Astilbe spp.[1](see Mathers) ^
Athyrium nipponicum
Caladium spp.[1]
Calycanthus floridus
Carex divulsa[1,3]
Cedrus atlantica
Cercis chinensis[1]
Chrysogonum virginianum
Cladrastis spp.[1] (see Reding) ^
Clethra alnifolia [3] (see Reding) ^
Coreopsis spp. [2]
- *C. auriculata* [2]^
- *C. rosea*
- *C. verticulata*

Cortaderia spp.[1](see Boydston)^
Crataegus spp.[1,2]
- *C. coccinoid*
- *C. crus-galli*
- *C. phaenoprum*

Epilobium canum[1]
Erianthus spp. (Saccharum ravennae)
Euonymus alatus[1]
Fraxinus americana[1]
Fraxinus arisonica
Fraxinus pennsylvanica[1]
Gaillardia spp. [1]
Heteromeles arbutifolia^
(see Lieth)
Kerria japonica [1]^
Larix laricina
Nepeta cataria (see Lieth)^
Nepeta x faasseni (see Lieth)^
Osmanthus heterophyllus[1]
Paeonia spp.[1]
Philadelphus viginalis[#]
Pinus mugo[1]
Portulaca spp. [1]
Quercus alba
Quercus rubra
Quercus virginiana
Ribes viburnifolium[1]
Ruscus hypophyllum
Tagetes spp.[1]^
Trachycarpus fortunei
Ulmus spp.
- *U. japonica*[1]

Vernonia noveboracensis[1]

[1] Registered already
[2] More information on cultivar differences might be warranted.
[3] Perhaps a single application only could be a label restriction.
[4] Listed on label as sensitive plant.
^Have at least three trials with no or transitory injury, but other trial(s) indicate significant injury, more trials recommended.

Note: *Pittosporum tobira* is on the label as mock orange, but it is more correctly called Japanese mock orange. The shrub commonly called mock orange belongs to the genus *Philadelphus*, an entirely different family.

Table 5. Detailed Summary of Crop Safety Testing with Freehand G

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 5/1/2015 are listed below. Table entries with blank results have been received but not yet cataloged in the database.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results	EPA Reg	File Name
26538	Fir, Fraser (Abies fraseri)	Field In-Ground	Ahrens/Mervosh	CT	2007	Over the top	BAS 656 EC + Pendulum Aquacap sprayed at 0.9 + 1.5, 1.8 + 3.0 and 2.7 + 4.5 lb ai per acre; no injury at 1X and 2X, slight injury at 4X.	N	20070401a.pdf
26538	Fir, Fraser (Abies fraseri)	Field In-Ground	Beste/Frank (ARS)	MD	2007	Over the top	Results not useful because of severe injury caused by very high temperature and drought conditions.	N	20080613c.pdf
26321	Fir, Fraser (Abies fraseri)	Field Container	Boydston	WA	2007	Over the top	Two sequential applications 8 weeks apart at 2.65, 5.3, and 10.6 lb ai per acre did not cause injury but reduced height and width at 8 WAT; all treated plants are saleable.	N	20080229l.pdf
26321	Fir, Fraser (Abies fraseri)	Field Container	Freiberger	NJ	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227l.pdf
26321	Fir, Fraser (Abies fraseri)	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080128e.pdf
26321	Fir, Fraser (Abies fraseri) 'Roan Mountain'	Field Container	Marshall	MI	2007	Over the top	One application. No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080401b.pdf
27391	Box elder (Acer negundo L. ssp. Negundo)	Field Container	Freiberger	NJ	2008	Directed	Very slight injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090319c.pdf
27391	Box elder (Acer negundo L. ssp. Negundo)	Field Container	Jones	OH	2013	Over the top	Virtually no injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre applied twice.	Y	20141006c.pdf
27391	Box elder (Acer negundo L. ssp. Negundo) A. negundo 'Variegatum'	Field Container	Boydston	WA	2011	Broadcast	No crop injury or reduction in growth with two applications at 2.65, 5.3, 10.6 lb ai per acre.	Y	20111012d.pdf
27083	Maple, Japanese (Acer palmatum)	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081223c.pdf
27083	Maple, Japanese (Acer palmatum) 'Atropurpureum'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20081217f.pdf
27083	Maple, Japanese (Acer palmatum) 'Atropurpureum'	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20091230e.pdf
27083	Maple, Japanese (Acer palmatum) 'Atropurpureum'	Field Container	Senesac	NY	2008	Over the top	No injury at 2.63, 5.25 and 10.5 lb ai per acre.	N	20081218a.pdf
27083	Maple, Japanese (Acer palmatum) Maple Japanese	Field Container	Harvey	WA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100208b.pdf

26542	Maple, Red (Acer rubrum)	Field In-Ground	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury and height reduction at 2.65 lb ai per acre, significant at 5.3 and 10.6 lb; all plants marketable.	N	20080613c.pdf
26542	Maple, Red (Acer rubrum)	Field In-Ground	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre; height reduction at 4X but all plants marketable.	N	20081224f.pdf
26195	Maple, Red (Acer rubrum)	Field Container	Freiberger	NJ	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st; slight at 1X and 2X, moderate at 4X after 2nd application.	N	20080227l.pdf
26195	Maple, Red (Acer rubrum)	Field Container	Senesac	NY	2008	Over the top	Slight injury at 2.63 and 5.25, moderate at 10.5 lb ai per acre.	N	20081218a.pdf
26195	Maple, Red (Acer rubrum) 'October Glory'	Field Container	Harvey	WA	2008	Over the top	Slight injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre.	N	20080924b.pdf
26195	Maple, Red (Acer rubrum) 'Summer'	Field Container	Gilliam	AL	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre with two applications.	N	20081224a.pdf
26195	Maple, Red (Acer rubrum) 'Sun Valley'	Field Container	Mathers (OSU)	OH	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081030q.pdf
27092	Maple (Acer sp.) A. ginnala	Field Container	Reding	OH	2009	Over the top	No injury and no significant difference in growth or marketability with 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130m.pdf
27092	Maple (Acer sp.) A. palmatum	Field Container	Ahrens/Mervosh	CT	2009	Broadcast	Little to no injury or reduction in growth with two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20110926a.pdf
27092	Maple (Acer sp.) A. saccharinum	Field Container	Derr	VA	2009	Over the top	No injury or growth reduction at 2.63, 5.25 and 10.6 lb ai per acre.	N	20091202a.pdf
27092	Maple (Acer sp.) A. saccharinum	Field Container	Senesac	NY	2008	Over the top	No injury or growth reduction at 2.63, 5.25 and 10.5 lb ai per acre.	N	20081218a.pdf
27096	Yarrow (Achillea millefolium) 'Moonshine'	Field Container	Neal	NC	2008	Over the top	No injury to delayed stunting at the highest rate tested (2.65, 5.3, 10.6 lb ai per acre).	N	20090421a.pdf
27096	Yarrow (Achillea millefolium) 'Moonshine'	Field Container	Trader	MS	2008	Over the top	Moderate injury with slow recovery at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	N	20080924f.pdf
27096	Yarrow (Achillea millefolium) 'Paprika'	Field Container	Boydston	WA	2008	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20090129k.pdf
28173	Horse Chestnut (Aesculus sp.) A. glabra	Field Container	Reding	OH	2011	Broadcast	No crop injury or reduction in growth at 2.65, 5.3 and 10.6 lb ai per acre.	N	20111014a.pdf
28173	Horse Chestnut (Aesculus sp.) A. pavia	Field Container	Freiberger	NJ	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100129b.pdf
27385	Lily-Of-The-Nile (Agapanthus sp.)	Field Container	Neal	NC	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090420i.pdf
27385	Lily-Of-The-Nile (Agapanthus sp.) A. africanus ‘Alba’	Field Container	Trader	MS	2008	Over the top	Significant injury with slow recovery at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	N	20080924f.pdf
27385	Lily-Of-The-Nile (Agapanthus sp.) A. africanus 'Peter Pan'	Field Container	Uber	CA	2008	Over the top	No significant injury or growth reduction at 2.6, 5.3 and 10.6 lb ai per acre.	N	20090420h.pdf

27385	Lily-Of-The-Nile (Agapanthus sp.) 'Peter Pan'	Field Container	Lieth	CA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction at 2X and 4X; fewer leaves at all rates may delay or reduce marketability.	N	20090420a.pdf
26272	Hyssop species (Agastache sp.)	Field Container	Derr	VA	2009	Over the top	No injury at 2.63, 5.25 and 10.6 lb ai per acre.	N	20091202a.pdf
26272	Hyssop species (Agastache sp.) A. barberi 'Tutti Frutti'	Field Container	Trader	MS	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080924f.pdf
26272	Hyssop species (Agastache sp.) 'Black Adder'	Field Container	Trader	MS	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090924c.pdf
26272	Hyssop species (Agastache sp.) 'Blue Fortune'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20100120k.pdf
31329	Agave (Agave sp.) A. ellemeetiana ' Santina'	Field Container	Wilen	CA	2013	Over the top	No injury or growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130822f.pdf
31329	Agave (Agave sp.) A. parrasana	Field Container	Villavicencio	CA	2013	Over the top	Minor injury and no growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130822a.pdf
31329	Agave (Agave sp.) 'Blue Flame'	Field Container	Villavicencio	CA	2012	Over the top	Slight discoloration and spotting with 150, 300 and 600 lb per acre, very slight necrosis at 2X and 4X; no growth reduction.	N	20120917a.pdf
29648	Golden Trumpet (Allamanda cathartica) 'Hendersonii'	Field Container	Stamps	FL	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre; no significant growth reduction.	N	20100301a.pdf
31328	Barbados Aloe (Aloe sp.) A. brevifolia	Field Container	Villavicencio	CA	2013	Over the top	No injury or growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130822b.pdf
31328	Barbados Aloe (Aloe sp.) 'Blue Elf'	Field Container	Villavicencio	CA	2012	Over the top	No injury or growth reduction with 150, 300 and 600 lb per acre.	N	20120917a.pdf
31328	Barbados Aloe (Aloe sp.) 'Little Gator'	Field Container	Wilen	CA	2014	Over the top	Slight injury with 150, 300 and 600 lb per acre; no significant growth reduction.	N	20141202e.pdf
28174	Serviceberry (Amelanchier sp.)	Field Container	Reding	OH	2009	Over the top	No injury and no significant difference in growth or marketability with 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130m.pdf
28174	Serviceberry (Amelanchier sp.) A. canadensis	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	No significant injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre; No reduction in marketability for all plants.	N	20120730l.pdf
28174	Serviceberry (Amelanchier sp.) A. x grandifolia 'Autumn Brilliance'	Field Container	DeFrancesco	OR	2010	Over the top	No injury with one application at 2.65, 5.3 and 10.6 lb ai per acre. A second application at any rate resulted in slight leaf cupping and twisting.	N	20110328c.pdf
28174	Serviceberry (Amelanchier sp.) Amelanchier stolonifera	Field Container	Mathers (OSU)	OH	2010	Over the top	Unacceptable crop injury at 5.3 and 10.6 lb ai per acre (acceptable at 2.65 lb ai per acre).	N	20101005a.pdf
27392	Bluestar (Amsonia sp.) A. hubrichtii	Field Container	Senesac	NY	2008	Over the top	Slight injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20091130f.pdf

27392	Bluestar (Amsonia sp.) A. hubrichtii	Field Container	Trader	MS	2008	Over the top	Moderate to high injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080924f.pdf
27393	Windflower, Lily-Of-The-Field (Anemone sp.) 'Little Princess'	Field Container	Klett	CO	2009	Over the top	Trial 1: No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
27393	Windflower, Lily-Of-The-Field (Anemone sp.) 'Little Princess'	Field Container	Klett	CO	2009	Over the top	Trial 2: Very slight injury to moderate injury increasing with rate (2.65, 5.3 and 10.6 lb ai per acre).	N	20100109a.pdf
27393	Windflower, Lily-Of-The-Field (Anemone sp.) 'Max Vogel'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants saleable.	N	20091103g.pdf
27393	Windflower, Lily-Of-The-Field (Anemone sp.) 'Pamina'	Field Container	Trader	MS	2008	Over the top	Slight injury with complete recovery at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	N	20080924f.pdf
27097	Columbine (Aquilegia sp.)	Field Container	Neal	NC	2008	Over the top	No to significant injury increasing with rate (2.65, 5.3, and 10.6 lb ai per acre).	Y	20090421a.pdf
27097	Columbine (Aquilegia sp.) A. caerulea	Field Container	Klett	CO	2008	Over the top	Trial 1: Slight to moderate injury (chlorosis) at 2.65 and 5.3, severe at 10.6 lb ai per acre; growth reduction.	Y	20090319i.pdf
27097	Columbine (Aquilegia sp.) A. caerulea	Field Container	Klett	CO	2008	Over the top	Trial 2: Some injury (chlorosis) at 2.65, 5.3 and 10.6 lb ai per acre; slight growth reduction at 1X.	Y	20090319i.pdf
27097	Columbine (Aquilegia sp.) A. caerulea ‘Songbird Blue Jay’	Field Container	Trader	MS	2008	Over the top	High injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080924f.pdf
27097	Columbine (Aquilegia sp.) 'Clementine Red'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction and reduced marketability at 2X and 4X.	Y	20081224f.pdf
27097	Columbine (Aquilegia sp.) 'Winky Double Dark Blue and White'	Field Container	Boydston	WA	2008	Over the top	No significant injury or growth reduction at 2.65 and 5.3, unacceptable at 10.6 lb ai per acre; 1X and 2X plants probably marketable.	Y	20090129k.pdf
27098	Thrift, Sea Pink (Armeria maritima) 'Alba'	Field Container	Boydston	WA	2009	Over the top	No significant injury at 2.65, high at 5.3 and 10.6 lb ai per acre.	Y	20091201p.pdf
27098	Thrift, Sea Pink (Armeria maritima) 'Armada Rose'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre; growth reduction and reduced marketability at all rates.	Y	20081224f.pdf
27098	Thrift, Sea Pink (Armeria maritima) 'Dusseldorfer-stolz'	Field Container	Boydston	WA	2008	Over the top	Significant injury and height reduction at 2.65, 5.3 and 10.6 lb ai per acre; width reduction at 2X and 4X.	Y	20090129d.pdf
27098	Thrift, Sea Pink (Armeria maritima) 'Splendens'	Field Container	Trader	MS	2009	Over the top	No significant injury at 2.65 and 5.3, moderate injury at 10.6 lb ai per acre; growth reduction at all rates.	Y	20090924c.pdf
27394	Butterfly Flower (Asclepias sp.)	Field Container	Derr	VA	2009	Over the top	No significant injury at 2.63 and 5.25, slight at 10.6 lb ai per acre.	Y	20091202a.pdf

27394	Butterfly Flower (Asclepias sp.) A. incarnata	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	Significant injury (shortened internode, leaf distortion) only after 1st application at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction; all plants marketable.	Y	20081217f.pdf
27394	Butterfly Flower (Asclepias sp.) A. incarnata	Field Container	Trader	MS	2008	Over the top	No significant injury at 2.65, moderate injury with slow recovery at 5.3 and 10.6 lb ai per acre.	Y	20080924f.pdf
27394	Butterfly Flower (Asclepias sp.) A. sp.	Field Container	Derr	VA	2010	Over the top	Little to no crop injury, plant stand or flower reduction with 2.63,5.25, 10.5 lb ai per acre. Good to excellent control of crabgrass and longstalked phyllanthus with all rates and good to excellent control of tassleflower with two higher rates 48 DAT.	Y	20100929a.pdf
27394	Butterfly Flower (Asclepias sp.) A. tuberosa	Field Container	Klett	CO	2009	Over the top	Trial 1: No to significant injury (chlorosis, stunting) increasing with rate (2.65, 5.3, 10.6 lb ai per acre).	Y	20100109a.pdf
27394	Butterfly Flower (Asclepias sp.) A. tuberosa	Field Container	Klett	CO	2009	Over the top	Trial 2: No to significant injury (chlorosis, stunting) increasing with rate (2.65, 5.3, 10.6 lb ai per acre).	Y	20100109a.pdf
27394	Butterfly Flower (Asclepias sp.) A. tuberosa	Field Container	Trader	MS	2009	Over the top	No significant injury or at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction at 2X and 4X.	Y	20090924c.pdf
27099	False Spirea (Astilbe sp.)	Field Container	Klett	CO	2009	Over the top	Trial 1: visual injury (chlorosis, stunting) at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
27099	False Spirea (Astilbe sp.)	Field Container	Klett	CO	2009	Over the top	Trial 2: visual injury (chlorosis, stunting) at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
27099	False Spirea (Astilbe sp.) A. japonica 'Rheinland'	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081223c.pdf
27099	False Spirea (Astilbe sp.) A. xarendsii 'Final' and 'Bridal Veil'	Field Container	Mathers (OSU)	OH	2010	Over the top	Unacceptable crop injury at 10.6 lb ai per acre (acceptable at 2.65 - 5.3 lb ai per acre).	N	20101005a.pdf
27099	False Spirea (Astilbe sp.) 'Bridal Veil' and Peach Blossom'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants saleable.	N	20091103i.pdf
31343	Fern, Lady (Athyrium nipponicum) A. 'Japanese Painted fern'	Field Container	Derr	VA	2011	Broadcast	Little to no crop injury but significant reduction in fresh shoot weight with 2.65, 5.3, 10.6 lb ai per acre. Good groundsel control.	N	20120321b.pdf
26284	Barberry (Berberis sp.) B. thunbergii 'Amber Glow'	Field Container	Uber	CA	2008	Over the top	Results inconclusive due to environmental stress; no significant injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre after 1st application.	N	20090420h.pdf
26284	Barberry (Berberis sp.) B. thunbergii 'Atropurpurea'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080502a.pdf
26284	Barberry (Berberis sp.) B. thunbergii	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; plants marketable.	N	20081224f.pdf

	atropurpureum 'Crimson Pygmy'								
26284	Barberry (Berberis sp.) B. thunbergii 'Crimson Pigmy'	Field Container	Lieth	CA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; significantly reduced plant width at 4X.	N	20090420a.pdf
26284	Barberry (Berberis sp.) B. thunbergii 'Crmson Pygmy'	Field Container	Williams	IL	2008	Over the top	No injury or growth reduction at 2.65 and 5.3 lb ai per acre, slight injury at 10.6 lb ai per acre.	N	20081030i.pdf
26284	Barberry (Berberis sp.) 'Ruby Carosel'	Field Container	Freiberger	NJ	2008	Over the top	Moderate injury at 2.65, 5.3 and 10.6 lb ai per acre; 6 out of 12 untreated plants dead.	N	20090319c.pdf
26336	Butterfly Bush (Buddleia davidii) 'Nanho Purple'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116d.pdf
26336	Butterfly Bush (Buddleia davidii) 'Purple Emperor'	Field Container	Reding	OH	2007	Over the top	No injury but reduced plant growth at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080128e.pdf
26336	Butterfly Bush (Buddleia davidii) 'Royal Red'	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227p.pdf
26336	Butterfly Bush (Buddleia davidii) 'White Ball'	Field Container	Marshall	MI	2007	Over the top	One application. No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080401b.pdf
26367	Boxwood (Buxus sp.) B. microphylla 'Faulkner'	Field Container	Klett	CO	2007	Over the top	Two trials; no significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20071220i.pdf
26367	Boxwood (Buxus sp.) B. sinica var. insularis 'Wintergreen'	Field Container	Neal	NC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080204d.pdf
26367	Boxwood (Buxus sp.) 'Green Velvet'	Field Container	Marshall	MI	2007	Over the top	One application. No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080401b.pdf
27395	Elephant's-Ear, Angel-Wings (Caladium sp.) C. 'Florida Cardinal'	Field Container	Derr	VA	2010	Over the top	No crop injury with 2.63, 5.25, 10.5 lb ai per acre.	N	20100929a.pdf
26205	Feather Reed Grass (Calamagrostis acutiflora)	Field Container	Boydston	WA	2007	Over the top	Two sequential applications 8 weeks apart at 2.65, 5.3, and 10.6 lb ai per acre significantly stunted growth of young Feather reed grass plants. The 1X treated plants were saleable, but not the 2X and 4X treated plants.	Y	20080229i.pdf
26205	Feather Reed Grass (Calamagrostis acutiflora)	Field Container	Harvey	WA	2007	Over the top	No injury after the first, high injury (stunting and chlorosis) after the second application at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20070823b.pdf
26205	Feather Reed Grass (Calamagrostis acutiflora)	Field Container	Trader	MS	2007	Over the top	Some injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080116i.pdf
26205	Feather Reed Grass (Calamagrostis acutiflora) 'Karl Forester'	Field Container	Klett	CO	2007	Over the top	Two trials; moderate to high injury (stunting) at 2.65, 5.3 and 10.6 lb ai per acre; reduced dry mass.	Y	20071220i.pdf
27396	Bottlebrush (Callistemon sp.) C. citrinus (Curtis)	Field Container	Beste/Frank (ARS)	MD	2010	Over the top	No crop injury or growth reduction with one or two applications at 2.65, 5.3 and 10.6 lb ai per acre.	N	20110323f.pdf

27396	Bottlebrush (Callistemon sp.) C. lanceolata	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, slight at 5.3 and moderate at 10.6 lb ai per acre.	N	20100409a.pdf
27396	Bottlebrush (Callistemon sp.) C. viminalis	Field Container	Senesac	NY	2011	Broadcast	Slight to significant crop injury with two applications at 2.65, 5.3, 10.6 lb aia but all plants marketable by 4WAT2.	N	20111107d.pdf
27396	Bottlebrush (Callistemon sp.) 'Little John'	Field Container	Wilen	CA	2012	Over the top	Very minor injury with 150, 300 and 600 lb ai per acre applied twice; no growth reduction.	N	20130111e.pdf
27795	Sweetshrub (Calycanthus sp.) C. floridus	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20090130c.pdf
27795	Sweetshrub (Calycanthus sp.) C. floridus	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants marketable.	N	20100126g.pdf
27110	Camellia (Camellia sp.) C. japonica	Field Container	Wade	SC	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080915a.pdf
27110	Camellia (Camellia sp.) C. japonica	Field Container	Wade	GA	2009	Over the top	No injury or significant growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090930a.pdf
27110	Camellia (Camellia sp.) C. japonica ‘Fireball Red’	Field Container	Trader	MS	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080924f.pdf
27110	Camellia (Camellia sp.) C. vernalis 'Yuletide'	Field Container	Gilliam	AL	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091119d.pdf
27114	Bellflower (Campanula sp.)	Field Container	Peachey	OR	2013	Over the top	Slight to moderate injury increasing with rates (150, 300 and 600 lb per acre) applied twice; slight growth reduction with 4X.	N	20131118b.pdf
27114	Bellflower (Campanula sp.) 'Blue Uniform'	Field Container	Boydston	WA	2008	Over the top	Slight injury at 2.65, moderate and high at 5.3 and 10.6 lb ai per acre; no growth reduction; most 1X plants marketable.	N	20090129d.pdf
27114	Bellflower (Campanula sp.) C. carpatica	Field Container	Klett	CO	2013	Over the top	No injury with 2.65, 5.3 and 10.6 lb ai per acre applied twice; slight to moderate growth reduction increasing with rates.	N	20131217c.pdf
26430	Canna (Canna sp.) C. indica	Field Container	Lieth	CA	2009	Over the top	Crop injury based on phytoxicity ratings with 2.6, 5.3, 10.6 lb ai per acre not conclusive. Significant growth suppression occurred at all rates.	N	20100430c.pdf
26430	Canna (Canna sp.) C. 'Robert Kent'	Field Container	Derr	VA	2010	Over the top	No crop injury with 2.63, 5.25, 10.5 lb ai per acre and shoot and flower stalk count were unaffected. Very good to excellent control of spotted spurge, chamberbitter, and s. crabgrass.	N	20100929a.pdf
26430	Canna (Canna sp.) C. x generalis 'Ermine'	Field Container	Stamps	FL	2009	Over the top	No significant injury at 2.65, moderate at 5.3 and 10.6 lb ai per acre; no significant growth reduction.	N	20100301a.pdf
26430	Canna (Canna sp.) 'Freckle Face'	Field Container	Derr	VA	2011	Broadcast	Minor injury with two applications at 2.65. 5.3 and 10.6 lb ai per acre increasing with rates. Good control of eclipta, mulberryweed, rice flatsedge, fragrant flatsedge.	N	20120307a.pdf

28706	Grassland Sedge (Carex divulsa)	Field Container	Wilen	CA	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre; root dry weight significantly reduced at all rates.	N	20100727g.pdf
28706	Grassland Sedge (Carex divulsa)	Field Container	Wilen	CA	2010	Over the top	Minor injury yet all plants were marketable. Some chlorisis and necrosis with one application at 600 lbA rate and at all rates when applied twice.	N	20110205d.pdf
28706	Grassland Sedge (Carex divulsa) C. oshimensis 'Evergold'	Field Container	Boydston	WA	2010	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre but data inconclusive due to variability.	N	20101130a1.pdf
28179	Rose Periwinkle (Catharanthus roseus)	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	No significant injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre after 1st application, unacceptable with 10.6 lb after 2nd application; reduced flower number at 2X and 4X; greatly reduced marketability at 4X rate.	N	20120809b.pdf
28179	Rose Periwinkle (Catharanthus roseus)	Field Container	Gilliam	AL	2009	Over the top	No significant injury at 2.65, significant but minor at 5.3 and 10.6 lb ai per acre after 1st, no injury after 2nd application; no growth reduction.	N	20091119d.pdf
28179	Rose Periwinkle (Catharanthus roseus)	Field Container	Lieth	CA	2012	Over the top	No significant injury but severe growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130226c.pdf
28179	Rose Periwinkle (Catharanthus roseus) 'Titan White'	Field Container	Trader	MS	2009	Over the top	No significant injury or growth reduction at 2.65, minor injury and significant growth reduction at 5.3 and 10.6 lb ai per acre.	N	20090924c.pdf
28730	Ceanothus, maritime (Ceanothus maritimus)	Field Container	Grunwald	OR	2010	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20110113c.pdf
28730	Ceanothus, maritime (Ceanothus maritimus) C. maritimus 'Dark Star'	Field Container	Wilen	CA	2010	Over the top	No crop injury or reduction in growth 28DAT with one application at 150 and 300 lb per acre. Unacceptable injury observed with one application at 600 lb per acre and with all three rates applied twice.	N	20110205c.pdf
28730	Ceanothus, maritime (Ceanothus maritimus) C. maritimus 'Valley Violet'	Field Container	Lieth	CA	2010	Broadcast	No crop injury or differences in growth with one or two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20110624a.pdf
26234	Ceanothus sp. (Ceanothus sp.) C. x pal. 'Marie bleu'	Field Container	Mathers (OSU)	MI	2010	Over the top	Spring Meadow: Moderate crop injury at high rates (5.3-10.6 lb ai per acre).	N	20101005a.pdf
26234	Ceanothus sp. (Ceanothus sp.) 'Concha'	Field Container	Wilen	CA	2009	Over the top	No significant injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre; root and shoot dry weights significantly reduced at 2X and 4X.	N	20100727f.pdf
26234	Ceanothus sp. (Ceanothus sp.) 'Victoria'	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100409a.pdf
28734	Ceanothus (Ceanothus x pallida) C. 'Marie Simon'	Field Container	Reding	OH	2011	Broadcast	No crop injury at 2.65, 5.3, 10.6 lb ai per acre but significant reduction in height and width with 2x and 4x.	N	20111014a.pdf

28734	Ceanothus (Ceanothus x pallida) C. x pallida 'Marie Simon'	Field Container	Lieth	CA	2010	Broadcast	No crop injury or differences in growth with one or two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20110624a.pdf
28734	Ceanothus (Ceanothus x pallida) 'Marie Simon'	Field Container	Grunwald	OR	2010	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20110113c.pdf
28175	Cedar, Atlas (Cedrus atlantica)	Field Container	Freiberger	NJ	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100129b.pdf
27397	Red Bud, Eastern (Cercis canadensis)	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20090130c.pdf
27397	Red Bud, Eastern (Cercis canadensis)	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants saleable.	N	20091103f.pdf
27397	Red Bud, Eastern (Cercis canadensis)	Field Container	Freiberger	NJ	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100129b.pdf
27397	Red Bud, Eastern (Cercis canadensis) C. chinensis 'Avondale'	Field Container	Mathers (OSU)	OH	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091028a.pdf
28181	False Cypress (Chamaecyparis sp.)	Field Container	Reding	OH	2009	Over the top	No injury and no significant difference in growth or marketability with 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130m.pdf
28181	False Cypress (Chamaecyparis sp.)	Field Container	Reding	OH	2011	Broadcast	No crop injury or reduction in growth with two applicationa at 2.65, 5.3 and 10.6 lb ai per acre.	N	20111014a.pdf
28181	False Cypress (Chamaecyparis sp.) C. 'Golden spangel'	Field Container	Mathers (OSU)	MI	2010	Over the top	Lincoln: No crop injury at 2.65, 5.3, and 10.6 lb ai per acre.	N	20101011b.pdf
28181	False Cypress (Chamaecyparis sp.) C. 'Golden spangel'	Field Container	Mathers (OSU)	MI	2010	Over the top	Spring Meadow: No crop injury at 2.65, 5.3, and 10.6 lb ai per acre.	N	20101011c.pdf
28181	False Cypress (Chamaecyparis sp.) C. pisifer 'Filfiera Golden Mop'	Field Container	Mathers (OSU)	OH	2010	Over the top	Ohio: Minor crop injury at high rate of 10.6 lb ai per acre, no injury at 2.65 or 5.3 lb ai per acre.	N	20101005a.pdf
28181	False Cypress (Chamaecyparis sp.) C. thyoides	Field Container	Neal	NC	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100122a.pdf
27398	Turtlehead, Snakehead (Chelone sp.)	Field Container	Reding	OH	2010	Broadcast	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	Y	20110526a.pdf
27398	Turtlehead, Snakehead (Chelone sp.) C. lyonii 'Hot Lips'	Field Container	Neal	NC	2008	Over the top	No initial injury but crinkled and malformed new leaves occurred over time with severity increasing with rate (2.65, 5.3, 10.6 lb ai per acre).	Y	20090421a.pdf
27398	Turtlehead, Snakehead (Chelone sp.) C. lyonii 'Hot Lips'	Field Container	Senesac	NY	2009	Over the top	Slight injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre.	Y	20091130f.pdf
26247	Hardy Mum (Chrysanthemum/Dendranthema x morifolium)	Field Container	Klett	CO	2009	Over the top	Trial 1: No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf

26247	Hardy Mum (Chrysanthemum/Dendranthema x morifolium)	Field Container	Klett	CO	2009	Over the top	Trial 2: No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
26247	Hardy Mum (Chrysanthemum/Dendranthema x morifolium) 'Dazzler Stacy'	Field Container	Derr	VA	2007	Over the top	3-7 % injury at 2.63, 5.25 and 10.5 lb ai per acre; 100 % control of rice flatsedge and fragrant flatsedge.	N	20071219c.pdf
26247	Hardy Mum (Chrysanthemum/Dendranthema x morifolium) 'Sheffield Pink'	Field Container	Czarnota	GA	2007	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080310b.pdf
27399	Golden Star (Chrysogonum sp.) C. virginianum var. australe	Field Container	Senesac	NY	2009	Over the top	Slight injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre.	N	20091130f.pdf
26317	Yellowwood (Cladrastis sp.) C. Kentuckea	Field Container	Mathers (OSU)	OH	2011	Broadcast	Transplant shock made evaluations difficult but ratings indicate little to no crop injury with two sequential applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20120302b.pdf
26317	Yellowwood (Cladrastis sp.) C. kentukea	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	No significant injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre; no reduction in marketability.	N	20120614a.pdf
26317	Yellowwood (Cladrastis sp.) C. kentukea	Field Container	Freiberger	NJ	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, slight after 2nd application.	N	20080227l.pdf
26317	Yellowwood (Cladrastis sp.) C. kentukea	Field Container	Reding	OH	2010	Broadcast	Significant injury with 2.65, 5.3 and 10.6 lb ai per acre after each application.	N	20110526a.pdf
26317	Yellowwood (Cladrastis sp.) C. lutea	Field Container	Beste/Frank (ARS)	MD	2010	Over the top	No significant differences in phytotoxicity or growth with one or two applications at 2.65, 5.3 or 10.65 lb ai per acre.	N	20110323d.pdf
27116	Clematis (Clematis sp.)	Field Container	Derr	VA	2008	Over the top	No injury at 150, 300 and 600 lb product per acre.	N	20090420j.pdf
27116	Clematis (Clematis sp.) 'ASAO' and 'Nellie Moser'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants saleable.	N	20091103h.pdf
27116	Clematis (Clematis sp.) C. integrifolia	Field Container	Klett	CO	2008	Over the top	Trial 1: No injury at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction	N	20090319i.pdf
27116	Clematis (Clematis sp.) C. integrifolia	Field Container	Klett	CO	2008	Over the top	Trial 2: No injury at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	N	20090319i.pdf
27116	Clematis (Clematis sp.) C. integrifolia	Field Container	Klett	CO	2009	Over the top	Trial 1: No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
27116	Clematis (Clematis sp.) C. integrifolia	Field Container	Klett	CO	2009	Over the top	Trial 2: No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
27116	Clematis (Clematis sp.) 'Ramona'	Field Container	Stamps	FL	2009	Over the top	No significant injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre; no growth reduction.	N	20100301a.pdf
27121	Summersweet (Clethra alnifolia)	Field Container	Ahrens/Mervosh	CT	2011	Broadcast	No crop injury with two sequential applications at 2.65, 5.3 or 10.6 lb ai per acre.	N	

27121	Summersweet (Clethra alnifolia)	Field Container	Reding	OH	2010	Over the top	Significant crop injury at 2.65, 5.3 and 10.6 lb ai per acre; plants not marketable.	N	20110526a.pdf
27121	Summersweet (Clethra alnifolia) C. alnifolia	Field Container	Gilliam	AL	2010	Broadcast	Minor crop injury and no reduction in growth with one to two applications at 2.62, 5.25, 10.5 lb ai per acre.	N	20110615f.pdf
27121	Summersweet (Clethra alnifolia) C. alnifolia 'Sixteen Candles'	Field Container	Neal	NC	2010	Broadcast	No crop injury during first 6 weeks but second applicataion caused significant injury (stunting) with 2.65, 5.3 and 10.6 lb ai per acre; some girdling at soil line with 4x rate.	N	20110308g.pdf
26219	Tickseed (Coreopsis sp.) C. auriculata 'Nana'	Field Container	Boydston	WA	2007	Over the top	Significant injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; most treated plants not saleable.	Y	20080128w.pdf
26219	Tickseed (Coreopsis sp.) C. auriculata 'Zamphir'	Field Container	Fraelich	GA	2008	Over the top	Slight injury and stunting at 2.65 lb ai per acre, moderate at 5.3 and 10.6 lb ai per acre; all plants marketable at 1X.	Y	20081030b.pdf
26219	Tickseed (Coreopsis sp.) C. rosea	Field Container	Harvey	WA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080924b.pdf
26219	Tickseed (Coreopsis sp.) 'Moonbeam'	Field Container	Neal	NC	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090421a.pdf
27126	Dogwood, Flowering (Cornus florida)	Field Container	Ahrens/Mervosh	CT	2008	Over the top	No injury at 2.63, 5.25 and 10.5 lb ai per acre after 1st application; slight, variable injury after 2nd application; poor plant vigor made evaluations difficult.	N	20100103c.pdf
27126	Dogwood, Flowering (Cornus florida)	Field Container	Ahrens/Mervosh	CT	2009	Broadcast	Little to no injury or reduction in growth with two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20110926a.pdf
27126	Dogwood, Flowering (Cornus florida)	Field Container	Knox	FL	2009	Over the top	No crop injury with two sequetial applications at 0.375, 0.75 or 1.5 lb ai per acre. Some root stunting with 4x observed.	N	20120217a.pdf
27126	Dogwood, Flowering (Cornus florida)	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre	N	20081223c.pdf
28861	Dogwood, Kousa (Cornus kousa)	Field Container	Ahrens/Mervosh	CT	2009	Broadcast	Little to no injury or reduction in growth with two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20110926a.pdf
28861	Dogwood, Kousa (Cornus kousa)	Field Container	Ahrens/Mervosh	CT	2011	Broadcast	Little to no crop injury with two sequential applications at 2.65, 5.3 or 10.6 lb ai per acre.	N	
28861	Dogwood, Kousa (Cornus kousa)	Field Container	Beste/Frank (ARS)	MD	2010	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20110503d.pdf
28861	Dogwood, Kousa (Cornus kousa)	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	No significant injury, growth or marketability reduction with 2.63, 5.3 and 10.6 lb ai per acre applied twice.	N	20120827b.pdf
28861	Dogwood, Kousa (Cornus kousa) C. kousa 'Milky Way'	Field Container	Mathers (OSU)	OH	2010	Over the top	Ohio: Minor crop injury at 2.65 and 5.3 lb ai per acre; moderate crop injury at 10.6 lb ai per acre.	N	20101005a.pdf
28861	Dogwood, Kousa (Cornus kousa) 'Chinensis'	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20091230h.pdf

28171	Pampas Grass (Cortaderia sp.)	Field Container	Boydston	WA	2011	Broadcast	significant crop injury and reduction in growth with two sequential applications of at 2.65, 5.3, and 10.6 lb ai per acre. 2x and 4x treated plants not saleable.	N	20111201f.pdf
28171	Pampas Grass (Cortaderia sp.)	Field Container	Neal	NC	2010	Broadcast	No injury at 2.6 lb ai per acre; significant crop injury with 2x and 4x (5.3 and 10.6 lb ai per acre) and inhibition of root growth.	N	20110308e.pdf
28171	Pampas Grass (Cortaderia sp.) C. selloana	Field Container	Gilliam	AL	2010	Broadcast	No crop injury or reduction in growth with one or two applications at 2.62, 5.25, 10.5 lb ai per acre.	N	20110615f.pdf
28171	Pampas Grass (Cortaderia sp.) C. sp. 'Rosea'	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre, but significant reduction in growth with 2x and 4x rate.	N	20110526a.pdf
27131	Cotoneaster (Cotoneaster sp.) C. apiculatus	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081223c.pdf
27131	Cotoneaster (Cotoneaster sp.) C. glaucaphyllus	Field Container	Uber	CA	2008	Over the top	No significant injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre; significant growth reduction at 4X.	N	20090420h.pdf
27131	Cotoneaster (Cotoneaster sp.) C. horizontalis 'Perpusillus'	Field Container	Lieth	CA	2008	Over the top	No injury but unacceptable growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090420a.pdf
27136	Hawthorn (Crataegus sp.) C. coccinoid	Field Container	Freiberger	NJ	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100129b.pdf
27136	Hawthorn (Crataegus sp.) C. crus-galli	Field Container	Boydston	WA	2011	Broadcast	No crop injury with two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20111012b.pdf
27136	Hawthorn (Crataegus sp.) C. phaenopyrum	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20110526a.pdf
27141	Japanese Cedar (Cryptomeria japonica) 'Black Dragon'	Field Container	Neal	NC	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100122a.pdf
27141	Japanese Cedar (Cryptomeria japonica) C. japonica 'Radicans'	Field Container	Beste/Frank (ARS)	MD	2010	Over the top	No significant injury or growth reduction with 2.65, 5.30 and 10.60 lb ai per acre; no reduction in marketability.	Y	20110525d.pdf
27141	Japanese Cedar (Cryptomeria japonica) C. japonica 'Yoshino'	Field Container	Neal	NC	2010	Broadcast	No crop injury with 1 or 2 x rate (2.65, 5.3 lb ai per acre) but some minor stunting with the 4x (10.6 lbs ai per acre) rate.	Y	20110308g.pdf
27141	Japanese Cedar (Cryptomeria japonica) 'Yoshino'	Field Container	Czarnota	GA	2009	Over the top	No significant injury at 2.63, 5.25 and 10.5 lb ai per acre.	Y	20091214a.pdf
28180	Cypress, Leyland (Cupressocyparis leylandii)	Field Container	Czarnota	GA	2009	Over the top	No significant injury at 2.63, 5.25 and 10.5 lb ai per acre.	N	20091214a.pdf
28180	Cypress, Leyland (Cupressocyparis leylandii)	Field Container	Neal	NC	2010	Broadcast	No crop injury with any rate during the evaluation period.	N	20110308g.pdf

28180	Cypress, Leyland (Cupressocyparis leylandii)	Field Container	Uber	CA	2010	Over the top	No crop injury with two applications at 2.65, 5.3 and 10.6 lb ai per acre.	N	20101223a.pdf
26241	Pinks (Dianthus sp.) D. gratianopolitanus 'Bath's Pink'	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080128e.pdf
26241	Pinks (Dianthus sp.) D. gratianopolitanus 'Firewitch'	Field Container	Mathers (OSU)	OH	2007	Over the top	Slight injury (burning) at 2.65, 5.3 and 10.6 lb ai per acre after 1st application, plants recovered quickly.	N	20071106b.pdf
26241	Pinks (Dianthus sp.) 'Firewitch'	Field Container	Boydston	WA	2007	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; treated plants saleable.	N	20080128o.pdf
29650	Fern, Autumn (Dryopteris erythrosora)	Field Container	Neal	NC	2013	Over the top	Severe injury (foliar necrosis) with 150, 300 and 600 lb per acre applied twice.	Y	20140210b.pdf
29650	Fern, Autumn (Dryopteris erythrosora) 'Brilliance'	Field Container	Stamps	FL	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; no significant growth reduction.	Y	20100301a.pdf
29650	Fern, Autumn (Dryopteris erythrosora) D. 'Brilliance'	Field Container	Gilliam	AL	2011	Broadcast	No crop injury with 2.65, 5.3, 10.6 lb ai per acre but slight reduction in growth at 2 and 4x rates.	Y	20111206b.pdf
29650	Fern, Autumn (Dryopteris erythrosora) D.'Autumn Brilliance'	Field Container	Derr	VA	2011	Broadcast	Minor to no crop injury with 2.63, 5.3, 10.6 lb ai per acre. Significant reduction in shoot weight. Good control of groundsel but not tassleflower	Y	20120321b.pdf
31957	Fern, Shaggy Shield (Dryopteris sp.) D. atrata	Field Container	Neal	NC	2013	Over the top	Severe injury (foliar necrosis) with 150, 300 and 600 lb per acre applied twice.	N	20140210b.pdf
26355	Purple Coneflower (Echinacea sp.)	Field Container	Trader	MS	2007	Over the top	No injury or growth reduction at 2.65, minor at 5.3 and 10.6 lb ai per acre.	Y	20080116i.pdf
26355	Purple Coneflower (Echinacea sp.) E. purpurea	Field Container	Klett	CO	2007	Over the top	Trial A: unacceptable injury (slight discoloration and twisting of foliage) at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	Y	20071220i.pdf
26355	Purple Coneflower (Echinacea sp.) E. purpurea	Field Container	Klett	CO	2007	Over the top	Trial B - unacceptable injury (slight discoloration and twisting of foliage) at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	Y	20071220i.pdf
26355	Purple Coneflower (Echinacea sp.) E. purpurea 'Magnus'	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	Y	20080128e.pdf
26355	Purple Coneflower (Echinacea sp.) 'Magnus'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080116d.pdf
28710	California fuschia (Epilobium canum)	Field Container	Wilen	CA	2009	Over the top	Moderate to high injury increasing with rates (2.65, 5.3 and 10.6 lb ai per acre); root and shoot dry weights significantly reduced at all rates.	N	20100727e.pdf
28184	Plume Grass; Ravenna (Erianthus sp.) a.k.a Saccharum ravennae	Field Container	Neal	NC	2010	Broadcast	No crop injury with one or two applications any rate (2.65, 5.3 and 10.6 lb ai per acre) at any time in the evaluation period.	N	20110308e.pdf

28184	Plume Grass; Ravenna (Erianthus sp.) Erianthus ravennae	Field Container	Klett	CO	2013	Over the top	No injury with 2.65, 5.3 and 10.6 lb ai per acre applied twice; slight to moderate growth reduction increasing with rates.	N	20131217c.pdf
27146	Winged Burning Bush (Euonymus alatus) E. fortunei 'Coloratus'	Field Container	Williams	IL	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; slight width reduction	N	20081030i.pdf
26439	Thoroughwort (Eupatorium sp.) E. hyssopifolium	Field Container	Senesac	NY	2009	Over the top	Slight injury at 2.65, moderate at 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
26439	Thoroughwort (Eupatorium sp.) E. hyssopifolium	Field Container	Senesac	NY	2011	Broadcast	No crop injury with two applications at 2.65, 5.3 or 10.6 lb aia.	N	20111107d.pdf
26439	Thoroughwort (Eupatorium sp.) E. rugosum 'Chocolate'	Field Container	Boydston	WA	2010	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20101130p.pdf
26439	Thoroughwort (Eupatorium sp.) E. rugosum 'Chocolate Boneset'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20091201m.pdf
26208	Blue Fescue (Festuca glauca)	Field Container	Klett	CO	2007	Over the top	Trial A: moderate to high injury (stunting and browning of foliage) after the 2nd application at 2.65, 5.3 and 10.6 lb ai per acre; reduced dry mass.	Y	20071220i.pdf
26208	Blue Fescue (Festuca glauca)	Field Container	Klett	CO	2007	Over the top	Trial B: moderate to high injury (stunting and browning of foliage) after the 2nd application at 2.65, 5.3 and 10.6 lb ai per acre; reduced dry mass.	Y	20071220i.pdf
26208	Blue Fescue (Festuca glauca)	Field Container	Trader	MS	2007	Over the top	Some injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080116i.pdf
26208	Blue Fescue (Festuca glauca) 'Elijah Blue'	Field Container	Boydston	WA	2007	Over the top	Unacceptable injury (leaf necrosis) and stunting at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080128j.pdf
28176	Golden Bells (Forsythia sp.)	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100409a.pdf
28176	Golden Bells (Forsythia sp.) F. hybrid 'Golden Peep'	Field Container	Czarnota	GA	2009	Over the top	No significant injury at 2.63, 5.25 and 10.5 lb ai per acre.	N	20091214a.pdf
28176	Golden Bells (Forsythia sp.) F. x intermedia 'Golden Bell'	Field Container	Mickelbart	IN	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre with single application 3 weeks after transplanting.	N	20081029a.pdf
28176	Golden Bells (Forsythia sp.) Forsythia x.'Meadowlark'	Field Container	Mathers (OSU)	OH	2009	Over the top	Plants under drought stress. No injury or growth reduction at 2.65 and 5.3, significant for both at 10.6 lb ai per acre.	N	20091028c.pdf
28182	Witch Alder (Fothergilla gardenii)	Field Container	Neal	NC	2010	Broadcast	No injury from any rate but leaf scorch from high salt in substrate lowers conclusion confidence.	N	20110308a.pdf

28182	Witch Alder (Fothergilla gardenii)	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20110526a.pdf
28182	Witch Alder (Fothergilla gardenii) F. hybrid 'Mt. Airy'	Field Container	Czarnota	GA	2009	Over the top	No significant injury at 2.65, 5.25 and 10.5 lb ai per acre.	N	20091214a.pdf
28182	Witch Alder (Fothergilla gardenii) F. major 'Mt. Airy'	Field Container	Boydston	WA	2011	Broadcast	No crop injury or reduction in growth with two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20111012f.pdf
26259	Ash (Fraxinus sp.) F. americana	Field In-Ground	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury or height reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	Y	20080613c.pdf
31340	Ash (Fraxinus sp.) F. arizonica	Field Container	Uber	CA	2012	Over the top	No injury or growth reduction with 150, acceptable with 300 and 600 lb per acre, applied twice.	Y	20130204d.pdf
26259	Ash (Fraxinus sp.) F. pensylvanica	Field In-Ground	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	Y	20090130c.pdf
26442	Blanket Flower (Gaillardia sp.) G. x grandiflora 'Oranges & Lemons'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury at 2.65 and 5.3, high at 10.6 lb ai per acre; no growth reduction at all rates; plants marketable except at 4X.	N	20090130c.pdf
26244	Gaura (Gaura lindheimeri)	Field Container	Boydston	WA	2007	Over the top	Slight transient injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080229m.pdf
26244	Gaura (Gaura lindheimeri)	Field Container	Klett	CO	2009	Over the top	Trial 1: slight transient injury at 2.65, 5.3 and 10.6 lb ai per acre; dry mass lower at 2X and 4X.	Y	20100109a.pdf
26244	Gaura (Gaura lindheimeri)	Field Container	Klett	CO	2009	Over the top	Trial 2: slight transient to moderate injury increasing with rate (2.65, 5.3 and 10.6 lb ai per acre); dry mass lower at 2X and 4X.	Y	20100109a.pdf
26244	Gaura (Gaura lindheimeri) G. lindheimeri	Field Container	Lieth	CA	2009	Over the top	No crop injury and little growth suppression at 2.5 lb ai per acre (1x) but substantial growth suppression and crop injury (20-40%) at 5.3 and 10.6 lb ai per acre 60 DAT.	Y	20100430c.pdf
26244	Gaura (Gaura lindheimeri) 'Pink Fountain'	Field Container	Boydston	WA	2012	Over the top	Slight, but not significant, injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20121210a.pdf
26244	Gaura (Gaura lindheimeri) 'Pink Fountains'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	Y	20100120j.pdf
27400	Treasure Flower (Gazania sp.)	Field Container	Lieth	CA	2012	Over the top	Severe injury and growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130226c.pdf
27400	Treasure Flower (Gazania sp.) G. linearis 'Colorado Gold'	Field Container	Reding	OH	2010	Over the top	Significant crop injury with 2.65, 5.3 and 10.6 lb ai per acre; plants not marketable.	N	20110526a.pdf
27400	Treasure Flower (Gazania sp.) G. rigens 'Daybreak Yellow'	Field Container	Beste/Frank (ARS)	MD	2010	Over the top	Unacceptable crop injury with all rates applied to newly potted plants 2" high plants.	N	20110426g.pdf

27400	Treasure Flower (Gazania sp.) G. rigens leucolaena	Field Container	Lieth	CA	2009	Over the top	Crop injury ratings on plants treated with 2.6 lb ai per acre (1x) not significantly different from control but slight reduction in width and volume was observed. Treatments of 5.3 and 10.6 lb ai per acre (2 x, 4x) resulted in 20-40% crop injury suggestin	N	20100430c.pdf
27400	Treasure Flower (Gazania sp.) G. splendens 'Kiss Lemon Shades'	Field Container	Senesac	NY	2009	Over the top	No injury at 2.65, slight at 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
27150	Corn Flag, Sword Lily (Gladiolus sp.)	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	Y	20110526a.pdf
27150	Corn Flag, Sword Lily (Gladiolus sp.) G. sp. 'King's Gold'	Field Container	Beste/Frank (ARS)	MD	2010	Over the top	First application was broadcast preemergence and second application was broadcast over the top. No crop injury with 2.65, 5.30, and 10.6 lb ai per acre. Effective control of bittercress, yellow woodsorrel, large crabgrass and stinkgrass was noted.	Y	20110113g.pdf
27150	Corn Flag, Sword Lily (Gladiolus sp.) 'Giamini Charlotte'	Field Container	Senesac	NY	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, slight injury after 2nd application.	Y	20091130f.pdf
27152	Honey Locust (Gleditsia sp.) C. tiacanthos L. 'Inermis'	Field Container	Beste/Frank (ARS)	MD	2010	Over the top	No crop injury or reduction in growth with one or two applications at 2.65, 5.30, 10.60 lb ai per acre. Effective contol of spotted spurge, yellow woodsorrel, Pennsylvania bittercress and large crabgrass were noted.	N	20110113f.pdf
27152	Honey Locust (Gleditsia sp.) G. triacanthos	Field Container	Mathers (OSU)	OH	2011	Broadcast	Transplant shock made evaluations difficult but ratings indicate little to no crop injury with two sequential applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20120302b.pdf
27152	Honey Locust (Gleditsia sp.) G. triacanthos	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20110526a.pdf
26231	Honey Locust (Gleditsia sp.) G. tricanthos	Field In-Ground	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080613c.pdf
27152	Honey Locust (Gleditsia sp.) Gleditsia triacanthos	Field Container	Mathers (OSU)	OH	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091028d.pdf
26446	Sunflower (Helianthus sp.) H. microcephalus 'Lemon Queen'	Field Container	Senesac	NY	2009	Over the top	Slight injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
26446	Sunflower (Helianthus sp.) H. salicifolius 'Low Down'	Field Container	Klett	CO	2012	Over the top	Moderate to severe injury with 2.65, 5.3 and 10.6 lb ai per acre applied twice.	N	20130528b.pdf
26446	Sunflower (Helianthus sp.) 'Table Mountain'	Field Container	Trader	MS	2009	Over the top	No significant injury at 2.65 and 5.3, slight injury at 10.6 lb ai per acre; no growth reduction.	N	20090924c.pdf
26343	Daylily (Hemerocallis sp.) H. Happy Returns'	Field Container	Derr	VA	2010	Over the top	No crop injury with 2.62, 5.25, 10.5 lb ai per acre 19 and 33 DAT and 4DAT2. Excellent	N	20101104i.pdf

							control of spotted spurge with all rates 19 and 33DAT.		
26343	Daylily (Hemerocallis sp.) H. hemerocallis 'Better Believe It'	Field Container	Reding	OH	2007	Over the top	No significant injury at 2.65, injury at 5.3 and 10.6 lb ai per acre; no significant growth reduction.	N	20080128e.pdf
26343	Daylily (Hemerocallis sp.) H. hybrida 'Stella D'Oro'	Field Container	Whitwell	SC	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20071106e.pdf
26343	Daylily (Hemerocallis sp.) 'Second Glance'	Field Container	Lieth	CA	2007	Over the top	Unacceptable injury at 2.65, 5.3 and 2.6 lb ai per acre.	N	20071005e.pdf
26343	Daylily (Hemerocallis sp.) 'Stella d'Oro'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116d.pdf
28742	Toyon, Christmas Berry (Heteromeles arbutifolia)	Field Container	Wilen	CA	2009	Over the top	Acceptable injury at 2.65, 5.3 and 10.6 lb ai per acre; root and shoot dry weights not significantly reduced.	N	20100727c.pdf
27156	Alumroot (Heuchera sp.) H. americana 'Chatterbox'	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre	N	20081223c.pdf
27156	Alumroot (Heuchera sp.) H. americana 'Palace Purple'	Field Container	Senesac	NY	2008	Over the top	No injury or growth reduction at 2.63, 5.25 and 10.5 lb ai per acre.	N	20081218a.pdf
27156	Alumroot (Heuchera sp.) H. micrantha var diversifolia 'Purple Palace'	Field Container	Boydston	WA	2008	Over the top	Slight, moderate and high injury at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction at 1X and 2X; 1X plants probably marketable.	N	20090129d.pdf
26299	Mallow, Rose Mallow (Hibiscus sp.) H. rosa-sinensis 'Fire-N-Ice'	Field Container	Stamps	FL	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; no significant growth reduction.	N	20100301a.pdf
26299	Mallow, Rose Mallow (Hibiscus sp.) H. syriacus	Field Container	Knox	FL	2009	Over the top	No crop injury with two sequetial applications at 0.375, 0.75 or 1.5 lb ai per acre. Some root stunting with 4x noted.	N	20120217a.pdf
26299	Mallow, Rose Mallow (Hibiscus sp.) H. syriacus 'Aphrodite'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury, growth or flower number reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20090130c.pdf
26299	Mallow, Rose Mallow (Hibiscus sp.) H. syriacus 'Red Heart'	Field Container	Freiberger	NJ	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100129b.pdf
26299	Mallow, Rose Mallow (Hibiscus sp.) 'Rose Queen'	Field Container	Wade	SC	2009	Over the top	No injury or significant growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090930a.pdf
26299	Mallow, Rose Mallow (Hibiscus sp.) 'White Wing'	Field Container	Uber	CA	2009	Over the top	Moderate injury (chlorosis and stunting) at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100409a.pdf
26262	Hosta (Hosta sp.)	Field Container	Harvey	WA	2007	Over the top	No injury after the first application at 2.65, 5.3 and 10.6 lb ai per acre, slight injury at 2X and 4X rates after the second application.	N	20070823b.pdf

26262	Hosta (Hosta sp.) H. sieboldiana	Field Container	Regan	OR	2007	Over the top	No injury at 2.65, minor at 5.3 and 10.6 lb ai per acre after the 2nd application; significant growth reduction at 2X.	N	20080108a.pdf
26262	Hosta (Hosta sp.) H. sieboldiana 'Frances Williams'	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080128e.pdf
26262	Hosta (Hosta sp.) 'Honey Bells'	Field Container	Gilliam	AL	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20071219j.pdf
26262	Hosta (Hosta sp.) 'Krossa Regal'	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227p.pdf
26251	Hydrangea (Hydrangea sp.)	Field Container	Ahrens/Mervosh	CT	2011	Broadcast	Minor crop injury and reduction in growth increasing with rate from two seqential applications at 2.65, 5.3, 10.6 lb ai per acre.	Y	
26251	Hydrangea (Hydrangea sp.) 'Angel Robe'	Field Container	Lieth	CA	2007	Over the top	Minor visible injury and moderate growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080124a.pdf
26251	Hydrangea (Hydrangea sp.) H. macrophylla 'Nikko Blue'	Field Container	Czarnota	GA	2007	Over the top	Percent injury was 38, 23 and 18 % injury for 2.65, 5.3 and 10.6 lb ai per acre, respectively.	Y	20080310b.pdf
26251	Hydrangea (Hydrangea sp.) H. macrophylla 'Endless Summer'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080116d.pdf
26251	Hydrangea (Hydrangea sp.) H. macrophylla 'Nikko Blue'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	Y	20080508b.pdf
26251	Hydrangea (Hydrangea sp.) H. macrophylla 'Nikko Blue'	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080227p.pdf
26251	Hydrangea (Hydrangea sp.) H. macrophylla 'Pink Shira'	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	Y	20080128e.pdf
26251	Hydrangea (Hydrangea sp.) H. paniculata 'PeeGee'	Field Container	Mickelbart	IN	2008	Over the top	No injury at 2.65, 5.3, 10.6 lb ai per acre with single application 3 weeks after transplanting.	Y	20081029a.pdf
31115	Candytuft (Iberis sp.) 'Candytuft'	Field Container	Boydston	WA	2013	Over the top	No injury or growth reduction at 2.65 and 5.3 lb ai per acre applied twice; minor with 10.6 lb; all plants saleable.	N	20131203b.pdf
31115	Candytuft (Iberis sp.) I. sempervirens	Field Container	Uber	CA	2013	Over the top	Severe injury with 150, 300 and 600 lb per acre applied twice.	N	20131120c.pdf
31115	Candytuft (Iberis sp.) Iberis sempervirens	Field Container	Klett	CO	2013	Over the top	No injury with 2.65, 5.3 and 10.6 lb ai per acre applied twice; slight to severe growth reduction increasing with rates.	N	20131217c.pdf
26332	Holly (Ilex sp.) 'Conaf'	Field Container	Czarnota	GA	2007	Over the top	Virtually no injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080310b.pdf
26332	Holly (Ilex sp.) I. cornuta 'Bufordii Nana'	Field Container	Neal	NC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080204d.pdf

26332	Holly (Ilex sp.) I. cornuta 'Carissa'	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227p.pdf
26332	Holly (Ilex sp.) I. cornuta 'Needlepoint'	Field Container	Neal	NC	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100122a.pdf
26332	Holly (Ilex sp.) I. crenata 'Compacta'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116d.pdf
26332	Holly (Ilex sp.) Ilex x meserveae 'Castle Spire'	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080128e.pdf
27401	New Guinea Impatiens (Impatiens hawkeri)	Field Container	Lieth	CA	2008	Over the top	Unacceptable injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090420a.pdf
27401	New Guinea Impatiens (Impatiens hawkeri)	Field Container	Reding	OH	2010	Over the top	No significant crop injury with 2.65, 5.3 and 10.6 lb ai per acre but significant reduction in growth.	Y	20110526a.pdf
27401	New Guinea Impatiens (Impatiens hawkeri) I. hawkeri 'Clebrette Purple'	Field Container	Senesac	NY	2010	Over the top	Slight to moderate injury with 2.65, 5.3, 10.6 lb ai per acre.	Y	20101129e.pdf
27401	New Guinea Impatiens (Impatiens hawkeri) I. wallerana 'Sonic Lilac'	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	Slight injury with good recovery at 2.65 and 5.3, significant injury at 10.6 lb ai per acre; reduction of growth and flower number at all rates. Reduction in marketability with 2X and 4X rates.	Y	20120501a.pdf
27402	Moon Flower (Ipomoea sp.)	Field Container	Lieth	CA	2012	Over the top	No significant injury or growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130226c.pdf
27402	Moon Flower (Ipomoea sp.) I. batata 'Blackie'	Field Container	Senesac	NY	2010	Over the top	Slight to moderate injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20101129e.pdf
27402	Moon Flower (Ipomoea sp.) I. batata 'Marguerite'	Field Container	Klett	CO	2010	Over the top	Trial 1: No crop injury with 2.65, 5.3, 10.6 lb ai per acre. Untreated plants had greater width and dry mass compared to treated.	N	20110128a.pdf
27402	Moon Flower (Ipomoea sp.) I. batata 'Marguerite'	Field Container	Klett	CO	2010	Over the top	Trial 2: No crop injury with 2.65, 5.3, 10.6 lb ai per acre. Plants treated with 300 lb ai had greater height compared to untreated. No weed control differences among treatments and weeded control.	N	20110128a.pdf
26349	Flag (Iris sp.)	Field Container	Harvey	WA	2007	Over the top	No injury after the first, slight injury at 2.65 and moderate injury at 5.3 and 10.6 lb ai per acre after the second application.	Y	20070823b.pdf
26349	Flag (Iris sp.) 'Eleanor Roosevelt'	Field Container	Lieth	CA	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20071022a.pdf
26349	Flag (Iris sp.) 'Yellow Flag'	Field Container	Gilliam	AL	2007	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20071219j.pdf
28183	Virginia Sweetspire (Itea virginica)	Field Container	Neal	NC	2009	Over the top	No significant injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre.	N	20100122a.pdf
28183	Virginia Sweetspire (Itea virginica) 'Henry's Garnet'	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20100209c.pdf

28183	Virginia Sweetspire (Itea virginica) 'Henry's Garnet'	Field Container	Czarnota	GA	2009	Over the top	No significant injury at 2.65, 5.25 and 10.5 lb ai per acre.	N	20091214a.pdf
26269	Juniper (Juniperus sp.)	Field Container	Harvey	WA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20070823b.pdf
26269	Juniper (Juniperus sp.) J. chinensis 'Sea Green'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080508c.pdf
26269	Juniper (Juniperus sp.) J. chinensis 'Sea Green'	Field Container	Mickelbart	IN	2008	Over the top	No injury at 0.97, 1.94, and 3.88 lb ai per acre with single application 3 weeks after transplanting.	N	20081029a.pdf
26269	Juniper (Juniperus sp.) J. davurica 'Parsonii'	Field Container	Neal	NC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080204d.pdf
26269	Juniper (Juniperus sp.) J. horizontalis 'Youngstown'	Field Container	Regan	OR	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080108a.pdf
26269	Juniper (Juniperus sp.) J. squamata 'Blue Star'	Field Container	Ahrens/Mervosh	CT	2007	Over the top	No injury at 2.63, 5.25 and 10.5 lb ai per acre.	N	20080229b.pdf
27403	Japanese Kerria, Japanese Rose (Kerria japonica) 'Golden Guinea'	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	Slight to moderate injury with some recovery at 2.65, 5.3 and 10.6 lb ai per acre; treated plants with reduced marketability.	N	20100126f.pdf
27403	Japanese Kerria, Japanese Rose (Kerria japonica) 'Golden Guinea'	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	No injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20120508b.pdf
27403	Japanese Kerria, Japanese Rose (Kerria japonica) K. 'Pleniflora'	Field Container	Senesac	NY	2011	Broadcast	No crop injury with two applications at 2.65, 5.3 or 10.6 lb aia.	N	20111107d.pdf
26340	Crape Myrtle (Lagerstroemia indica)	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227p.pdf
26340	Crape Myrtle (Lagerstroemia indica) 'Catawea'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116d.pdf
26340	Crape Myrtle (Lagerstroemia indica) 'Dynamite'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury but significant growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; plants marketable.	N	20080508d.pdf
26340	Crape Myrtle (Lagerstroemia indica) L. x 'Muskogee'	Field Container	Neal	NC	2007	Over the top	No injury at 2.65 and 5.3, slight at 10.6 lb ai per acre after 1st application; no injury after 2nd application.	N	20080204d.pdf
27278	Dead Nettle (Lamium sp.) L. galeobdolon	Field Container	Lieth	CA	2008	Over the top	Unacceptable injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090420a.pdf
27278	Dead Nettle (Lamium sp.) L. maculatum 'Orchid Frost'	Field Container	Klett	CO	2009	Over the top	Trial 1: Severe injury (stunting, plant death) at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100109a.pdf

27278	Dead Nettle (Lamium sp.) L. maculatum 'Orchid Frost'	Field Container	Klett	CO	2009	Over the top	Trial 2: Moderate to severe injury (stunting, plant death) at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100109a.pdf
27278	Dead Nettle (Lamium sp.) L. maculatum 'Red Nancy'	Field Container	Boydston	WA	2008	Over the top	Data not useful because of injury from early season cold weather and transplant shock.	Y	20090129k.pdf
26352	Shrub Verbena (Lantana sp.)	Field Container	Harvey	WA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20070823b.pdf
26352	Shrub Verbena (Lantana sp.) 'New Gold'	Field Container	Czarnota	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080310b.pdf
26352	Shrub Verbena (Lantana sp.) L. camara	Field Container	Klett	CO	2007	Over the top	Slight stunting only at 10.6 lb ai per acre (4X) in 1 of 2 trials; no growth reduction.	Y	20071220i.pdf
26352	Shrub Verbena (Lantana sp.) L. x hybrida 'New Gold'	Field Container	Neal	NC	2007	Over the top	No injury at 2.65 and 5.3, significant at 10.6 lb ai per acre after 1st application; no injury after 2nd application.	Y	20080204d.pdf
28172	Larch (Larix sp.) L. laricina	Field Container	Freiberger	NJ	2009	Over the top	No injury at 2.65 and 5.3, slight at 10.6 lb ai per acre..	N	20100129b.pdf
27170	Lavender (Lavandula sp.) L. angustifolia 'Hicote Blue'	Field Container	Klett	CO	2009	Over the top	Trial 1: No injury at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction at 4X.	N	20100109a.pdf
27170	Lavender (Lavandula sp.) L. angustifolia 'Hicote Blue'	Field Container	Klett	CO	2009	Over the top	Trial 2: No injury at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction at 4X.	N	20100109a.pdf
27170	Lavender (Lavandula sp.) L. angustifolia 'Hidcote'	Field Container	Boydston	WA	2008	Over the top	No significant injury at 2.65, slight at 5.3 and 10.6 lb ai per acre; no growth reduction; all plants marketable.	N	20090326a.pdf
27170	Lavender (Lavandula sp.) L. angustifolia 'Hidcote'	Field Container	Boydston	WA	2009	Over the top	No significant injury at 2.65, moderate at 5.3 and 10.6 lb ai per acre.	N	20100120n.pdf
27170	Lavender (Lavandula sp.) L. angustifolia 'Munstead'	Field Container	Neal	NC	2009	Over the top	Unacceptable injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100122a.pdf
27170	Lavender (Lavandula sp.) L. angustifolia 'Munstead'	Field Container	Trader	MS	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090924c.pdf
27170	Lavender (Lavandula sp.) L. angustifolia 'Munstead'	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; minor stunting with quick recovery at 4X.	N	20100409a.pdf
27404	Shasta Daisy (Leucanthemum maximum) Chrysanthemum x superbum 'Becky'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth and flower number reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20090316f.pdf
27404	Shasta Daisy (Leucanthemum maximum) 'Gold Rush'	Field Container	Boydston	WA	2009	Over the top	No injury but significant stunting at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20091201k.pdf

27404	Shasta Daisy (Leucanthemum maximum) L. x superbum 'Daisy'	Field Container	Senesac	NY	2009	Over the top	Slight injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
27175	Fetterbush, Drooping Leucothoe (Leucothoe sp.) L. fontanesiana 'Rainbow'	Field Container	Grunwald	OR	2010	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20110113c.pdf
26448	Blazing-Star, Gayfeather (Liatris sp.) L. spicata 'Kobold'	Field Container	Boydston	WA	2008	Over the top	Slight injury at 2.65, moderate at 5.3 and 10.6 lb ai per acre; no growth reduction; most treated plants saleable.	N	20090129h.pdf
26448	Blazing-Star, Gayfeather (Liatris sp.) L. spicata 'Kobold'	Field Container	Boydston	WA	2009	Over the top	No significant injury at 2.65 and 5.3, severe at 10.6 lb ai per acre; all 1X treated plants saleable.	N	20100120l.pdf
26448	Blazing-Star, Gayfeather (Liatris sp.) L. spicata 'Kobold'	Field Container	Klett	CO	2009	Over the top	Trial 1: significant visual injury (stunting, leaf chlorosis and browning) at 2.65, 5.3 and 10.6 lb ai per acre; dry mass lower at all rates.	N	20100109a.pdf
26448	Blazing-Star, Gayfeather (Liatris sp.) L. spicata 'Kobold'	Field Container	Klett	CO	2009	Over the top	Trial 2: moderate to significant injury (stunting, leaf chlorosis and browning) at 2.65, 5.3 and 10.6 lb ai per acre; dry mass lower at all rates.	N	20100109a.pdf
27405	Privet (Ligustrum sp.) L. japonicum	Field Container	Knox	FL	2009	Over the top	No crop injury with two sequetial applications at 0.375 and 0.75 lb ai per acre. Chlorosis on some plants 2WAT treated with 4x. Some root stunting with 4x observed.	N	20120217a.pdf
27405	Privet (Ligustrum sp.) L. japonicum	Field Container	Lieth	CA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; unacceptable growth reduction at 2X and 4X.	N	20090420a.pdf
27405	Privet (Ligustrum sp.) L. lucidum	Field Container	Uber	CA	2008	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, moderate at 2X and 4X after 2nd application; significant growth reduction at 4X	N	20090420h.pdf
27405	Privet (Ligustrum sp.) L. vulgare	Field Container	Freiberger	NJ	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100129b.pdf
26433	Lilyturf, Creeping (Liriope sp.) L. muscari 'Big Blue'	Field Container	Fraelich	GA	2008	Over the top	No injury at 150, 300 and 600 lb per acre; very slight stunting at 4X; all plants marketable.	N	20081030b.pdf
26433	Lilyturf, Creeping (Liriope sp.) L. muscari 'Green Giant'	Field Container	Neal	NC	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100122a.pdf
26433	Lilyturf, Creeping (Liriope sp.) L. spicata	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081223c.pdf
26433	Lilyturf, Creeping (Liriope sp.) Muscari sp. 'Big Blue'	Field Container	Boydston	WA	2008	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; treated plants saleable.	N	20090129h.pdf

27406	Lobelia (Lobelia sp.)	Field Container	Lieth	CA	2012	Over the top	No significant injury but severe growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130226c.pdf
27406	Lobelia (Lobelia sp.)	Field Container	Reding	OH	2010	Over the top	Significant crop injury with 2.65, 5.3 and 10.6 lb ai per acre; plants not marketable.	N	20110526a.pdf
27406	Lobelia (Lobelia sp.) L. cardinalis	Field Container	Senesac	NY	2009	Over the top	Slight to severe injury increasing with rates (2.65, 5.3 and 10.6 lb ai per acre).	N	20091130f.pdf
27406	Lobelia (Lobelia sp.) L. fulgens 'Queen Victoria'	Field Container	Boydston	WA	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100120p.pdf
27406	Lobelia (Lobelia sp.) L. fulgens 'Queen Victoria'	Field Container	Boydston	WA	2010	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction; all treated plants saleable.	N	20101130t.pdf
27829	Sweet Alyssum (Lobularia maritima)	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3, and 10.6 lb ai per acre; no significant difference in plant growth or marketability.	N	20080227p.pdf
27829	Sweet Alyssum (Lobularia maritima)	Field Container	Lieth	CA	2008	Over the top	No significant injury and growth reduction at 2.65, moderate and significant at 5.3 and 10.6 lb ai per acre.	N	20090420a.pdf
27829	Sweet Alyssum (Lobularia maritima)	Field Container	Lieth	CA	2012	Over the top	No significant injury or growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20130226c.pdf
26328	Loropetalum (Loropetalum sp.) L. chinense rubrum	Field Container	Czarnota	GA	2007	Over the top	Virtually no injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080310b.pdf
26328	Loropetalum (Loropetalum sp.) L. chinense rubrum	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090724a.pdf
26328	Loropetalum (Loropetalum sp.) L. chinense var rubrum 'Burgundy'	Field Container	Derr	VA	2009	Over the top	No injury or growth reduction at 2.63, 5.25 and 10.6 lb ai per acre.	Y	20091202a.pdf
26328	Loropetalum (Loropetalum sp.) L. chinensis 'Ruby'	Field Container	Neal	NC	2007	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080204d.pdf
26328	Loropetalum (Loropetalum sp.) L. chinensis 'Ruby'	Field Container	Neal	NC	2009	Over the top	No significant injury at 2.65 and 5.3, slight stunting at 10.6 lb ai per acre.	Y	20100122a.pdf
26313	Magnolia (Magnolia sp.)	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080227p.pdf
26313	Magnolia (Magnolia sp.) M. grandiflora 'Alta'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080116d.pdf
26313	Magnolia (Magnolia sp.) M. stellata 'Centennial'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; plants marketable.	Y	20080718b.pdf
27407	Oregon Grape (Mahonia aquifolium)	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091230g.pdf
27407	Oregon Grape (Mahonia aquifolium)	Field Container	Grunwald	OR	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants saleable.	N	20100412d.pdf

27407	Oregon Grape (Mahonia aquifolium)	Field Container	Grunwald	OR	2010	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants saleable.	N	20110113c.pdf
27407	Oregon Grape (Mahonia aquifolium) B. aquifolium	Field Container	Lieth	CA	2009	Over the top	No impact on plant growth and no crop injury observed with two application 2.65, 5.3, and 10.6 lb ai per acre.	N	20100430d.pdf
27186	Apple & Crabapple (Non-Bearing) (Malus sp.)	Field Container	Reding	OH	2009	Over the top	No injury and no significant difference in growth or marketability with 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130m.pdf
27186	Apple & Crabapple (Non-Bearing) (Malus sp.) M. domestica	Field Container	Mathers (OSU)	OH	2008	Over the top	No injury at 2.65, 5.3, and 10.6 lb ai per acre.	N	20081030s.pdf
27186	Apple & Crabapple (Non-Bearing) (Malus sp.) 'M.domestica'	Field Container	Mathers (OSU)	OH	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091028f.pdf
27279	Stock (Matthiola incana)	Field Container	Klett	CO	2011	Over the top	Trial 2: Reduction in dry mass for plants treated with 0.375,0.75 and 1.5 lb ai per acre compared to the control.	N	20111209b.pdf
27279	Stock (Matthiola incana) 'Harmony Mix'	Field Container	Wilen	CA	2012	Over the top	Severe injury and growth reduction increasing with rates (150, 300 and 600 lb ai per acre) applied twice.	N	20130111c.pdf
27279	Stock (Matthiola incana) M. 'Cherry Blossom'	Field Container	Klett	CO	2011	Over the top	Trial 1: Reduction in dry mass for plants treated with 0.375,0.75 and 1.5 lb ai per acre compared to the control.	N	20111209b.pdf
26211	Silver Grass (Miscanthus sp.)	Field Container	Trader	MS	2007	Over the top	Slight injury and no growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116i.pdf
26211	Silver Grass (Miscanthus sp.) M. sinensis 'Purpurascens'	Field Container	Boydston	WA	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080128u.pdf
26211	Silver Grass (Miscanthus sp.) M. sinensis 'Purpurascens'	Field Container	Regan	OR	2007	Over the top	Minor injury after the 2nd application and no significant growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080108a.pdf
28185	Muhly, hairyawn (Muhlenbergia capillaris)	Field Container	Neal	NC	2010	Broadcast	Crop injury with all rates (2.65, 5.3, 10.6 ai per acre) increaseing with rate. Root inhibition with 2x and 4x rates.	N	20110308e.pdf
28185	Muhly, hairyawn (Muhlenbergia capillaris)	Field Container	Stamps	FL	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; no significant growth reduction.	N	20100301a.pdf
28185	Muhly, hairyawn (Muhlenbergia capillaris)	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, slight (delayed flowering and stunting) at 5.3 and 10.6 lb ai per acre.	N	20100409a.pdf
28714	Mexican deergrass (Muhlenbergia dubia)	Field Container	Klett	CO	2013	Over the top	Slight to moderate injury increasing with rates (2.65, 5.3 and 10.6 lb ai per acre) applied twice; moderate to severe growth reduction increasing with rates.	N	20131217d.pdf
28714	Mexican deergrass (Muhlenbergia dubia)	Field Container	Wilen	CA	2009	Over the top	Moderate to high injury increasing with rates (2.65, 5.3 and 10.6 lb ai per acre); significant growth reduction at all rates.	N	20100727a.pdf

27194	Catnip (Nepeta cataria) N. cataria	Field Container	Lieth	CA	2009	Over the top	Crop injury observed (approx. 40-60%) and significant reduction in plant growth parameters at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100430d.pdf
27194	Catnip (Nepeta cataria) N. grandiflora 'Dusk-to-Dawn'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20091201x.pdf
27194	Catnip (Nepeta cataria) 'Psfike'	Field Container	Klett	CO	2008	Over the top	Trial 1: No injury at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction at 4X.	N	20090319i.pdf
27194	Catnip (Nepeta cataria) 'Psfike'	Field Container	Klett	CO	2008	Over the top	Trial 2: Slight injury (minor chlorosis) at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction.	N	20090319i.pdf
27199	Catmint (Nepeta x faasseni)	Field Container	Lieth	CA	2008	Over the top	Significant injury and unacceptable growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090420a.pdf
27199	Catmint (Nepeta x faasseni) 'Walker's Low'	Field Container	Klett	CO	2009	Over the top	Trial 1: No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
27199	Catmint (Nepeta x faasseni) 'Walker's Low'	Field Container	Klett	CO	2009	Over the top	Trial 2: No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100109a.pdf
27199	Catmint (Nepeta x faasseni) 'Walker's Low'	Field Container	Senesac	NY	2008	Over the top	Slight injury at 2.63, moderate at 5.25 and 10.5 lb ai per acre	N	20081218a.pdf
27199	Catmint (Nepeta x faasseni) 'Walkers Low'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20091201h.pdf
27408	Evening Primrose, Sundrops (Oenothera sp.) O. berlandiera	Field Container	Neal	NC	2008	Over the top	No significant injury at 2.65 and 5.3 lb ai per acre, but stunting did occur at 10.6 lb ai per acre.	N	20090421a.pdf
27408	Evening Primrose, Sundrops (Oenothera sp.) O. berlandieri 'Siskiyou'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20091201a.pdf
27408	Evening Primrose, Sundrops (Oenothera sp.) O. fruticosa	Field Container	Neal	NC	2008	Over the top	No significant injury at 2.65 and 5.3 lb ai per acre, but stunting did occur at 10.6 lb ai per acre.	N	20090421a.pdf
27408	Evening Primrose, Sundrops (Oenothera sp.) O. speciosa	Field Container	Senesac	NY	2009	Over the top	Virtually no injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
26436	Mondo Grass, Lilyturf, Ker-Gawl (Ophiopogon sp.) O. japonica	Field Container	Wilen	CA	2012	Over the top	Slight, acceptable injury with 150, 300 and 600 lb per acre applied twice; no growth reduction.	N	20121116c.pdf
26436	Mondo Grass, Lilyturf, Ker-Gawl (Ophiopogon sp.) O. japonicas	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090724a.pdf
26436	Mondo Grass, Lilyturf, Ker-Gawl (Ophiopogon sp.) O. japonicus 'Nana'	Field Container	Senesac	NY	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
27409	Holly Olive;False (Osmanthus heterophyllus) Holly Olive; False	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090724a.pdf

27409	Holly Olive;False (Osmanthus heterophyllus) O. fragrans	Field Container	Gilliam	AL	2013	Over the top	No injury or growth reduction with 150, 300 and 600 lb per acre applied twice.	N	20131219b.pdf
31344	Fern, Royal (Osmunda regalis)	Field Container	Neal	NC	2013	Over the top	Moderate injury (foliar necrosis) with 150, severe with 300 and 600, lb per acre applied twice.	N	20140210b.pdf
31344	Fern, Royal (Osmunda regalis) O. 'American Royal'	Field Container	Derr	VA	2011	Broadcast	Reduction in fresh shoot rate and minor crop injury at 2.65, 5.3, 10.6 lb ai per acre. Good groundsel control.	N	20120321b.pdf
27387	Sourwood, Sorrel Tree (Oxydendrum arboreum)	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	No significant injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre; no reduction in marketability.	N	20120430a.pdf
28178	Japanese Spurge (Pachysandra terminalis)	Field Container	Boydston	WA	2010	Over the top	No injury or growth reduction with 2.65, 5.3, and 10.6 lb ai per acre; all treated plants saleable.	N	20101105o.pdf
28178	Japanese Spurge (Pachysandra terminalis) 'Green Sheen'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20091201b.pdf
28178	Japanese Spurge (Pachysandra terminalis) P. terminalis 'Green Sheen'	Field Container	Lieth	CA	2009	Over the top	No crop injury with two applications of 2.65, 5.3, and 10.6 lb ai per acre up to 60 DAT and no growth suppression observed.	N	20100430d.pdf
29083	Peony (Paeonia sp.) P. lactiflora 'Shirley Temple'	Field Container	Boydston	WA	2011	Broadcast	No crop injury or reduction in growth with 2.65, 5.3, 10.6 lb ai per acre.	N	20111014e.pdf
29083	Peony (Paeonia sp.) P. sp. 'Dr. Alex Fleming'	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20110526a.pdf
27203	Fountain Grass (Pennisetum setaceum)	Field Container	Klett	CO	2009	Over the top	Trial 1: Moderate to significant injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100109a.pdf
27203	Fountain Grass (Pennisetum setaceum)	Field Container	Klett	CO	2009	Over the top	Trial 2: Moderate to significant injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100109a.pdf
27203	Fountain Grass (Pennisetum setaceum)	Field Container	Neal	NC	2010	Broadcast	Significant crop injury with all rates (2.65, 5.3 and 10.6 lb ai per acre) and inhibition of root growth suggesting not safe for labeling in container.	Y	20110308e.pdf
27203	Fountain Grass (Pennisetum setaceum)	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	Y	20110526a.pdf
27203	Fountain Grass (Pennisetum setaceum) P. setaceum 'Rubrum'	Field Container	Senesac	NY	2010	Over the top	Significant injury with 2.65, 5.3 and 10.6 lb ai per acre.	Y	20101129e.pdf
26346	Petunia (Petunia sp.)	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227p.pdf
26346	Petunia (Petunia sp.)	Field Container	Harvey	WA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20070823b.pdf

26346	Petunia (Petunia sp.) 'Double Cascade Blue'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116d.pdf
26346	Petunia (Petunia sp.) P. hybrida	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080128e.pdf
28738	Mock Orange (Philadelphus sp.)	Field Container	Reding	OH	2010	Over the top	Stunting and chlorosis with 2.65, 5.3 and 10.6 lb ai per acre at 56DAT and significant reduction in height with 1x and 4x rate; plants marketable.	N	20110526a.pdf
28738	Mock Orange (Philadelphus sp.) P. viginalis 'Snow Dwarf'	Field Container	Czarnota	GA	2009	Over the top	No significant injury at 2.65, 5.25 and 10.5 lb ai per acre.	N	20091214a.pdf
26214	Phlox, Perennial (Phlox paniculata)	Field Container	Boydston	WA	2007	Over the top	Two sequential applications 8 weeks apart at 2.65, 5.3, and 10.6 lb ai per acre significantly injured young perennial phlox plants.	Y	20080229s.pdf
26214	Phlox, Perennial (Phlox paniculata) 'Sub Snowflake'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080116d.pdf
27204	Carolinia Phlox (Phlox sp.) P. carolina 'Miss Lingard'	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081223c.pdf
27204	Carolinia Phlox (Phlox sp.) P. paniculata 'Juliet'	Field Container	Fraelich	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; slight stunting at 1X and 2X, moderate at 4X; all plants marketable.	N	20081030b.pdf
27204	Carolinia Phlox (Phlox sp.) P. paniculata 'Purple Flame'	Field Container	Boydston	WA	2008	Over the top	Moderate to high injury, no growth reduction but reduced flower clusters at 2.65, 5.3 and 10.6 lb ai per acre; 1X plants marketable.	N	20090129k.pdf
27204	Carolinia Phlox (Phlox sp.) P. paniculata 'Robert Poore'	Field Container	Senesac	NY	2008	Over the top	Moderate injury and growth reduction at 2.63, 5.25 and 10.5 lb ai per acre	N	20081218a.pdf
26365	Creeping Phlox, Moss Pink (Phlox subulata) 'Emerald Blue'	Field Container	Senesac	NY	2008	Over the top	Moderate injury at 2.63, 5.25 and 10.5 lb ai per acre	Y	20081218a.pdf
26365	Creeping Phlox, Moss Pink (Phlox subulata) 'Fort Hill'	Field Container	Boydston	WA	2008	Over the top	Slight injury at 2.65, moderate at 5.3 and 10.6 lb ai per acre; slight growth reduction at 2X and 4X; 1X and 2X treated plants probably saleable.	Y	20090129h.pdf
26365	Creeping Phlox, Moss Pink (Phlox subulata) P. subulata	Field Container	Harvey	WA	2008	Over the top	No injury at 2.65, minor stunting at 5.3 and 10.6 lb ai per acre	Y	20080924b.pdf
26365	Creeping Phlox, Moss Pink (Phlox subulata) 'Red Wings'	Field Container	Fraelich	GA	2008	Over the top	No injury at 150, 300 and 600 lb per acre; slight stunting at 4X; all plants marketable	Y	20081030b.pdf
27388	Photinia (Photinia sp.) P. fraseri	Field Container	Lieth	CA	2010	Broadcast	Minor crop injury with 2.65 and 5.3 lb ai per acre but may be due to low temp. injury. No differences in growth at any rate compared to untreated.	N	20110624a.pdf

27388	Photinia (Photinia sp.) P. fraseri	Field Container	Mickelbart	IN	2009	Over the top	No injury at 2.65, 5.3, 10.6 lb ai per acre, but all treated plants exhibited significantly stunting (50% reduction or more).	N	20101028b.pdf
27388	Photinia (Photinia sp.) P. fraseri	Field Container	Uber	CA	2008	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, severe at 4X after 2nd application; growth reduction at 2X and 4X.	N	20090420h.pdf
27388	Photinia (Photinia sp.) P. x fraseri 'Red Tip'	Field Container	Gilliam	AL	2011	Broadcast	No crop injury or reduction in growth with 2.65, 5.3, 10.6 lb ai per acre.	N	20111206b.pdf
26545	Spruce (Picea sp.) P. glauca	Field In-Ground	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury or height reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080613c.pdf
26292	Spruce (Picea sp.) P. glauca	Field Container	Freiberger	NJ	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227l.pdf
26292	Spruce (Picea sp.) P. pungens	Field Container	Senesac	NY	2007	Over the top	No injury at 2.63. 5.25 and 10.5 lb ai per acre.	N	20080116r.pdf
26292	Spruce (Picea sp.) P. pungens gauca	Field Container	Reding	OH	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080128e.pdf
27210	Andromeda (Pieris sp.) P. japonica 'Mountain Fire'	Field Container	Trader	MS	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090924c.pdf
27210	Andromeda (Pieris sp.) P. japonica 'Shojo'	Field Container	Senesac	NY	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
27210	Andromeda (Pieris sp.) P.japonica 'Dorothy Wycoff'	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20091230b.pdf
27215	Pine (Pinus sp.) P. eldarica	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100409a.pdf
27215	Pine (Pinus sp.) P. halapensis	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100409a.pdf
27215	Pine (Pinus sp.) P. mugo	Field Container	Harvey	WA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080924b.pdf
27215	Pine (Pinus sp.) P. mugo	Field Container	Harvey	WA	2009	Over the top	No injury at 0.75, 1.5 and 3 lb ai per acre.	Y	20100208b.pdf
27215	Pine (Pinus sp.) P. strobisormis	Field Container	Boydston	WA	2010	Over the top	No injury with two sequential applications applied 6 weeks apart at 2.65, 5.3, and 10.6 lb ai per acre; all plants were saleable.	Y	20101105i.pdf
27215	Pine (Pinus sp.) P. strobus	Field Container	Senesac	NY	2008	Over the top	Slight injury at 2.63 and 5.25, moderate at 10.5 lb ai per acre.	Y	20081218a.pdf
27215	Pine (Pinus sp.) P. taeda	Field Container	Fraelich	GA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	Y	20091231c.pdf
27215	Pine (Pinus sp.) P. taeda	Field Container	Wade	SC	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	Y	20080915a.pdf
28232	Pine, Loblolly (Pinus taeda)	Field In-Ground	Beste/Frank (ARS)	MD	2011	Over the top	No injury with 2.62, 5.25 and 10.5 lb ai per acre after 1st application, some injury with good recovery at 10.5 lb after 2nd application; height reduction with 4X; plants marketable w/o reduction with 1X and 2X rates.	Y	20120809e.pdf

28232	Pine, Loblolly (Pinus taeda) P. palustris	Field In-Ground	Czarnota	GA	2014	Over the top	No significant injury with 2.63, 5.25 and 10.5 lb ai per acre applied twice.	Y	20150114c.pdf
27410	Purslane (Portulaca sp.) 'Margarita Rosita'	Field Container	Mathers (OSU)	OH	2009	Over the top	No or acceptable injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st,; unacceptable injury (stem brittleness) at 2X and 4X after 2nd application.	N	20091028h.pdf
27410	Purslane (Portulaca sp.) P. grandiflora	Field Container	Lieth	CA	2009	Over the top	No crop injury with any rate (0.375, 0.75, 1.5 lb ai per acre) but significant growth suppression at 0.75 and 1.5 lb ai per acre were observed.	N	20100430c.pdf
27220	Cinquefoil (Potentilla sp.) P. fruticosa 'Goldfinger'	Field Container	Senesac	NY	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20091130f.pdf
27220	Cinquefoil (Potentilla sp.) P. fruticosa 'Goldfinger'	Field Container	Uber	CA	2008	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, moderate at 4X after 2nd application; no significant growth reduction.	Y	20090420h.pdf
27220	Cinquefoil (Potentilla sp.) P. fruticosa 'Monsidh'	Field Container	Klett	CO	2008	Over the top	Trial 1: Virtually no injury at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	Y	20090319i.pdf
27220	Cinquefoil (Potentilla sp.) P. fruticosa 'Monsidh'	Field Container	Klett	CO	2008	Over the top	Trial 2: No injury at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	Y	20090319i.pdf
26223	Fir, Douglas (Pseudotsuga menziesii)	Field Container	Boydston	WA	2007	Over the top	Two sequential applications 8 weeks apart at 0.97, 1.94, and 3.88 lb ai per acre did not injure young Douglas fir trees, all treated plants are saleable except 4X treated trees were smaller.	N	20080229k.pdf
26223	Fir, Douglas (Pseudotsuga menziesii) 'Blue'	Field Container	Marshall	MI	2007	Over the top	No injury with single application at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080401b.pdf
26223	Fir, Douglas (Pseudotsuga menziesii) P. menziesii glauca	Field Container	Freiberger	NJ	2007	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227l.pdf
27411	Oak, Shumard Red (Quercus shumardii)	Field Container	Denny	MS	2013	Over the top	No injury with 2.65, 5.3 and 10.6 lb ai per acre applied twice; slight trunk diameter growth reduction at 2X and 4X.	N	20140507c.pdf
27411	Oak, Shumard Red (Quercus shumardii)	Field Container	Knox	FL	2009	Over the top	No crop injury with two sequetial applications at 0.375 lb ai per acre. Minor necrosis 2WAT with 0.75 and 1.5 lb ai per acre. Some root stunting with 4x observed.	N	20120217a.pdf
27411	Oak, Shumard Red (Quercus shumardii)	Field Container	Reding	OH	2011	Broadcast	No crop injury or reduction in growth with two applications at 2.65, 5.3 and 10.6 lb ai per acre.	N	20111014a.pdf
27226	Oak (Quercus sp.) Q. alba	Field Container	Freiberger	NJ	2008	Directed	Virtually no injury at 2.65, slight at 5.3 and moderate at 10.6 lb ai per acre.	N	20090319c.pdf
27226	Oak (Quercus sp.) Q. rubra	Field Container	Beste/Frank (ARS)	MD	2009	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20091230d.pdf
27226	Oak (Quercus sp.) Q. rubra	Field Container	Mathers (OSU)	OH	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081030p.pdf

27412	Oak, Southern Live (Quercus virginiana)	Field Container	Knox	FL	2009	Over the top	No crop injury with two sequetial applications at 0.375, 0.75 lb ai per acre. Reduction in growth with 1.5 lb ai per acre. Some root stunting with 4x observed.	N	20120217a.pdf
27231	Indian Hawthorn (Raphiolepis indica)	Field Container	Gilliam	AL	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre with two applications.	N	20081224a.pdf
27231	Indian Hawthorn (Raphiolepis indica) 'Pink Lady'	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20100409a.pdf
27231	Indian Hawthorn (Raphiolepis indica) R. umbellata 'Eleanor Taber'	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090724a.pdf
26288	Azalea (Rhododendron sp.) 'Amelia Rose'	Field Container	Gilliam	AL	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20071219j.pdf
26288	Azalea (Rhododendron sp.) 'Fashion'	Field Container	Fraelich	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227p.pdf
26288	Azalea (Rhododendron sp.) 'Fashion'	Field Container	Neal	NC	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, slight at 4X after 2nd appplication.	N	20100122a.pdf
26288	Azalea (Rhododendron sp.) 'Gwenda'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116d.pdf
26288	Azalea (Rhododendron sp.) 'Vulcan'	Field Container	Regan	OR	2007	Over the top	No injury at 2.65, minor at 5.3 and 10.6 lb ai per acre after the 2nd application; no growth reduction.	N	20080108a.pdf
28718	Evergreen currant (Ribes viburnifolium)	Field Container	Reding	OH	2011	Over the top	No crop injury or reduction in growth with two applications at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20111014a.pdf
28718	Evergreen currant (Ribes viburnifolium)	Field Container	Wilen	CA	2009	Over the top	No significant injury at 2.65 and 5.3, moderate at 10.6 lb ai per acre; root and shoot dry weights not significantly reduced.	Y	20100727b.pdf
26199	Rose (Rosa sp.) ‘Nearly Wild’	Field Container	Czarnota	GA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080310b.pdf
26199	Rose (Rosa sp.) 'Flower Carpet Red'	Field Container	Neal	NC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080204d.pdf
26199	Rose (Rosa sp.) 'Nearly Wild'	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090724a.pdf
26199	Rose (Rosa sp.) 'Nearly Wild'	Field Container	Lieth	CA	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20070911d.pdf
26199	Rose (Rosa sp.) 'Nearly Wild'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080116d.pdf
26199	Rose (Rosa sp.) R. meidomonac 'Bonica'	Field Container	Boydston	WA	2007	Over the top	No injury or significant growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; treated plants saleable.	N	20080128q.pdf
26451	Coneflower, Orange (Rudbeckia fulgida speciosa)	Field Container	Gilliam	AL	2013	Over the top	Unacceptable injury with 150, 300 and 600 lb per acre applied twice.	Y	20131219b.pdf

26451	Coneflower, Orange (Rudbeckia fulgida speciosa) 'Goldsturm'	Field Container	Boydston	WA	2013	Over the top	Moderate to severe injury increasing with rates (2.65, 5.3 and 10.6 lb ai per acre) applied twice; plants not saleable.	Y	20131203a.pdf
26451	Coneflower, Orange (Rudbeckia fulgida speciosa) R. hirta	Field Container	Klett	CO	2013	Over the top	No injury with 2.65, 5.3 and 10.6 lb ai per acre applied twice; moderate growth reduction at 1X and 2X, high at 4X.	Y	20131217c.pdf
29654	Ruscus (Ruscus hypophyllum)	Field Container	Stamps	FL	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; no significant growth reduction.	N	20100301a.pdf
27427	Palmetto Palm (Sabal minor)	Field Container	Czarnota	GA	2014	Over the top	No significant injury with 2.63, 5.25 and 10.5 lb ai per acre applied twice.	N	20150114c.pdf
27427	Palmetto Palm (Sabal minor)	Field Container	Stamps	FL	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction.	N	20100301a.pdf
27427	Palmetto Palm (Sabal minor) Palmetto Palm	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090724a.pdf
30969	Sage, Scarlet (Salvia splendens) S. splendens 'Bonfire'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury or growth reduction at 2.65 lb ai per acre, significant at 5.3 and 10.6 lb; 4X treated plants unmarketable.	N	20080718a.pdf
26202	Sage, Ramona (Salvia sylvestris) 'May Night'	Field Container	Beste/Frank (ARS)	MD	2012	Over the top	No significant injury, growth or marketability reduction with 2.65 lb ai per acre applied twice; potential marketability reduction with 5.3 and 10.6 lb due to reduced growth.	Y	20130125c.pdf
26202	Sage, Ramona (Salvia sylvestris) 'May Night'	Field Container	Derr	VA	2012	Over the top	Slight injury with 2.65, 5.3, 10.6 lb ai per acre applied twice.	Y	20121126b.pdf
26202	Sage, Ramona (Salvia sylvestris) 'May Night'	Field Container	Klett	CO	2007	Over the top	Two trials; significant injury (slight stunting and discoloration) at 2.65, 5.3 and 10.6 lb ai per acre but plants still very saleable.	Y	20071220i.pdf
26202	Sage, Ramona (Salvia sylvestris) S. 'May Night'	Field Container	Williams	IL	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090218d.pdf
26202	Sage, Ramona (Salvia sylvestris) S. nemorosa 'Cardonna'	Field Container	Derr	VA	2007	Over the top	8, 13 and 23 % injury at 2.63, 5.25 and 10.5 lb ai per acre; 100 % control of rice flatsedge and fragrant flatsedge.	Y	20071219c.pdf
26202	Sage, Ramona (Salvia sylvestris) S. nemorosa 'May Night'	Field Container	Mathers (OSU)	OH	2007	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st application; significant injury (burning and yellowing) at 2X and 4X after 2nd application.	Y	20071106a.pdf
26202	Sage, Ramona (Salvia sylvestris) 'Snow Hill'	Field Container	Boydston	WA	2007	Over the top	Slight injury with complete recovery, no significant growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; treated plants saleable.	Y	20080128s.pdf
27413	Elder, Elderberry (Sambucus sp.) S. canadensis 'Aurea'	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090724a.pdf
27413	Elder, Elderberry (Sambucus sp.) S. hybridus 'Adams'	Field Container	Czarnota	GA	2014	Over the top	No significant injury with 2.63, 5.25 and 10.5 lb ai per acre applied twice.	Y	20150114c.pdf

27413	Elder, Elderberry (Sambucus sp.) S. nigra 'Black Lace'	Field Container	Trader	MS	2008	Over the top	High injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080924f.pdf
27413	Elder, Elderberry (Sambucus sp.) S. racemosa 'Sutherland'	Field Container	Czarnota	GA	2012	Over the top	29-43 % injury with 150, 300 and 600 lb per acre applied twice.	Y	20140129a.pdf
26302	Pincushion Flower (Scabiosa sp.)	Field Container	Boydston	WA	2007	Over the top	Unacceptable injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080128m.pdf
26302	Pincushion Flower (Scabiosa sp.)	Field Container	Harvey	WA	2007	Over the top	No injury after the first application at 2.65, 5.3 and 10.6 lb ai per acre, high injury at 2X and 4X after the second application.	Y	20070823b.pdf
26302	Pincushion Flower (Scabiosa sp.) 'Butterfly Blue'	Field Container	Boydston	WA	2008	Over the top	No injury after 1st application, minor after 2nd (leaf necrosis), at 2.65, 5.3 and 10.6 lb ai per acre; no growth reduction; treated plants saleable.	Y	20090326a.pdf
26302	Pincushion Flower (Scabiosa sp.) 'Butterfly Blue'	Field Container	Neal	NC	2008	Over the top	No initial injury but crinkled leaves and malformed new leaves occurred over time with severity increasing with rate (2.65, 5.3, 10.6 lb ai per acre).	Y	20090421a.pdf
27414	Beach Naupaka (Scaevola sp.)	Field Container	Wilen	CA	2012	Over the top	Severe injury with 150, 300 and 600 lb per acre applied twice; plant death at high rate.	N	20121116b.pdf
27414	Beach Naupaka (Scaevola sp.) S. aemula 'Scala Blue'	Field Container	Pemberton	TX	2012	Over the top	No injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre applied twice; delayed flowering up to 4 weeks.	N	20130913a.pdf
27414	Beach Naupaka (Scaevola sp.) S. aemula 'Sky Blue'	Field Container	Senesac	NY	2010	Over the top	Moderate to severe injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20101129e.pdf
27414	Beach Naupaka (Scaevola sp.) S. 'Cajun Blue'	Field Container	Derr	VA	2010	Over the top	No crop injury or reduction in plant stand or flower numbers at 2.63, 5.25, 10.5 lb ai per acre, but 4X caused temporary reduction in flower size at 14 DAT2; good to excellent control of crabgrass and longstalked phyllanthus with all rates and good to exc	N	20100929a.pdf
27244	Stonecrop (Sedum sp.)	Field Container	Neal	NC	2008	Over the top	No injury at 2.65, 5.3 or 10.6 lb ai per acre.	N	20090421a.pdf
27244	Stonecrop (Sedum sp.) S. spectabile 'Neon'	Field Container	Reding	OH	2008	Over the top	No injury and no significant difference in growth or marketability at 2.65, 5.3 and 10.6 lb ai per acre.	N	20081223c.pdf
27244	Stonecrop (Sedum sp.) S. spurium 'Fuldaglut'	Field Container	Boydston	WA	2008	Over the top	Moderate injury at 2.65, high at 5.3 and 10.6 lb ai per acre; width reduction at 2X and 4X.	N	20090326a.pdf
27244	Stonecrop (Sedum sp.) S. spurium 'John Creech'	Field Container	Senesac	NY	2008	Over the top	Slight injury at 2.63 and 5.25, moderate at 10.5 lb ai per acre.	N	20081218a.pdf
27244	Stonecrop (Sedum sp.) S. x spectabile 'Autumn Joy'	Field Container	Williams	IL	2008	Over the top	No injury at 2.65 and 5.3 lb ai per acre, slight injury at 10.6 lb ai per acre; no growth reduction at all rates.	N	20090218d.pdf

26454	Goldenrod (Solidago sp.)	Field Container	Uber	CA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; delayed flowering with full recovery after 2nd application.	Y	20100409a.pdf
26454	Goldenrod (Solidago sp.) 'Little Lemon'	Field Container	Boydston	WA	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	Y	20100120m.pdf
26454	Goldenrod (Solidago sp.) S. sphacelata 'Golden Fleece'	Field Container	Senesac	NY	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, slight after 2nd application.	Y	20091130f.pdf
28467	Goldenrod, Autumn (Solidago sphacelata) 'Golden Fleece'	Field Container	Klett	CO	2010	Over the top	Trial 1: No crop injury with 2.65, 5.3 and 10.6 lb ai per acre. No efficacy differences between treatments and weeded control.	Y	20110128a.pdf
28467	Goldenrod, Autumn (Solidago sphacelata) 'Golden Fleece'	Field Container	Klett	CO	2010	Over the top	Trial 2: No crop injury with 2.65, 5.3 and 10.6 lb ai per acre, but a reduction in dry mass and width at 4X. No efficacy differences between treatments and weeded control.	Y	20110128a.pdf
28467	Goldenrod, Autumn (Solidago sphacelata) S. sphacelata 'Golden Fleece;	Field Container	Senesac	NY	2008	Over the top	No injury or growth reduction at 2.63, 5.25 and 10.5 lb ai per acre.	Y	20081218a.pdf
26280	Bridal-Wreath (Spiraea sp.)	Field Container	Harvey	WA	2007	Over the top	Very slight injury only at 4X rate (10.6 lb ai per acre).	Y	20070823b.pdf
26280	Bridal-Wreath (Spiraea sp.) S. prunifolia	Field Container	Freiberger	NJ	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, slight after 2nd application.	Y	20080227l.pdf
26280	Bridal-Wreath (Spiraea sp.) S. thunbergii	Field Container	Mickelbart	IN	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre with single application 3 weeks after transplanting.	Y	20081029a.pdf
26280	Bridal-Wreath (Spiraea sp.) Spiraea x bumalda 'Gold Mound'	Field Container	Ahrens/Mervosh	CT	2007	Over the top	No significant injury at 2.63, 5.25 and 10.5 lb ai per acre.	Y	20080229b.pdf
27281	Camellia, Mountain (Stewartia sp.) S. pseudocamelia	Field Container	Senesac	NY	2011	Broadcast	No crop injury with two applications at 2.65, 5.3 or 10.6 lb aia.	N	20111107d.pdf
27281	Camellia, Mountain (Stewartia sp.) S. pseudocamellia	Field Container	Boydston	WA	2011	Broadcast	No crop injury with two applications at 2.65, 5.3, and 10.6 lb ai per acre.	N	20111012c.pdf
27281	Camellia, Mountain (Stewartia sp.) S. pseudocamellia	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20110526a.pdf
27249	Lilac (Syringa sp.) 'Miss Kim'	Field Container	Harvey	WA	2008	Over the top	Slight injury at 2.65, moderate at 5.3 and high at 10.6 lb ai per acre.	N	20080924b.pdf
27249	Lilac (Syringa sp.) S x tribida 'Lark Song'	Field Container	Mathers (OSU)	OH	2008	Over the top	No significant injury or growth reduction at 2.65 and 5.3, slight injury at 10.6 lb ai per acre.	N	20081030o.pdf
27249	Lilac (Syringa sp.) S. microphylla 'Superba'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090127c.pdf
27249	Lilac (Syringa sp.) S. patula ‘Miss Kim’	Field Container	Williams	IL	2008	Over the top	No injury or growth reduction at 150, 300 and 600 lb per acre.	N	20090218d.pdf

27415	Marigold (Tagetes sp.)	Field Container	Uber	CA	2011	Broadcast	Acceptable injury with 150 lb ai per acre, moderate 300 and significant injury and growth reduction with 600 lb ai per acre.	N	20111214b.pdf
27415	Marigold (Tagetes sp.) T. erecta 'Inca II Yellow'	Field Container	Klett	CO	2011	Broadcast	Trial 1: Reduction in dry mass for plants treated with 0.375,0.75 and 1.5 lb ai per acre compared to the control.	N	20111209b.pdf
27415	Marigold (Tagetes sp.) T. erecta 'Inca II Yellow'	Field Container	Klett	CO	2011	Broadcast	Trial 2: Reduction in dry mass for plants treated with 0.375, 0.75 and 1.5 lb ai per acre compared to the control.	N	20111209b.pdf
27415	Marigold (Tagetes sp.) T. lemonnii	Field Container	Beste/Frank (ARS)	MD	2011	Over the top	No significant injury or growth reduction with 2.65, 5.3 and 10.6 lb ai per acre applied twice; no reduction in marketability.	N	20120730p.pdf
27415	Marigold (Tagetes sp.) T. patula 'Durango Bolero'	Field Container	Senesac	NY	2010	Over the top	Significant injury with 2.65, 5.3 and 10.6 lb ai per acre.	N	20101129e.pdf
28227	Bald Cypress (Taxodium distichum)	Field In-Ground	Beste/Frank (ARS)	MD	2011	Over the top	No growth reduction with 2.62, unacceptable with 5.25 and 10.5 lb ai per acre applied twice; phyto ratings unreliable due to extremely high temperatures.	N	20120809d.pdf
28227	Bald Cypress (Taxodium distichum)	Field In-Ground	Jones	OH	2013	Over the top	No injury or significant growth reduction with 2.65, 5.3 and 10.6 lb ai per acre applied twice.	N	20141006c.pdf
28227	Bald Cypress (Taxodium distichum) 'Shawnee Brave'	Field In-Ground	Czarnota	GA	2014	Over the top	No injury with 2.63, 5.25 and 10.5 lb ai per acre applied twice.	N	20150114c.pdf
26309	Yew (Taxus sp.) T. baccata	Field Container	Senesac	NY	2007	Over the top	Slight to moderate injury at 2.63. 5.25 and 10.5 lb ai per acre with complete recovery by 4 weeks after 2nd application.	N	20080116r.pdf
26309	Yew (Taxus sp.) T. baccata fasigata	Field Container	Freiberger	NJ	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080227l.pdf
26309	Yew (Taxus sp.) T. baccata 'Repandens'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20080613c.pdf
26309	Yew (Taxus sp.) T. x media 'Densiformis'	Field Container	Williams	IL	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; slight width reduction.	N	20081030i.pdf
27257	Ternstroemia (Ternstroemia sp.)	Field Container	Neal	NC	2010	Broadcast	No crop injury observed with any rate during the evaluation period.	N	20110308g.pdf
27257	Ternstroemia (Ternstroemia sp.) 'Leann'	Field Container	Gilliam	AL	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091119d.pdf
27257	Ternstroemia (Ternstroemia sp.) T. gymnanthera	Field Container	Gilliam	AL	2011	Broadcast	No crop injury or reduction in growth with 2.65, 5.3, 10.6 lb ai per acre.	N	20111206b.pdf
28722	Dwarf germander (Teucrium chamaedrys)	Field Container	Klett	CO	2013	Over the top	Moderate injury after 2nd applic. with some recovery at 2.65, 5.3 and 10.6 lb ai per acre; moderate to severe growth reduction increasing with rates.	N	20131217c.pdf
28722	Dwarf germander (Teucrium chamaedrys)	Field Container	Peachey	OR	2013	Over the top	No injury with 150, 300 and 600 lb per acre applied twice; severe growth reduction with 4X.	N	20131118b.pdf

28722	Dwarf germander (Teucrium chamaedrys)	Field Container	Wilen	CA	2009	Over the top	No significant injury at 2.65 and 5.3, slight at10.6 lb ai per acre; root dry weight significantly reduced at all rates.	N	20100727d.pdf
26227	Cedar, Western Red (Thuja plicata)	Field Container	Boydston	WA	2007	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20080128l.pdf
26227	Cedar, Western Red (Thuja plicata)	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090724a.pdf
26227	Cedar, Western Red (Thuja plicata) 'Atrovirens'	Field Container	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all plants marketable.	N	20091230f.pdf
26276	Arborvitae (Thuja sp.) T. occidentalis 'Emerald Green'	Field Container	Ahrens/Mervosh	CT	2007	Over the top	No injury at 2.63, 5.25 and 10.5 lb ai per acre.	Y	20080229b.pdf
26276	Arborvitae (Thuja sp.) T. occidentalis 'Emerald Green'	Field Container	Lieth	CA	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st application; unacceptable only at 4X after 2nd application	Y	20071022c.pdf
26276	Arborvitae (Thuja sp.) T. orientalis 'Green Giant'	Field Container	Gilliam	AL	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20091119d.pdf
26276	Arborvitae (Thuja sp.) T. orientalis 'Green Giant'	Field Container	Neal	NC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080204d.pdf
29653	Palm, Windmill (Trachycarpus fortunei)	Field Container	Stamps	FL	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; no significant growth reduction.	N	20100301a.pdf
26664	Hemlock, Western (Tsuga heterophylla)	Field In-Ground	Beste/Frank (ARS)	MD	2007	Over the top	Results not useful because of severe injury caused by very high temperature and drought conditions.	Y	20080613c.pdf
26664	Hemlock, Western (Tsuga heterophylla)	Field In-Ground	Beste/Frank (ARS)	MD	2008	Over the top	No significant injury after the 1st, severe after 2nd application at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20081217f.pdf
26238	Hemlock, Western (Tsuga heterophylla)	Field Container	Boydston	WA	2007	Over the top	No crop injury with two sequential applications 8 weeks apart at 2.65, 5.3, and 10.6 lb ai per acre; treated plants saleable.	Y	20080229o.pdf
26238	Hemlock, Western (Tsuga heterophylla)	Field Container	Boydston	WA	2009	Over the top	No crop injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	Y	20091201u.pdf
26238	Hemlock, Western (Tsuga heterophylla)	Field Container	Boydston	WA	2010	Over the top	No crop injury or reducgtion in growth with two sequential applications 8 weeks apart at 2.65, 5.3, and 10.6 lb ai per acre did not injure or reduce growth. Were saleable.	Y	20101105g.pdf
26238	Hemlock, Western (Tsuga heterophylla)	Field Container	Boydston	WA	2011	Broadcast	Two sequential applications at 2.65, 5.3, and 10.6 lb ai per acre did not injure or negatively affect the growth.	Y	20111201e.pdf
27266	Hemlock (Tsuga sp.)	Field Container	Ahrens/Mervosh	CT	2011	Broadcast	No crop injurywith two sequential applications at 2.65, 5.3 or 10.6 lb ai per acre.	N	
27266	Hemlock (Tsuga sp.) T. canadensis	Field Container	Boydston	WA	2011	Broadcast	Two applications at 2.65. 5.3 and 10.6 lb ai per acre did not injury or reduce growth.	N	20111014b.pdf

27416	Elm (Ulmus sp.) U. americana	Field Container	Knox	FL	2009	Over the top	No crop injury with two sequetial applications at 0.375 and 0.75 lb ai per acre. Reduction in growth with1.5 lb ai per acre. Reduced root growth observed with 2 and 4x.	N	20120217a.pdf
27416	Elm (Ulmus sp.) U. 'Homestead'	Field Container	Boydston	WA	2011	Broadcast	No crop injury or reduction in growth with two applications at 2.65, 5.3, 10.6 lb ai per acre.	N	20111012e.pdf
27417	Vervain (Verbena sp.) 'Aztec White'	Field Container	Gilliam	AL	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; growth reduction at 4X.	N	20091119d.pdf
27417	Vervain (Verbena sp.) 'Homestead Purple'	Field Container	Boydston	WA	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre; all treated plants saleable.	N	20100120q.pdf
27417	Vervain (Verbena sp.) V. canadensis 'Homestead Purple'	Field Container	Trader	MS	2009	Over the top	No injury or growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	N	20090924c.pdf
27417	Vervain (Verbena sp.) V. stricta	Field Container	Senesac	NY	2009	Over the top	No injury at 2.65, slight at 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
26457	Ironweed, New York (Vernonia noveboracensis)	Field Container	Senesac	NY	2009	Over the top	Slight injury at 2.65, 5.3 and 10.6 lb ai per acre.	N	20091130f.pdf
26265	Speedwell, Brooklime (Veronica sp.)	Field Container	Chandran	WV	2010	Broadcast	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	Y	20120309b.pdf
26265	Speedwell, Brooklime (Veronica sp.)	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	Y	20110526a.pdf
26265	Speedwell, Brooklime (Veronica sp.) V. spicata 'Sunny Border Blue'	Field Container	Gilliam	AL	2010	Broadcast	Little to no injury with 2.65 lb ai per acre but moderate to significant injury and reduction in growth with 5.3, 10.6 lb ai per acre.	Y	20110615f.pdf
26265	Speedwell, Brooklime (Veronica sp.) V. teucrium 'Crater Lake Blue'	Field Container	Klett	CO	2011	Broadcast	Trial 1: Minor crop injury with 2.65, 5.3 and 10.6 lb ai per acre and reduction in dry mass among 4x treated plants.	Y	20111209b.pdf
26265	Speedwell, Brooklime (Veronica sp.) V. teucrium 'Crater Lake Blue'	Field Container	Klett	CO	2011	Broadcast	Trial 2: Significant crop injury with 2.65, 5.3 and 10.6 lb ai per acre decreasing to acceptable by the last evaluation.	Y	20111209b.pdf
27418	Speedwell, Spiked (Veronica spicata) 'Goodness Grows'	Field Container	Boydston	WA	2009	Over the top	Severe injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20091103e.pdf
27418	Speedwell, Spiked (Veronica spicata) 'Red Fox'	Field Container	Senesac	NY	2009	Over the top	Severe injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20091130f.pdf
27418	Speedwell, Spiked (Veronica spicata) V. peduncularis 'Watersperry'	Field Container	Senesac	NY	2008	Over the top	Slight injury at 2.63, moderate at 5.25 and 10.5 lb ai per acre.	Y	20081218a.pdf
26255	Arrowwood (Viburnum sp.) V. odoratissimum	Field Container	Neal	NC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080204d.pdf

26255	Arrowwood (Viburnum sp.) V. opulus	Field Container	Regan	OR	2007	Over the top	No injury but significant growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080108a.pdf
26255	Arrowwood (Viburnum sp.) V. plicatum 'Shasta'	Field Container	Ahrens/Mervosh	CT	2007	Over the top	No significant injury at 2.63, 5.25 and 10.5 lb ai per acre.	Y	20080229b.pdf
26255	Arrowwood (Viburnum sp.) V. plicatum 'Shoshoni'	Field Container	Beste/Frank (ARS)	MD	2007	Over the top	No significant injury and growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080502a.pdf
26255	Arrowwood (Viburnum sp.) V. plicatum tomentosum 'Shasta'	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090724a.pdf
26255	Arrowwood (Viburnum sp.) V. tinus	Field Container	Czarnota	GA	2008	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20090724a.pdf
26255	Arrowwood (Viburnum sp.) V. tinus 'Compactum'	Field Container	Neal	NC	2009	Over the top	No significant injury at 2.65, 5.3 and 10.6 lb ai per acre after 1st, moderate at 4X after 2nd appplication.	Y	20100122a.pdf
26255	Arrowwood (Viburnum sp.) V. x 'Juddi'	Field Container	Mickelbart	IN	2008	Over the top	No injury at 0.97, 1.94, and 3.88 lb ai per acre with single application 3 weeks after transplanting.	Y	20081029a.pdf
26255	Arrowwood (Viburnum sp.) V. x pragense	Field Container	Neal	NC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080204d.pdf
26295	Common periwinkle (Vinca minor)	Field Container	Boydston	WA	2007	Over the top	Two sequential applications 8 weeks apart at 2.65, 5.3, and 10.6 lb ai per acre caused significant injury increasing with rate.	Y	20080229q.pdf
26295	Common periwinkle (Vinca minor) 'Pinkstar'	Field Container	Wade	SC	2007	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080116d.pdf
26295	Common periwinkle (Vinca minor) V. minor	Field Container	Senesac	NY	2007	Over the top	Slight to moderate injury at 2.63. 5.25 and 10.5 lb ai per acre with partial recovery 4 weeks after 2nd application.	Y	20080116r.pdf
26295	Common periwinkle (Vinca minor) V. minor 'Ralph Shugert'	Field Container	Reding	OH	2007	Over the top	High injury after the 2nd application, growth reduction at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20080128e.pdf
27286	Japanese Zelkova (Zelkova serrata)	Field Container	DeFrancesco	OR	2010	Over the top	No crop injury with one or two applications at 2.6, 5.3, 10.6 lb ai per acre.	Y	20110328c.pdf
27286	Japanese Zelkova (Zelkova serrata)	Field Container	Freiberger	NJ	2009	Over the top	No injury at 2.65, 5.3 and 10.6 lb ai per acre.	Y	20100129b.pdf
27286	Japanese Zelkova (Zelkova serrata)	Field Container	Reding	OH	2010	Over the top	No crop injury with 2.65, 5.3 and 10.6 lb ai per acre.	Y	20110526a.pdf

Label Suggestions

For Freehand G, it is suggested that the three (3) genera and seven (7) species exhibiting no injury in the testing with Freehand G be placed on this label for broadcast applications.

Agave sp.
Aloe sp.
Dendranthema x morifolium
Fothergilla gardenii
Ophiopogon japonicas
Pieris japonica
Quercus shumardii
Taxodium distichum
Ternstroemia spp.
Teucrium chamaedrys

The following genera are already on the label, but with the additional data, the species could be specified.

Cornus kousa
Clematis integrifolia
Mahonia aquifolium

It is also suggested that the following plants be added to the "Sensitive Ornamental Species – Special Precautions" section of the Freehand 1.74G label. Although the two following genera are already labeled, there was significant injury with over-the-top applications in at least 2 trials to warrant some caution.
Gazania spp.
Lobelia spp.

Matthiola incana should be added to the list of crops where FreeHand should not be used.

Appendix 1: Contributing Researchers

Dr. John Ahrens *(retired)*	Connecticut Agricultural Experiment Station Valley Laboratory 143 Cook Hill Road, P.O. Box 228 Windsor, CT
Dr. Ed Beste	University of Maryland LESREC – Salisbury Facility 27662 Nanticoke Road Salisbury, MD 21801 210-722-8780
Dr. Rick Boydston	USDA-ARS IAREC 24106 N Bunn Road Prosser, WA 99340
Mr. Luke Case	The Ohio State University Dept. Hort. and Crop Science 2001 Fyffe Ct. Columbus, OH 23210
Dr. Rakesh Chandran	1076 Agricultural Sciences Building West Virginia University Morgantown, WV 26406-6108
Dr. Mark Czarnota	University of Georgia Department of Horticulture 1109 Experiment St. Griffin, GA 30223
Dr. Joe DeFrancesco	Oregon State University 2040 Cordley Hall Corvalis, OR 97331
Mr. Geoffrey Denny	Mississippi State University Plant & Soil Sciences Dept. 246 Dorman Hall Mississippi State, MS 39762
Dr. Jeffrey Derr	Hampton Roads Ag. Exp. Station 1222 Diamond Springs Road, Virginia Beach, VA 23244

Mr. Ben Fraelich	USDA-ARS CPES P.O. Box 728 Tifton, GA 31793
Mr. Tom Freiberger	Rutgers University Cream Ridge Experiment Station 283 Rt. 439 Cream Ridge, NJ 08412
Dr. Ray Frank	6916 Boyers Mill Road New Market, MD 21772
Dr. Charles Gilliam	Auburn University Department of Horticulture 101 Funchess Hall Auburn, AL 36829
Dr. **N**iklaus Grunwald	USDA-ARS Research Plant Pathologist 3220 NW Orchard Avenue Corvallis, OR 97330
Mr. Paul Harvey	USDA-ARS 4230 Konnawac Pass Road Wapato, WA, 98941
Dr. Jim Klett	Colorado State University Department of Horticulture and Landscape Architecture Fort Collins, CO 80423
Dr. Gary W. Knox	University of Florida North Florida Research and Education 144 Research Road Quincy, FL 32341
Dr. Heiner Lieth	Department of Plant Sciences University of California One Shield Avenue Davis, CA 94616
Dr. Michael Marshall	Michigan State University Lansing, MI

Dr. Hannah Mathers	The Ohio State University Dept. Hort. and Crop Science 2001 Fyffe Ct. Columbus, OH 23210
Dr. Todd Mervosh	Connecticut Agricultural Experiment Station Valley Laboratory 143 Cook Hill Road, P.O. Box 228 Windsor, CT
Dr. Michael Mickelbart	Purdue University West Lafayette, IN 27907
Dr. Joe Neal	North Carolina State University Department of Horticultural Science 262 Kilgore Hall Box 7609, NCSU Raleigh, NC 27694-7609
Dr. Edward Peachey	Dept. of Horticulture Oregon State University 4017 Ag. and Life Sciences Bldg. Corvallis, OR 97331-7304
Dr. Brent Pemberton	Texas A&M Agricultural Research and Extension Center P.O. Box E Overton, TX 75684
Dr. Michael Reding	USDA-ARS Application Technology Research Rm 2269 1680 Madison Ave. Wooster, OH, 22691
Dr. Rich Regan	Oregon State University North Willamette Res. & Ext. Ctr. 14210 NE Miley Rd. Aurora, OR 97002
Dr. Andy Senesac	Long Island Horticultural Research Laboratory 39 Sound Avenue Riverhead, NY 11901
Dr. Bob Stamps *(retired)*	University of Florida IFAS & MREC. 2724 Binion Rd. Apopka, FL 32703

Dr. Brian Trader	Mississippi State University 148 Dorman Hall, Box 9444 Mississippi State, MS 39762
Mr. Buzz Uber	Crop Inspection Service 31130 Hilltop Drive Valley Center, CA 92082
Dr. Lucia Villavicencio	Center for Applied Horticultural Research 3742 Blue Bird Canyon Road Vista, CA 92084
Mr. Paul Wade	USDA-ARS US Vegetable Laboratory 2700 Savannah Highway Charleston, SC 29212
Dr. Ted Whitwell	Clemson University 101 Barre Hall Clemson, SC 29634-0303
Dr. Cheryl Wilen	University of California, San Diego 4444 Overland Ave., Bldg. 2 San Diego, CA 92123
Mr. David Williams	University of Illinois PLS. 1201 S. Dorner Urbana, IL 61801