

**IR-4 Ornamental Horticulture Program
Sethoxydim Crop Safety**

**Authors: Cristi L. Palmer and Ely Vea
Date: December 23, 2008**

Acknowledgements

**Lori Harrison
William L. Biehn
Joe Elson
Dan Kunkel**

Table of Contents

Table of Contents	2
Table of Tables	3
Abstract	4
Introduction.....	5
Materials and Methods.....	5
Results and Summary	5
Phytotoxicity	5
Label Suggestions	25
Appendix 1: Available Protocol.....	26
Appendix 2: Contributing Researchers.....	28
Appendix 3: Submitted Data.....	30

Table of Tables

Table 1. Treated crops with no or minimal transitory injury and placed on the Segment 1.5E label.	6
Table 2. Treated crops with no or minimal transitory injury in a minimum of 3 trials, but not yet placed on the Segment 1.5E label.	7
Table 3. List of Segment 1.5E treated crops where more research is needed to clarify response.....	7
Table 4. List of Segment 1.5E treated crops with no or minimal transitory injury seen at the 1X rate, but the 2X or 4X rate did cause significant phytotoxicity	7
Table 5. List of Segment 1.5E treated crops exhibiting significant injury at 1X.	7
Table 6. Detailed Summary Crop Safety Testing with Segment 1.5E.....	8

Abstract

Segment (sethoxydim), under the trade name Vantage, was initially registered in 1990 for ornamental horticulture uses. This initial label contained an extensive list of ornamental horticulture plants in nurseries and landscapes where Segment could be used without causing phytotoxicity. In 1995, the list was expanded and a section on wildflowers was added. Starting in 1981, IR-4 examined 106 crops to either contribute to the initial label written for ornamental horticulture uses or to expand this label to additional crops. Of the researched crops, 76 have already been placed on the label. Only 4 crops can be recommended at this time for label expansion based solely on IR-4 data: *Aucuba japonica*, *Berberis darwinii*, *Chamaecyparis obtusa*, and *Lilium sp.* It is recommended that the 26 other crops be considered for inclusion on the label if data from other sources are or become available.

Introduction

Segment (sethoxydim) was initially registered, under the trade name Vantage, for ornamental horticulture uses in 1990 after several years of testing the food crop label Poast Plus 1.53E. The initial Vantage label contained an extensive list of ornamental horticulture plants grown in nurseries and landscapes where Segment could be used without causing phytotoxicity. In 1995, the list was expanded and a section on wildflowers was added. Starting in 1981, IR-4 examined 106 crops to either contribute to the initial label written for ornamental horticulture uses or to expand this label to additional crops.

Materials and Methods

Several different protocols were used between 1981 and 1991 to test sethoxydim for crop safety. In the early work, single applications were tested. The rates included, 0.188, 0.2, 0.25, 0.5, 1.0 and 2.0 lb ai per acre, depending on protocol and plant materials. Many researchers also treated with 0.5 and 1.0 lb ai per acre with crop oil concentrate or other surfactant to determine whether there was potential for increased injury. A minimum of four plants (replicate treatments) were required with many researchers exceeding this minimum. In the more recent research, phytotoxicity was recorded on a scale of 0 to 10 (0 = No phytotoxicity; 10 = Complete kill) at 1, 2, 4, 8, and 12 weeks after initial application, but in the earlier research other scales were utilized. Some researchers also included readings 3 to 4 days after the initial and second applications. For more detailed materials and methods, please see Appendix 1: Protocols and review closely the researcher reports.

Poast Plus formulations were supplied to researchers (See list of researchers in Appendix 2) by BASF Corporation.

Results and Summary

Phytotoxicity

Based on the type and nature of injury seen with applications in this 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) injury was seen but additional research is warranted to clarify response, 3) no or minimal transitory injury seen at the low rates, but the high rates did cause significant phytotoxicity, 4) Significant injury sufficient to recommend growers not utilize this product.

In testing from 1981 through 1991, Segment 1.5E exhibited no or minimal transitory injury at the tested rates for 105 crops. The crops listed in Table 1 are those that have been placed on the Segment 1.5E label. In Table 2, 4 crops are listed which exhibited no injury after over the top applications: *Aucuba japonica*, *Berberis darwini*, *Chamaecyparis obtusa* and *Lilium sp.* Table 3 lists crops where more information is needed for placing them on the label. All exhibited no significant injury after Segment 1.5E applications.

There were no crops exhibiting sufficient injury to warrant recommending placing them on the Segment 1.5E label as sensitive to this product.

Please see Table 5 for a list of research on Segment research conducted between 1981 and 1991 and a summary of the results received.

Table 1. Treated crops with no or minimal transitory injury and placed on the Segment 1.5E label.

<i>Abies fraseri</i>	<i>Mahonia aquifolium</i>
<i>Acer sp.</i>	<i>Malus sp. (non-bearing)</i>
<i>Acer palmatum</i>	<i>Narcissus sp.</i>
<i>Acer rubrum</i>	<i>Ophiopogon japonicas</i>
<i>Achillea millefolium</i>	<i>Osmanthus delavayi</i>
<i>Ajuga reptans</i>	<i>Osmanthus fragrans</i>
<i>Alyssum saxatile</i>	<i>Pachysandra terminalis</i>
<i>Antirrhinum majus</i>	<i>Pelargonium x hortorum</i>
<i>Begonia x semperflorens</i>	<i>Photinia sp.</i>
<i>Calendula officinalis</i>	<i>Photinia fraseri</i>
<i>Campanula carpatica</i>	<i>Picea abies</i>
<i>Caryopteris clandonensis</i>	<i>Pieris japonica</i>
<i>Coreopsis lanceolata</i>	<i>Pinus palustris</i>
<i>Cornus florida</i>	<i>Pinus strobus</i>
<i>Cotoneaster sp.</i>	<i>Pinus virginiana</i>
<i>Echinacea purpurea</i>	<i>Pittosporum tobira</i>
<i>Euonymus alatus</i>	<i>Portulaca grandiflora</i>
<i>Fraxinus americana</i>	<i>Prunus sp. (non-bearing)</i>
<i>Fraxinus pennsylvanica</i>	<i>Pseudotsuga menziesii</i>
<i>Geum quellyon</i>	<i>Pyracantha coccinea</i>
<i>Gladiolus hortulanus</i>	<i>Pyrus sp. (non-bearing)</i>
<i>Gypsophila elegans</i>	<i>Quercus palustris</i>
<i>Hedera helix</i>	<i>Quercus prinus</i>
<i>Hosta sp.</i>	<i>Rhododendron sp.</i>
<i>Hydrangea macrophylla</i>	<i>Robinia pseudoacacia</i>
<i>Ilex cornuta</i>	<i>Rudbeckia hirta</i>
<i>Ilex crenata</i>	<i>Stachys byzantine</i>
<i>Ilex vomitoria</i>	<i>Stokesia cyanae</i>
<i>Juniperus chinensis</i>	<i>Syringa sp.</i>
<i>Juniperus conferta</i>	<i>Taxus cuspidata</i>
<i>Juniperus horizontalis</i>	<i>Taxus media</i>
<i>Lagerstroemia indica</i>	<i>Thuja occidentalis</i>
<i>Leucanthemum maximum</i>	<i>Tsuga canadensis</i>
<i>Ligustrum sp.</i>	<i>Tulipa sp.</i>
<i>Ligustrum japonicum</i>	<i>Veronica spicata</i>
<i>Liquidamber sp.</i>	<i>Viburnum plicatum</i>
<i>Liriope muscari</i>	<i>Viburnum trilobum</i>
<i>Liriope spicata</i>	<i>Vinca minor</i>

Table 2. Treated crops with no or minimal transitory injury in a minimum of 3 trials, but not yet placed on the Segment 1.5E label.

Aucuba japonica
Berberis darwini

Chamaecyparis obtusa
Lilium sp.

Table 3. List of Segment 1.5E treated crops where more research is needed to clarify response

Allium moly
Anemone blanda
Berberis julianae
Berberis mentorensis
Caladium sp.
Cercis canadensis
Coleus x hybridus
Crocus chrysanthus
Crocus vernus
Deutzia gracilis
Endymion hispanicus
Forsythia x intermedia
Gardenia jasminoides

Hydrangea paniculata
Ilex x attenuate
Leucothoe fontanesiana
Ligustrum ovalifolium
Mahonia repens
Muscari armenizcum
Myrica cerifera
Ornithogalum umbellatum
Rosa sp.
Scilla siberica
Sedum spurium
Taxodium distichum
Tritelaea laxa

Table 4. List of Segment 1.5E treated crops with no or minimal transitory injury seen at the 1X rate, but the 2X or 4X rate did cause significant phytotoxicity

None

Table 5. List of Segment 1.5E treated crops exhibiting significant injury at 1X.

None

Table 6. Detailed Summary Crop Safety Testing with Segment 1.5E.

Notes: Table entries are sorted by crop Latin name. Only those reports received by 12/1/2008 are included.

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
28418	Segment	<i>Abies fraseri</i>		Field In-Ground	Over the top	1982	Ahrens	No injury with 0.25, 0.5, and 1.0 lb ai per acre (Poast + Booster+ E).	Y	19820101d.pdf
28418	Segment	<i>Abies fraseri</i>		Field In-Ground	Over the top	1983	Skroch	No injury with 0.2 and 0.5 lb ai per acre.	Y	19820102b.pdf
28418	Segment	<i>Abies fraseri</i>		Field In-Ground	Over the top	1983	Skroch	No injury with 0.2 and 0.5 lb ai per acre.	Y	19820102b.pdf
28256	Segment	<i>Acer sp.</i>		Field Container	Over the top	1984	Skroch	No injury with 0.5 lb ai per acre applied with Tirtan AG-98; good control of spotted spurge.	Y	19820101v.pdf
8972	Segment	<i>Acer sp.</i>	A. palmatum	Field In-Ground	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
28256	Segment	<i>Acer sp.</i>	A. rubrum	Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
8972	Segment	<i>Acer sp.</i>	A. rubrum	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
10725	Segment	<i>Achillea millefolium</i>	A. taygetea 'Debutante'	Field Container	Over the top	1991	Linderman	No injury at 0.5 and 1 lb ai per acre	Y	19820106m.pdf
10688	Segment	<i>Achillea millefolium</i>	'Cerise Queen'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent control of grassy weeds.	Y	19820105e.pdf
28303	Segment	<i>Ajuga reptans</i>		Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
28488	Segment	<i>Allium moly</i>	A. sphaerocephalon	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf
28488	Segment	<i>Allium moly</i>	'Ostara'	Field In-Ground	Over the top	1985	Skroch	Slight injury at 0.188 lb ai per acre, but plants were still marketable.	N	19820103f.pdf
10687	Segment	<i>Alyssum sp.</i>	A. saxatile cv. Compactum 'Basket of Gold'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105f.pdf
28489	Segment	<i>Anemone sp.</i>	A. blanda 'Rosea'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
28484	Segment	<i>Antirrhinum majus</i>	'Yellow Floral Carpet'	Field In-Ground	Over the top	1984	Haramaki	Excellent control of grassy weeds; very minor injury using 0.5 and 1.0 lb ai per acre.	Y	19820103a.pdf
28485	Segment	<i>Arctostaphylos sp.</i>	A. uva-ursi	Field In-Ground	Over the top	1984	Haramaki	Great control of grassy weeds; significant injury with 0.5 and 1.0 lb ai per acre.	N	19820103e.pdf
8995	Segment	<i>Aucuba sp.</i>	A. japonica	Field Container	Over the top	1982	Gilliam	No injury at 1.1, 2.2, and 4.4 kg ai per hectare.	N	19820101c.pdf
8995	Segment	<i>Aucuba sp.</i>	A. japonica	Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	N	19820104e.pdf
8995	Segment	<i>Aucuba sp.</i>	'Gold Dust'	Field Container	Over the top	1986	Creager	No significant injury at 0.5, 1 and 2 lb ai per acre with crop oil concentrate	N	19820103q.pdf
28479	Segment	<i>Begonia sp.</i>	B. x semplerflorens 'Scarletta'	Field In-Ground	Over the top	1984	Haramaki	Excellent control of grassy weeds; very minor injury using 0.5 and 1.0 lb ai per acre.	Y	19820103a.pdf
28334	Segment	<i>Berberis sp.</i>		Field In-Ground	Over the top	1984	Smith	No injury with 0.5 and 1.0 lb ai per acre after single application.	Y	19820101w.pdf
8997	Segment	<i>Berberis sp.</i>	B. darwini	Field Container	Directed spray	1989	Glaze	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate; all plants marketable even though there was some slight shoot and root stunting.	Y	19820104s.pdf
8997	Segment	<i>Berberis sp.</i>	B. darwini	Field Container	Over the top	1987	Glaze	No injury with 0.3 and 0.5 lb ai per acre.	Y	19820104f.pdf
8997	Segment	<i>Berberis sp.</i>	B. darwini	Field Container	Over the top	1987	Glaze	No injury with 0.3 and 0.5 lb ai per acre applied with crop oil.	Y	19820104g.pdf
8997	Segment	<i>Berberis sp.</i>	B. julianae	Field Container	Over the top	1988	Linderman	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820104t.pdf
8997	Segment	<i>Berberis sp.</i>	B. thunbergi	Field Container	Over the top	1988	Talbert	No injury at 0.5 with, and at 1 lb ai per acre with or w/o Agridex	Y	19820104r.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
28334	Segment	<i>Berberis sp.</i>	B. x mentorensis	Field In-Ground	Over the top	1984	Haramaki	Great control of grassy weeds; very slight injury with 0.5 and 1.0 lb ai per acre.	Y	19820103e.pdf
9837	Segment	<i>Betula sp.</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820103s.pdf
9837	Segment	<i>Betula sp.</i>	'River'	Field In-Ground	Over the top	1987	Talbert	No injury at 0.5 with, and at 1 lb ai per acre with or w/o Agridex	Y	19820103r.pdf
8962	Segment	<i>Buxus sp.</i>		Field In-Ground	Over the top	1984	Gilliam	No injury with 0.25, 0.5 and 1.0 lb ai per acre using single application.	Y	19820101x.pdf
8962	Segment	<i>Buxus sp.</i>		Field In-Ground	Over the top	1984	Smith	No injury at 0.5 and 1 lb ai per acre	Y	19820102l.pdf
8962	Segment	<i>Buxus sp.</i>	B. microphylla koreana	Field In-Ground	Over the top	1984	Haramaki	Very slight injury and no growth reduction at 0.5 and 1 lb ai per acre with crop oil concentrate	Y	19820103b.pdf
8962	Segment	<i>Buxus sp.</i>	B. sempervirens	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
9040	Segment	<i>Caladium sp.</i>		Field In-Ground	Over the top	1988	Talbert	Excellent grass control; no injury with 0.5 and 1.0 lb ai per acre with and without crop oil.	N	19820104u.pdf
28480	Segment	<i>Calendula sp.</i>	C. officinalis 'Orange Coronet'	Field In-Ground	Over the top	1984	Haramaki	Excellent control of grassy weeds; very slight injury using 0.5 and 1.0 lb ai per acre.	N	19820103a.pdf
10697	Segment	<i>Campanula sp.</i>	C. carpatica 'Canterbury Bells'	Field In-Ground	Over the top	1987	Senesac	No injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105m.pdf
9663	Segment	<i>Caryopteris sp.</i>	C. clandonensis	Field Container	Over the top	1989	Linderman	No injury at 0.5, 1 and 2 lb ai per acre	Y	19820105l.pdf
28422	Segment	<i>Cercis canadensis</i>		Field Container	Over the top	1982	Gilliam	No significant injury at 1.1, 2.2, and 4.4 kg ai per hectare.	N	19820101c.pdf
9665	Segment	<i>Chamaecyparis obtusa</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	N	19820103u.pdf
9659	Segment	<i>Chamaecyparis obtusa</i>	C. pisifera 'Filifera'	Field Container	Over the top	1989	Linderman	No injury at 0.5, 1 lb and 2 ai per acre	N	19820105t.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9659	Segment	<i>Chamaecyparis obtusa</i>	'Nana'	Field Container	Directed spray	1988	Glaze	No injury or growth reduction at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate; excellent control of annual ryegrass; all plants marketable	N	19820104v.pdf
9659	Segment	<i>Chamaecyparis obtusa</i>	'Well's Special'	Field Container	Over the top	1988	Linderman	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	N	19820104w.pdf
28481	Segment	<i>Coleus sp.</i>	C. x hybridus 'Jade Wizard'	Field In-Ground	Over the top	1984	Haramaki	Excellent control of grassy weeds; very minor injury using 0.5 and 1.0 lb ai per acre.	Y	19820103a.pdf
10733	Segment	<i>Coreopsis sp.</i>		Field Container	Over the top	1991	Derr	Very slight injury, with complete recovery at 0.5 and 1 lb ai per acre; excellent large crabgrass control.	Y	19820105p.pdf
10696	Segment	<i>Coreopsis sp.</i>	C. laceolata 'Sunray'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105o.pdf
10696	Segment	<i>Coreopsis sp.</i>	C. lanceolata	Field In-Ground	Over the top	1991	Talbert	No injury at 0.5 and 1 lb ai per acre with Agridex	Y	19820105q.pdf
9001	Segment	<i>Cornus florida</i>		Field Container	Over the top	1982	Gilliam	No significant injury at 1.1, 2.2, and 4.4 kg ai per hectare.	Y	19820101c.pdf
8965	Segment	<i>Cornus florida</i>		Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
8965	Segment	<i>Cornus florida</i>		Field In-Ground	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
9220	Segment	<i>Coronilla sp.</i>	C. varia. L	Field In-Ground	Over the top	1983	Frank	No injury at 0.5 and 1.0 lb ai per acre; slight transient injury when applied with Agridex.	Y	19820101f.pdf
9217	Segment	<i>Cotoneaster sp.</i>	Bearberry Cotoneaster	Field In-Ground	Over the top	1983	Frank	No significant injury or growth reduction at 0.5 and 1 lb ai per acre with or w/o Agridex	Y	19820102m.pdf
28491	Segment	<i>Crocus chrysanthus</i>	'Cream Beauty'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf
28490	Segment	<i>Crocus vernus</i>	'Remembrance'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
28486	Segment	<i>Deutzia sp.</i>	D. gracilis	Field In-Ground	Over the top	1984	Haramaki	Great control of grassy weeds; very little injury with 0.5 and 1.0 lb ai per acre.	N	19820103e.pdf
28501	Segment	<i>Echinacea sp.</i>	E. purpurea 'Gloriosa Daisy'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105s.pdf
28492	Segment	<i>Endymion hispanicus</i>	'Blue'	Field In-Ground	Over the top	1985	Skroch	Very slight injury at 0.188 lb ai per acre, but plants were still marketable.	N	19820103f.pdf
28425	Segment	<i>Euonymus alatus</i>	'Compacta'	Field Container	Over the top	1982	Gilliam	No significant injury at 1.1, 2.2, and 4.4 kg ai per hectare.	Y	19820101c.pdf
28255	Segment	<i>Forsythia sp.</i>	F. x intermedia	Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	N	19820101k.pdf
8968	Segment	<i>Forsythia sp.</i>	F. x intermedia	Field In-Ground	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	N	19820101k.pdf
28362	Segment	<i>Fraxinus sp.</i>	F. americana	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre.	Y	19820101t.pdf
28362	Segment	<i>Fraxinus sp.</i>	F. pennsylvanica	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
9002	Segment	<i>Gardenia sp.</i>	G. jasminoides	Field Container	Over the top	1982	Gilliam	No significant injury with 1.1, 2.2, and 4.4 kg ai per hectare.	Y	19820101c.pdf
10689	Segment	<i>Geum sp.</i>	G. quellyon 'Lady Stathedon'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105u.pdf
10689	Segment	<i>Geum sp.</i>	G. quellyon 'Mrs. Bradshaw'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105v.pdf
10726	Segment	<i>Geum sp.</i>	G. quellyon 'Mrs. Bradshaw Improved'	Field Container	Over the top	1991	Linderman	No injury at 0.5 and 1 lb ai per acre	Y	19820105w.pdf
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Arrow'	Field In-Ground	Over the top	1985	Bing	No difference in corm weight with 0.55 and 1.12 kg hectare.	Y	19820102s.pdf
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Gallery'	Field In-Ground	Over the top	1983	Bing	No difference in corm weight with 0.56 and 1.12 kg per hectare.	Y	19820102s.pdf
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Gallery'	Field In-Ground	Over the top	1984	Bing	No difference in corm weight with 0.56 and 1.12 kg hectare.	Y	19820102s.pdf
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Gallery'	Field In-Ground	Over the top	1985	Bing	No difference in corm weight with 0.55 and 1.12 kg hectare.	Y	19820102s.pdf
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Green Isle'	Field In-Ground	Over the top	1985	Bing	No difference in corm weight with 0.55 and 1.12 kg hectare.	Y	19820102s.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Mahogany'	Field In-Ground	Over the top	1983	Bing	No difference in corm weight with 0.56 kg per hectare, but 1.12 kg per hectare increased corm weight.	Y	19820102s.pdf
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Mahogany'	Field In-Ground	Over the top	1984	Bing	No difference in corm weight with 0.56 and 1.12 kg hectare.	Y	19820102s.pdf
9042	Segment	<i>Gladiolus sp.</i>	G. hortulanus 'Reflection'	Field In-Ground	Over the top	1985	Bing	No difference in corm weight with 0.55 and 1.12 kg hectare.	Y	19820102s.pdf
9042	Segment	<i>Gladiolus sp.</i>	'Oscar'	Field In-Ground	Over the top	1984	Ogg	No injury with 0.188 and 0.375 lb ai per acre; great control of barnyardgrass.	Y	19820101z.pdf
10690	Segment	<i>Gypsophila elegans</i>	'Bristol Fairy'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105x.pdf
9003	Segment	<i>Hedera helix L. ssp. Helix</i>		Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
9216	Segment	<i>Hedera helix L. ssp. Helix</i>		Field In-Ground	Over the top	1984	Gaskin	No injury with 0.5 and 1.0 lb ai per acre (Poast EC + 1% oil); excellent perennial ryegrass control.	Y	19820102o.pdf
9216	Segment	<i>Hedera helix L. ssp. Helix</i>		Field In-Ground	Over the top	1983	Frank	No injury with 0.5 and 1.0 lb ai per acre with and without Agridex.	Y	19820101g.pdf
9003	Segment	<i>Hedera helix L. ssp. Helix</i>	'Hahns Self Branching'	Field Container	Over the top	1984	Gaskin	No injury with 0.5 and 1.0 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820102n.pdf
28304	Segment	<i>Hosta sp.</i>	H. lancifolia 'Albo-marginata'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
9670	Segment	<i>Hydrangea sp.</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820103v.pdf
9664	Segment	<i>Hydrangea sp.</i>	H. macrophylla	Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.3 and 0.5 lb ai per acre with crop oil concentrate; all plants marketable	Y	19820104j.pdf
9664	Segment	<i>Hydrangea sp.</i>	H. macrophylla	Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.3 and 0.5 lb ai per acre; all plants marketable	Y	19820104k.pdf
9664	Segment	<i>Hydrangea sp.</i>	H. macrophylla	Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.5 and 1.0 lb ai per acre with or without crop oil concentrate; all plants marketable	Y	19820104l.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9664	Segment	<i>Hydrangea sp.</i>	H. macrophylla	Field Container	Over the top	1990	Glaze	No injury or growth reduction at 0.5 and 1 lb ai per acre; all plants marketable (conducted within greenhouse)	Y	19820105y.pdf
9664	Segment	<i>Hydrangea sp.</i>	H. macrophylla	Field Container	Over the top	1988	Linderman	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820104x.pdf
9664	Segment	<i>Hydrangea sp.</i>	H. paniculata 'Peegee'	Field Container	Over the top	1989	Linderman	No injury at 0.5, 1 and 2 lb ai per acre	Y	19820105z.pdf
9004	Segment	<i>Ilex sp.</i>	I. cornuta 'Burfodii Nana'	Field Container	Over the top	1984	Skroch	Very slight injury with 0.5 lb ai per acre applied with Tirtion AG-98; good control of spotted spurge.	Y	19820101v.pdf
8969	Segment	<i>Ilex sp.</i>	I. crenata	Field In-Ground	Over the top	1984	Haramaki	Great control of grassy weeds; no injury with 0.5 and 1.0 lb ai per acre.	Y	19820103e.pdf
9004	Segment	<i>Ilex sp.</i>	I. crenata 'compacta'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
9004	Segment	<i>Ilex sp.</i>	I. crenata convexa	Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
9004	Segment	<i>Ilex sp.</i>	I. crenata 'Helleri'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
9004	Segment	<i>Ilex sp.</i>	I. crenata 'Helleri'	Field Container	Over the top	1984	Skroch	No injury with 0.5 lb ai per acre applied with Tirtion AG-98; good control of spotted spurge.	Y	19820101v.pdf
9004	Segment	<i>Ilex sp.</i>	I. crenata 'Hetz'	Field Container	Over the top	1982	Gilliam	Slight chlorosis at 1.1, 2.2, and 4.4 kg ai per hectare.	Y	19820101c.pdf
9004	Segment	<i>Ilex sp.</i>	I. crenata 'Rotundifolia'	Field Container	Over the top	1981	Skroch	No injury at 1 lb ai per acre.	Y	19820101b.pdf
9004	Segment	<i>Ilex sp.</i>	I. vomitoria 'Nana'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
9004	Segment	<i>Ilex sp.</i>	I. x attenuata 'Foster's #2'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
9839	Segment	<i>Iris sp.</i>	(Rhizomatous)	Field In-Ground	Over the top	1985	Skroch	Slight injury at 0.188 lb ai per acre, but plants were still commercially acceptable.	Y	19820103f.pdf
9839	Segment	<i>Iris sp.</i>	I. reticulata 'Harmony'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	Y	19820103f.pdf
9005	Segment	<i>Juniperus sp.</i>	'Firebird'	Field Container	Over the top	1981	Skroch	No injury at 1 lb ai per acre.	Y	19820101b.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
8970	Segment	<i>Juniperus sp.</i>	J. chinensis 'Nick's Compact'	Field In-Ground	Over the top	1981	Gilliam	No to slight chlorosis increasing with rate (0.3, 0.6, 1.1 kg per ha); good to excellent bermudagrass control increasing with rate.	Y	19820101c.pdf
8970	Segment	<i>Juniperus sp.</i>	J. chinensis 'Nick's Compact'	Field In-Ground	Over the top	1981	Gilliam	No injury with 0.3, 0.6, 1.1 kg per ha; excellent bermudagrass control.	Y	19820101c.pdf
9005	Segment	<i>Juniperus sp.</i>	J. chinensis Pfitzeriana compacta	Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
9005	Segment	<i>Juniperus sp.</i>	J. conferta	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
8970	Segment	<i>Juniperus sp.</i>	J. horizontalis 'Plumosa'	Field In-Ground	Over the top	1981	Gilliam	No injury with 0.3, 0.6, 1.1 kg per ha; excellent bermudagrass control.	Y	19820101c.pdf
9005	Segment	<i>Juniperus sp.</i>	J. horizontalis 'Plumosa;	Field Container	Over the top	1981	Skroch	No injury at 1 lb ai per acre.	Y	19820101b.pdf
9005	Segment	<i>Juniperus sp.</i>	J. horizontalis 'Wiltonii'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
8970	Segment	<i>Juniperus sp.</i>	J. horizontalis 'Wiltonii'	Field In-Ground	Over the top	1984	Haramaki	Great control of grassy weeds; no injury with 0.5 and 1.0 lb ai per acre.	Y	19820103e.pdf
9005	Segment	<i>Juniperus sp.</i>	J. horizontalis 'Youngstown'	Field Container	Over the top	1984	Skroch	Slight injury with 0.5 lb ai per acre applied with Tirtan AG-98; good control of spotted spurge.	Y	19820101v.pdf
8970	Segment	<i>Juniperus sp.</i>	J. horizontalis 'Youngstown'	Field In-Ground	Over the top	1983	Frank	No injury with 0.5 and 1.0 lb ai per acre with and without Agridex.	Y	19820102q.pdf
9000	Segment	<i>Lagerstroemia indica</i>		Field Container	Over the top	1984	Talbert	No injury at 0.56 and 1.12 kg per hectare; good to excellent control of large crabgrass.	Y	19820101y.pdf
9000	Segment	<i>Lagerstroemia indica</i>		Field Container	Over the top	1987	Glaze	No injury at 0.5 lb and 1 lb ai per acre with crop oil concentrate; all plants marketable	Y	19820104i.pdf
8964	Segment	<i>Lagerstroemia indica</i>		Field In-Ground	Over the top	1984	Gilliam	No injury at 0.25, 0.5, and 1.0 lb ai per acre.	Y	19820101x.pdf
9000	Segment	<i>Lagerstroemia indica</i>		Field Container	Over the top	1987	Glaze	No injury at 0.5 lb and 1 lb ai per acre; all plants marketable	Y	19820104h.pdf
10695	Segment	<i>Leucanthemum maximum</i>	'Alaska'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105n.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
28487	Segment	<i>Leucothoe sp.</i>		Field In-Ground	Over the top	1984	Haramaki		N	19820103e.pdf
8975	Segment	<i>Ligustrum sp.</i>		Field In-Ground	Over the top	1985	Bing	Slight to moderate injury depending on rate and addition of crop oil concentrate.	Y	19820102t.pdf
8975	Segment	<i>Ligustrum sp.</i>		Field In-Ground	Over the top	1984	Smith	Slight spotting at 0.5 and 1.0 lb ai per acre.	Y	19820102g.pdf
28300	Segment	<i>Ligustrum sp.</i>	L. japonicum	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
28300	Segment	<i>Ligustrum sp.</i>	L. japonicum 'Howard'	Field Container	Over the top	1981	Skroch	No injury at 1 lb ai per acre.	Y	19820101b.pdf
8975	Segment	<i>Ligustrum sp.</i>	L. ovalifolium	Field In-Ground	Over the top	1982	Bing	No to severe tip burn increasing with rate (0.25 to 1.0 lb ai per acre).	Y	19820101k.pdf
9401	Segment	<i>Lilium sp.</i>		Field In-Ground	Over the top	1986	Rice	Slight injury at 0.5 and 1 lb ai per acre with, no significant injury at 1 lb ai per acre w/o crop oil concentrate	Y	19820103l.pdf
9401	Segment	<i>Lilium sp.</i>	'Asiatic'	Field In-Ground	Over the top	1984	Ogg	No injury with 0.188 and 0.375 lb ai per acre; great control of barnyardgrass.	Y	19820102c.pdf
9401	Segment	<i>Lilium sp.</i>	'Enchantment'	Field In-Ground	Over the top	1985	Senesac	No injury at 0.3 lb ai per acre with, and at 0.5 and 2 lb ai per acre w/o crop oil concentrate	Y	19820103m.pdf
9841	Segment	<i>Liquidambar sp.</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820104c.pdf
28302	Segment	<i>Liriope sp.</i>	L. muscari var variegata	Field Container	Over the top	1982	Skroch	Very slight injury at 1 lb ai per acre.	Y	19820101a.pdf
28302	Segment	<i>Liriope sp.</i>	L. muscari var variegata	Field Container	Over the top	1984	Skroch	Slight injury with 0.5 lb ai per acre applied with Tirtion AG-98; good control of spotted spurge.	Y	19820101v.pdf
28302	Segment	<i>Liriope sp.</i>	L. spicata	Field Container	Over the top	1981	Skroch	No injury at 1 lb ai per acre.	Y	19820101b.pdf
28302	Segment	<i>Liriope sp.</i>	L. spicata	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
28302	Segment	<i>Liriope sp.</i>	L. spicata	Field Container	Over the top	1984	Skroch	Slight injury with 0.5 lb ai per acre applied with Tirtion AG-98; good control of spotted spurge.	Y	19820101v.pdf
28302	Segment	<i>Liriope sp.</i>	L. spicata	Field Container	Over the top	1985	Skroch	No injury with 0.38 lb ai per acre).	Y	19820103j.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9007	Segment	<i>Mahonia aquifolium</i>		Field Container	Directed spray	1988	Glaze	No injury or growth reduction at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate; excellent ryegrass control; all plants marketable	Y	19820105a.pdf
9007	Segment	<i>Mahonia aquifolium</i>		Field Container	Over the top	1990	Glaze	Slight but inconsistent injury at 0.5 and 1 lb ai per acre; no growth reduction; all plants marketable	Y	19820106b.pdf
9007	Segment	<i>Mahonia aquifolium</i>		Field Container	Over the top	1988	Linderman	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820105b.pdf
9007	Segment	<i>Mahonia aquifolium</i>	M. repens	Field Container	Over the top	1989	Linderman	No injury at 0.5 and 1.0 lb ai per acre with or without crop soil concentrate.	Y	19820106d.pdf
28374	Segment	<i>Malus sp.</i>	'Red Delicious'	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
28494	Segment	<i>Muscari sp.</i>	M. armeniacum	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf
28498	Segment	<i>Myrica cerifera</i>		Field Container	Over the top	1985	Skroch	No injury with 0.38 lb ai per acre).	N	19820103j.pdf
9400	Segment	<i>Narcissus sp.</i>		Field In-Ground		1986	Rice	No data collected due to technician error.	Y	19820103l.pdf
9400	Segment	<i>Narcissus sp.</i>		Field In-Ground	Over the top	1986	Carpenter	No significant difference in yield with 0.5 and 1.0 lb ai per acre with or without crop oil.	Y	19820105r.pdf
9400	Segment	<i>Narcissus sp.</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820103w.pdf
9400	Segment	<i>Narcissus sp.</i>	'Carlton'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	Y	19820103f.pdf
9400	Segment	<i>Narcissus sp.</i>	'Geranium'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	Y	19820103f.pdf
9400	Segment	<i>Narcissus sp.</i>	'Unsurpassable'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	Y	19820103f.pdf
28301	Segment	<i>Ophiopogon sp.</i>	O. japonicus	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
28495	Segment	<i>Ornithogalum dubium</i>	O. umbellatum	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf
9008	Segment	<i>Osmanthus heterophyllus</i>	O. delavayi	Field Container	Over the top	1989	Linderman	No injury at 0.5, 1 and 2 lb ai per acre	Y	19820106j.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9008	Segment	<i>Osmanthus heterophyllus</i>	O. fragrans	Field Container	Over the top	1990	Glaze	No injury or growth reduction at 0.5 and 1 lb ai per acre with crop oil concentrate; all plants marketable	Y	19820106c.pdf
9008	Segment	<i>Osmanthus heterophyllus</i>	O. fragrans	Field Container	Over the top	1988	Linderman	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820105c.pdf
9218	Segment	<i>Pachysandra terminalis</i>		Field In-Ground		1984	Carpenter	No injury with 0.5 and 1.0 lb ai per acre applied with 1% crop oil concentrate.	Y	19820102v.pdf
9218	Segment	<i>Pachysandra terminalis</i>		Field In-Ground	Over the top	1982	Frank	No significant injury with 0.5 and 1.0 lb ai per acre (Poast EC).	Y	19820101h.pdf
9218	Segment	<i>Pachysandra terminalis</i>		Field In-Ground	Over the top	1984	Haramaki	Virtually no injury and no growth reduction at 0.5 and 1 lb ai per acre with crop oil concentrate	Y	19820103i.pdf
28482	Segment	<i>Pelargonium sp.</i>	P. x hortorum 'Smash Hit Red'	Field In-Ground	Over the top	1984	Haramaki	Excellent control of grassy weeds; very minor injury using 0.5 and 1.0 lb ai per acre.	Y	19820103a.pdf
9009	Segment	<i>Photinia sp.</i>		Field Container	Over the top	1984	Talbert	No injury at 0.56 and 1.12 lb ai per acre; good crabgrass control.	Y	19820102e.pdf
8974	Segment	<i>Photinia sp.</i>		Field In-Ground	Over the top	1984	Gilliam	No injury at 0.25, 0.5 and 1.0 lb ai per acre.	Y	19820101x.pdf
8974	Segment	<i>Photinia sp.</i>		Field In-Ground	Over the top	1985	Talbert	No injury with 0.2 lb ai per acre using oil, or with 0.3 and 2.0 lb ai per acre without oil.	Y	19820102f.pdf
9009	Segment	<i>Photinia sp.</i>	P. fraseri	Field Container	Over the top	1982	Gilliam	No injury at 1.1, 2.2, and 4.4 kg ai per hectare.	Y	19820101c.pdf
9009	Segment	<i>Photinia sp.</i>	P. fraseri	Field Container	Over the top	1984	Skroch	No injury with 0.5 lb ai per acre applied with Tirtan AG-98; good control of spotted spurge.	Y	19820101v.pdf
28373	Segment	<i>Picea abies</i>		Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
9600	Segment	<i>Pieris sp.</i>		Field Container	Over the top	1987	Creager	No injury or growth reduction at 1 and 2 lb ai per acre with, and at 0.5 lb ai per acre with or w/o crop oil concentrate	Y	19820103p.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9600	Segment	<i>Pieris sp.</i>	P. japonica	Field Container	Over the top	1987	Glaze	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820104d.pdf
9600	Segment	<i>Pieris sp.</i>	P. japonica	Field Container	Over the top	1989	Linderman	No injury at 0.5, 1 and 2 lb ai per acre.	Y	19820105g.pdf
9600	Segment	<i>Pieris sp.</i>	P. japonica compacta	Field Container	Over the top	1985	Frank	No significant injury or growth reduction at 0.3, 0.5 and 2 lb ai per acre	Y	19820102x.pdf
9600	Segment	<i>Pieris sp.</i>	P. japonica compacta	Field Container	Over the top	1988	Beste	No injury at 0.5 and 1.0 with or without 1% crop oil concentrate.	Y	19820106e.pdf
28500	Segment	<i>Pinus sp.</i>	P. palustris	Field Container	Over the top	1985	Skroch	No injury with 0.38 lb ai per acre.	Y	19820103j.pdf
28500	Segment	<i>Pinus sp.</i>	P. strobus	Field Container	Over the top	1985	Skroch	No injury with 0.38 lb ai per acre.	Y	19820103j.pdf
10481	Segment	<i>Pinus sp.</i>	P. strobus	Field In-Ground	Over the top	1982	Ahrens	No injury with 0.25, 0.5, and 1.0 lb ai per acre (Poast + Booster+ E).	Y	19820101d.pdf
10481	Segment	<i>Pinus sp.</i>	P. strobus	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
10481	Segment	<i>Pinus sp.</i>	P. strobus	Field In-Ground	Over the top	1983	Skroch	No injury with 0.2 and 0.5 lb ai per acre.	Y	19820102b.pdf
10481	Segment	<i>Pinus sp.</i>	P. strobus	Field In-Ground	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
28500	Segment	<i>Pinus sp.</i>	P. virginiana	Field Container	Over the top	1985	Skroch	Slight injury with 0.38 lb ai per acre.	Y	19820103j.pdf
10481	Segment	<i>Pinus sp.</i>	P. virginiana	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
10481	Segment	<i>Pinus sp.</i>	P. virginiana	Field In-Ground	Over the top	1983	Skroch	Some stunting with 0.2 and 0.5 lb ai per acre.	Y	19820102b.pdf
9010	Segment	<i>Pittosporum tobira</i>		Field Container	Over the top	1990	Glaze	Very slight but inconsistent injury at 0.5 and 1 lb ai per acre; no growth reduction; all plants marketable	Y	19820106f.pdf
28483	Segment	<i>Portulaca sp.</i>	P. grandiflora 'Sunglo'	Field In-Ground	Over the top	1984	Haramaki	Excellent control of grassy weeds; very minor injury using 0.5 and 1.0 lb ai per acre.	Y	19820103a.pdf
8967	Segment	<i>Prunus sp.</i>		Field In-Ground	Over the top	1984	Long	No injury at 0.5 and 1.0 lb ai per acre.	Y	19820103t.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
8967	Segment	<i>Prunus sp.</i>		Field In-Ground	Over the top	1985	Bing	Slight to moderate injury depending on rate and addition of crop oil concentrate.	Y	19820102r.pdf
8967	Segment	<i>Prunus sp.</i>	'Kwanzan'	Field In-Ground	Over the top	1984	Gilliam	Slight transient marginal chlorosis at 1.0 lb ai per acre; no injury at 0.25 and 0.5 lb ai per acre.	Y	19820101x.pdf
28417	Segment	<i>Pseudotsuga menziesii</i>		Field In-Ground	Over the top	1982	Ahrens	No injury with 0.25, 0.5, and 1.0 lb ai per acre (Poast + Booster+ E).	Y	19820101d.pdf
9662	Segment	<i>Pyracantha sp.</i>		Field Container	Over the top	1988	Talbert	No injury at 0.5 with, and at 1 lb ai per acre with or w/o Agridex	Y	19820105d.pdf
9668	Segment	<i>Pyracantha sp.</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820103x.pdf
9662	Segment	<i>Pyracantha sp.</i>	P. coccinea	Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.5 and 1.0 lb ai per acre with and without crop oil concentrate; all plants marketable	Y	19820104m.pdf
9662	Segment	<i>Pyracantha sp.</i>	P. coccinea	Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.3 and 0.5 lb ai per acre; all plants marketable	Y	19820104n.pdf
9662	Segment	<i>Pyracantha sp.</i>	P. coccinea	Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.3 and 0.5 lb ai per acre with crop oil concentrate; all plants marketable	Y	19820104o.pdf
9662	Segment	<i>Pyracantha sp.</i>	P. coccinea wyatti	Field Container	Over the top	1985	Frank	No significant injury or growth reduction at 0.3, 0.5 and 2 lb ai per acre	Y	19820102y.pdf
28426	Segment	<i>Pyrus calleryana</i>		Field Container	Over the top	1982	Gilliam	No significant injury at 1.1, 2.2, and 4.4 kg ai per hectare.	N	19820101c.pdf
8973	Segment	<i>Quercus sp.</i>	Q. palustris	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
8973	Segment	<i>Quercus sp.</i>	Q. prinus	Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
8996	Segment	<i>Rhododendron sp.</i>	'Delaware Valley White'	Field Container	Over the top	1986	Derr	No significant injury at 0.5 and 2.0 lb ai per acre with 1% crop oil.	Y	19820104a.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
8996	Segment	<i>Rhododendron sp.</i>	'Delaware Valley White;	Field Container	Over the top	1984	Gilliam	No injury at 0.25 lb ai per acre.	Y	19820101u.pdf
8996	Segment	<i>Rhododendron sp.</i>	'Gumpo White'	Field Container	Over the top	1986	Derr	No significant injury at 0.5 and 2.0 lb ai per acre with 1% crop oil.	Y	19820104a.pdf
8996	Segment	<i>Rhododendron sp.</i>	'Hino-Crimson'	Field Container	Over the top	1984	Gilliam	No injury at 0.25 lb ai per acre.	Y	19820101u.pdf
8996	Segment	<i>Rhododendron sp.</i>	'Hinocrimson'	Field Container	Over the top	1986	Derr	No significant injury at 0.5 and 2.0 lb ai per acre with 1% crop oil.	Y	19820104a.pdf
9215	Segment	<i>Rhododendron sp.</i>	'Hinocrimson'	Field In-Ground	Over the top	1983	Frank	No injury with 0.5 and 1.0 lb ai per acre applied with and without oil.	Y	19820102k.pdf
9215	Segment	<i>Rhododendron sp.</i>	R. catawbiense chionoides	Field In-Ground	Over the top	1984	Haramaki	Great control of grassy weeds; no injury with 0.5 and 1.0 lb ai per acre.	Y	19820103e.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. obtusum 'Coral Bells'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. obtusum 'Fashion'	Field Container	Over the top	1981	Skroch	No injury at 1 lb ai per acre.	Y	19820101b.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. obtusum 'Fashion'	Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. obtusum 'Hexe'	Field Container	Over the top	1982	Gilliam	Slight chlorosis increasing with rate (1.1, 2.2, and 4.4 kg ai per hectare).	Y	19820101c.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. obtusum 'Hexe'	Field Container	Over the top	1983	Gilliam	No injury at 0.3, 0.6, 1.1, and 2.2 kg ai per hectare.	Y	19820101c.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. obtusum 'Pink Cloud'	Field Container	Over the top	1982	Skroch	No injury at 1 lb ai per acre.	Y	19820101a.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. roseum elegans	Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
8996	Segment	<i>Rhododendron sp.</i>	R. x obtusum 'Sunglow'	Field Container	Over the top	1984	Skroch	Virtually no injury with 0.5 lb ai per acre applied with Triton Ag-98; good contro of spotted spurge.	Y	19820101v.pdf
8996	Segment	<i>Rhododendron sp.</i>	'Stewarstonia'	Field Container	Over the top	1986	Derr	No significant injury at 0.5 and 2.0 lb ai per acre with 1% crop oil.	Y	19820104a.pdf
8996	Segment	<i>Rhododendron sp.</i>	'Tradition'	Field Container	Over the top	1986	Derr	No significant injury at 0.5 and 2.0 lb ai per acre with 1% crop oil.	Y	19820104a.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
8996	Segment	<i>Rhododendron sp.</i>	'White Gumpo'	Field Container	Over the top	1984	Gilliam	No injury at 0.25 lb ai per acre.	Y	19820101u.pdf
9660	Segment	<i>Robinia pseudoacacia</i>		Field Container	Directed spray	1988	Glaze	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate; great rygrass control; all plants marketable	Y	19820104z.pdf
9660	Segment	<i>Robinia pseudoacacia</i>		Field Container	Over the top	1988	Linderman	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820104y.pdf
9660	Segment	<i>Robinia pseudoacacia</i>		Field Container	Over the top	1989	Linderman	No injury at 0.5, 1 and 2 lb ai per acre	Y	19820105k.pdf
8743	Segment	<i>Rosa sp.</i>	'Lowell Thomas'	Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	N	19820103y.pdf
10728	Segment	<i>Rudbeckia sp.</i>	R. hirta 'Goldilocks'	Field Container	Over the top	1991	Linderman	No injury at 0.5 and 1 lb ai per acre	Y	19820106g.pdf
28496	Segment	<i>Scilla sp.</i>	S. siberica 'Spring Beauty'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf
10692	Segment	<i>Sedum sp.</i>	S. spurium cv coccineum 'Dragons' Blood'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820106h.pdf
10693	Segment	<i>Stachys byzantina</i>	'Lantana'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820106i.pdf
10730	Segment	<i>Stachys byzantina</i>	S. lanata	Field Container	Over the top	1991	Linderman	No injury at 0.5 and 1 lb ai per acre	Y	19820106a.pdf
10731	Segment	<i>Stokesia sp.</i>	S. cyanae 'Blue'	Field Container	Over the top	1991	Linderman	No injury at 0.5 and 1 lb ai per acre.	Y	19820105h.pdf
10694	Segment	<i>Stokesia sp.</i>	S. cyanea 'Blue'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105i.pdf
10694	Segment	<i>Stokesia sp.</i>	S. cyanea 'White'	Field In-Ground	Over the top	1987	Senesac	Slight injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820105j.pdf
9838	Segment	<i>Syringa sp.</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820104b.pdf
28499	Segment	<i>Taxodium distichum</i>		Field Container	Over the top	1985	Skroch	No injury with 0.38 lb ai per acre.	N	19820103j.pdf
9403	Segment	<i>Taxus sp.</i>		Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.3 and 0.5 lb ai per acre; all plants marketable	Y	19820104q.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9403	Segment	<i>Taxus sp.</i>		Field Container	Over the top	1987	Glaze	No injury or growth reduction at 0.3 and 0.5 lb ai per acre with crop oil concentrate; all plants marketable	Y	19820104p.pdf
8976	Segment	<i>Taxus sp.</i>	T. cuspidata	Field In-Ground	Over the top	1984	Ahrens	No injury at 0.5, 1 and 1.5 lb ai per acre with Booster+E	Y	19820102w.pdf
8976	Segment	<i>Taxus sp.</i>	T. cuspidata Hicksii	Field In-Ground	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
9403	Segment	<i>Taxus sp.</i>	T. media	Field Container	Over the top	1985	Frank	No significant injury or growth reduction at 0.3, 0.5 and 2 lb ai per acre	Y	19820102z.pdf
8976	Segment	<i>Taxus sp.</i>	T. media	Field In-Ground	Over the top	1983	Frank	No injury with 0.5 and 1.0 lb ai per acre (Poast EC) with or without Agridex.	Y	19820101i.pdf
8961	Segment	<i>Thuja sp.</i>		Field In-Ground	Over the top	1984	Smith	No injury at 0.5 and 1 lb ai per acre	Y	19820102j.pdf
8961	Segment	<i>Thuja sp.</i>	T. occidentalis	Field In-Ground	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
28497	Segment	<i>Tritelaea laxa</i>	'Queen Fabiola'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	N	19820103f.pdf
28372	Segment	<i>Tsuga canadensis</i>		Field In-Ground	Over the top	1982	Ahrens	No injury with 0.25, 0.5, and 1.0 lb ai per acre (Poast + Booster+ E).	Y	19820101d.pdf
28372	Segment	<i>Tsuga canadensis</i>		Field In-Ground	Over the top	1983	Skroch	No injury with 0.5 lb ai per acre (Sethoxydim 1.5E + 1% crop oil).	Y	19820101t.pdf
28372	Segment	<i>Tsuga canadensis</i>		Field In-Ground	Over the top	1983	Skroch	No injury at 0.2 and 0.5 lb ai per acre.	Y	19820102b.pdf
9398	Segment	<i>Tulipa sp.</i>		Field In-Ground	Over the top	1986	Carpenter	No significant injury with 0.5 and 1.0 lb ai per acre with or without crop oil concentrate.	Y	19820106k.pdf
9398	Segment	<i>Tulipa sp.</i>		Field In-Ground	Over the top	1984	Ogg	No injury with 0.188 and 0.375 lb ai per acre; great control of barnyardgrass.	Y	19820102h.pdf
9398	Segment	<i>Tulipa sp.</i>		Field In-Ground	Over the top	1986	Rice	Slight injury at 0.5 and 1 lb ai per acre with, no significant injury at 1 lb ai per acre w/o crop oil concentrate	Y	19820103l.pdf
9398	Segment	<i>Tulipa sp.</i>		Field In-Ground	Over the top	1986	Smith	No injury at 0.5 with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820103z.pdf

PR#	Product	Crop		Production Site	Application Type	Trial Year	Researcher	Results	Labeled	Data File Name
		Latin Name	Cultivar							
9398	Segment	<i>Tulipa sp.</i>		Field In-Ground	Over the top	1986	Howard	No injury at 0.5 lb ai per acre with, and at 1 lb ai per acre with or w/o crop oil concentrate	Y	19820103n.pdf
9398	Segment	<i>Tulipa sp.</i>	'Golden Apeldorn'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	Y	19820103f.pdf
9398	Segment	<i>Tulipa sp.</i>	'Paul Richter'	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	Y	19820103f.pdf
9398	Segment	<i>Tulipa sp.</i>	'Purissima	Field In-Ground	Over the top	1985	Skroch	No injury at 0.188 lb ai per acre.	Y	19820103f.pdf
10698	Segment	<i>Veronica sp.</i>	V. spicata 'Blue'	Field In-Ground	Over the top	1987	Senesac	No significant injury at 1.0 and 2.0 lb ai per acre; excellent grassy weed control.	Y	19820106l.pdf
8977	Segment	<i>Viburnum sp.</i>		Field In-Ground	Over the top	1985	Bing	Moderate to significant injury depending on rate and addition of crop oil concentrate.	Y	19820102u.pdf
8977	Segment	<i>Viburnum sp.</i>	V. plicatum tomentosum	Field In-Ground	Over the top	1984	Haramaki	Great control of grassy weeds; no injury with 0.5 and 1.0 lb ai per acre.	Y	19820103e.pdf
9011	Segment	<i>Viburnum sp.</i>	V. plicatum var Tomentosum	Field Container	Over the top	1982	Bing	No injury with 0.25 lb ai per acre (Sethoxydim 1.53E + 1% oil).	Y	19820101k.pdf
8977	Segment	<i>Viburnum sp.</i>	V. trilobum	Field In-Ground	Over the top	1984	Bing	No injury at 0.5 and 1.0 lb ai per acre.	Y	19820102i.pdf
9219	Segment	<i>Vinca sp.</i>	V. minor	Field In-Ground	Over the top	1983	Frank	No injury with 0.5 and 1.0 lb ai per acre.	Y	19820102d.pdf
28361	Sethoxydim 4E	<i>Hedera helix L. ssp. Helix</i>	'Thorndale'	Field In-Ground	Over the top	1984	Williams	No injury with 0.5 and 1.0 lb ai per acre applied with crop oil concentrate.	Y	19820102p.pdf

Label Suggestions

The Segment 1.5E label is well developed with many crops. Of the crops IR-4 has tested, 80 are already on the label. Based on the available data, it is recommended 4 crops be added: *Aucuba japonica*, *Berberis darwini*, *Chamaecyparis obtusa* and *Lilium sp.* It is further recommended that BASF consider adding the additional 26 crops if additional data are available demonstrating no injury.

Appendix 1: Available Protocol

PHYTOTOXICITY PROTOCOL FOR CLEARING SETHOXYDIM ON ORNAMENTALS

Date: 03/04

Ornamental Protocol Number: 542

General label directions: Refer to Product Label

Research program:

Site (species, variety, etc.) - As Attached

Pest(s) - As Attached

Pesticide (common name and trade name) - Sethoxydim (VANTAGE® (1.0 lb.ai/gal.))

For label, material & if needed spray oil surfactant contact:

BASF, Kathie Kalmowitz, (800) 669-1770, (919) 547-2642, FAX# 919-547-2410; e-mail: kalmowk@basf.com

Formulation- Use only EPA registered product

Experimental design:

Plot size (must be adequate to reflect actual use condition)

Replicates Minimum of 4 Treatment Units

Controls (untreated controls to be included in all experiments)

Application:

Dosages - 1x 0.25 lb.ai/A

2x 0.50 lb.ai/A

4x 1.0 lb.ai/A

Volume - 5 to 50 gallons of water

Timing - 14-21 days (Interval)

Number Applications: 2

Reports:

Method of application: (treatments should be made over the top of the plants using application equipment consistent with conventional commercial equipment).

Report completely on experimental design and method of application.

Weather - Maintain temperature and precipitation (including irrigation) data.

Soil type - Identify soil type used in experimental area.

Product - When submitting data, include EPA registration number of product used.

Efficacy - Data should include both actual counts and percent control as well as an indication that infestation was light, heavy, etc.

Record all application and evaluation dates.

Phytotoxicity - Record phytotoxicity data at all rates. Use a 0-10 scale. 0 = No Phytotoxicity 10 = complete kill.

If appropriate also include a rating for: Chlorosis. Percent of Defoliation (0-10 scale) and stunting (0-10). Indicate if marketable or not.

Please direct questions to: Dr. Robert M. Herrick, IR-4 Project, 681 US Highway #1 South, North Brunswick, NJ
(732) 932-9575 x 629, FAX# 732-932-8481.

Appendix 2: Contributing Researchers

Dr. John Ahrens	Connecticut Agricultural Experiment Station Valley Laboratory 153 Cook Hill Road, P.O. Box 248 Windsor, CT
Dr. Ed Beste	University of Maryland LESREC – Salisbury Facility 27664 Nanticoke Road Salisbury, MD 21801
Dr. Arthur Bing (<i>retired</i>)	Long Island Horticultural Research Center Cornell University 3059 Sound Avenue Riverhead, NY 11901
Dr. P. L. Carpenter	Purdue University West Lafayette, IN 47907
Dr. R. A. Creager (<i>retired</i>)	USDA-ARS Weed Physiology and Growth Regulator Research P.O. Box 1209 Frederick, MD 21701
Dr. Jeffrey Derr	Hampton Roads Ag. Exp. Station 1444 Diamond Springs Road, Virginia Beach, VA 23455
Dr. Ray Frank	6916 Boyers Mill Road New Market, MD 21774 301-898-5332
Tim Gaskin	California Polytechnic State University San Luis Obispo, CA 93407
Dr. Charles Gilliam	Auburn University Department of Horticulture 101 Funchess Hall Auburn, AL 36849
Dr. Norman Glaze (<i>retired</i>)	USDA-ARS PO Box 748 Moore Hwy Tifton, GA 31793

Dr. Chiko Haramaki <i>(retired)</i>	Penn State University Department of Horticulture 103 Tyson Building University Park, PA 16802
Scott Howard <i>(retired)</i>	1468 Memorial Highway Mt Vernon, WA 98273
Dr. Bob Linderman <i>(retired)</i>	Horticultural Crops Research Lab USDA-ARS 3420 NW Orchard Ave. Corvallis, OR 97330
Dr. Charles Long <i>(retired)</i>	Kansas State University Horticulture Department Manhattan, KS 66506
Dr. Alex G. Ogg <i>(retired)</i>	USDA-ARS P.O. Box 30 Prosser, WA 99350
P. R. Rice	California Polytechnic State University San Luis Obispo, CA 93407
Dr. Andy Senesac	Long Island Horticultural Research Center Cornell University 3059 Sound Avenue Riverhead, NY 11901
Dr. Walter Skroch <i>(retired)</i>	North Carolina State University Department of Horticultural Science Raleigh, NC 27695-7609
Dr. Elton Smith	The Ohio State University 2001 Fyffe Ct. Columbus, OH 43210
Dr. Ron Talbert	University of Arkansas Route 11 Box 82 Fayetteville, AR 72701

Appendix 3: Submitted Data

Data on following pages (and contained in a separate binder) are sorted in order by PR number then by researchers' last names, with the exception of the fern research reports which are organized by researchers' last names.