Potential of Fusilade, Poast and CGA 82725 for Control of Weedy Grasses in Woody Nursery Crops and Groundcovers[1]

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Abstract

To assess crop safety, Fusilade (fluazifop-butyl), Poast (sethoxydim) and CGA 82725 (2-Propynyl 2-(4-([3,5-dichloro-2 pyridinyl] oxy) phenoxy) propanoate) were applied to nursery crops and groundcovers. Of the species tested, injury was minimal except on *Juniperus horizontalis* 'Bar Harbor' with both Fusilade (fluazifop-butyl) and CGA 82725 and on *Carpobrotus edulis* with Fusilade where serious injury occurred. In field tests, both Fusilade (fluazifop-butyl) and Poast (sethoxydim) controlled established bermudagrass (*Cynodon dactylon*) in both established and newly planted groundcovers and dichondra (*Dichondra micrantha*) without injury at 1.12 and 2.24 kg/ha (1.0 and 2.0 lb/A).

Index words: herbicides, weed control, Fusilade, Poast, CGA 82725, bermudagrass, woody landscape plants, groundcovers, perennials

Introduction

The purpose of this research was to investigate the efficacy and phytotoxicity to ornamentals of broadcast applications of several post-emergence grass herbicides for the control of weedy grasses in a wide variety of landscape species.

Weedy grasses in nurseries and landscape plantings are a major problem requiring extensive hand labor for control. Currently control is primarily by pre-emergence herbicides, directed sprays, wipe-on applications of post-emergence herbicides, and mechanical means. In many cases, especially in groundcover plantings, existing control methods are not satisfactory.

Infestation of groundcovers by perennial grasses such as bermudagrass (*Cynodon dactylon*) or quackgrass (*Agropyron repens*) is a particularly serious problem. Prior to the introduction of the post-emergence grass herbicides such as Fusilade (fluazifop-butyl), Poast (sethyoxydim), and CGA 82725 (2-propynyl 2-(4-([3,5-dichloro- 2pyridinyl] oxy) phenoxy) propanoate), groundcover plantings severely infested with perennial grasses often required replanting following the use of a non-selective herbicide such as Roundup (glyphosate).

Early work, primarily on food crops, demonstrated that many broadleaved species exhibited physiological tolerance to these grass herbicides (1,4). Thus, it is highly probably that many landscape plants will also tolerate them.

Materials and Methods

All herbicides were applied with a hand held compressed air small plot sprayer. The pressure was 2.1 kg/sq cm (30 psi) and the volume was 427 l/ha (45.6 gal/A). Plots were rated for crop phytotoxicity utilizing a scale of 0 to 10 where 0 represented no injury and 10 represented death of the plant. Weed control was rated on the same scale where 0 represented no control and 10 represented a completely weed free plot. All research was performed at the Weed Research Unit, California Polytechnic State University, San Luis Obispo. All herbicide rates are based on active ingredients.

Experiment 1. In a preliminary screening to determine phytotoxicity of Fusilade (fluazifop-butyl) to 23 species of groundcovers, plants growing in containers in a 50% shade lath house were sprayed with Fusilade (fluazifop-butyl) at 0.27 kg/ha (0.25 lb/A), 1.12 kg/ha (1.0 lb/A), and 2.24 kg/ha (2.0 lb/A on September 3, 1983. Plants were of salable size and were growing in a bark/sawdust/scoria (1:1:1) medium. The experiment was completely randomized with 3 replications. Visual injury data were taken 6 and 18 weeks after application.

Experiment 2. Thirty-five woody and herbaceous landscape species were sprayed to determine crop safety of the herbicides. Plants were growing in 5.7 cm (2.25 in) pots in the same medium as experiment 1. On May 11 and again on June 1, 1983, Fusilade (fluazifop-butyl) plus X-77 surfactant (0.25%) at 0.56 kg/ha (0.5 lb/A) and 2.24 kg/ha (2.0 lb/A), Poast (sethoxydim) plus Citowet crop oil (0.25%) at 1.12 kg/ka (1.0 lb/A) and 2.24 kg/ha (2.0 lb/A) and CGA 82725 plus Citowet crop oil (0.25%) at 1.12 kg/ha (1.0 lb/A) and 2.24 kg/ha (2.0 lb/A) were applied as 6 treatments of 2 repeated applications. The experiment was completely randomized with 4 replications. Crop injury data were taken 4 weeks after each application.

Experiment 3. This experiment was designed to assess whether the addition of either oil or a non-ionic surfactant would enhance phytotoxicity of Fusilade (fluazifop-butyl) to 6 woody landscape species. Plants were grown in #1 cans and sprayed over the top with Fusilade (fluazifop-butyl) at one month intervals at rates of 0, 1.12, 2.24, and 4.48 kg/ha (0, 1.0, 2.0 and 4.0 lb/A) with and without crop oil (2.8 l/ha, 1 qt/A) and non-

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ionic surfactant (X-77 at 0.25% by volume). Sprays were applied on October 28, 1982, December 2, 1982, and January 5, 1983. Treatments were compared to a standard container plant herbicide, Ronstar G (oxadiazon). The experiment was completely randomized with 4 replications. Visual crop injury ratings were taken 1 month after each application.

Experiment 4. To determine whether Fusilade (fluazifop-butyl) or Poast (sethoxydim) would control established bermudagrass (*Cynodon dactylon*) in newly planted groundcovers, field plots containing *Dichondra micrantha, Gazania ringens 'leucolaena,' Hedera helix, Osteospermum fruticosum, Rosmarinus officinalis,* and *Vinca major* were sprigged with bermudagrass 6 months prior to herbicide application. Plots were sprayed with Fusilade (fluazifop-butyl) plus X-77 (0.25%) at 1.12 and 2.24 kg/ha (1.0 and 2.0 lb/A) and Poast (sethoxydim) plus crop oil (0.25%) at 1.12 and 2.24 kg/ha (1.0 and 2.0 lb/A). A standard treatment of Dowpon M (dalapon) plus X-77 (0.25%) at 11.2 kg/ha (10.0 lb/A) was included for comparison. Applications were made on May 23, 1983, when both groundcovers and bermudagrass were actively growing. Plots were in randomized blocks with 3 replications on a Los Osos Clay Loam soil. Overhead irrigation was applied as needed to simulate landscape conditions. Visual control and crop injury data were taken 2 and 5 weeks after application.

Experiment 5. This experiment was designed to test whether Fusilade (fluazifop-butyl) would control established bermudagrass in established groundcover plantings where the size of the groundcovers would to some extent prevent complete coverage of the bermudagrass by the Fusilade spray. On June 9, 1983 plots containing established *Gazania ringens, Pelargonium peltatum, Carpobrotus edulis, Lonicera japonica, Sedum x spectablis 'Christmas Cheer,' Gazania ringens 'leucolaena,' Hedera canariensis,* and *Polygonum capitatum* heavily infested with bermudagrass were sprayed with Fusilade (fluazifop-butyl) plus X-77 (0.25%) at 0.56 kg/ha (0.5 lb/A), 1.12 kg/ha (1.0 lb/A), and 2.24 kg/ha (2.0 lb/A). A randomized block design with 3 replications was used. The soil was a Los Osos Clay Loam; overhead irrigation was applied as needed to keep plants actively growing. Visual crop injury and weed control data were taken 4 and 8 weeks after application.

Results and Discussion

Experiment 1. When Fusilade (fluazifop-butyl) was applied without a surfactant, injury did not occur to any of the species tested except *Campanula garganica* at either 0.27 or 0.56 kg/ha (0.25 and 0.5 lb/A). At the 1.12 kg/ha (1.0 lb/A) rate, slight injury occurred to *Asparagus densiflorus* 'Sprengeri,' *Ajuga reptans, Carpobrotus edulis* and *Campanula garganica.* At the 2.24 kg/ha (2.0 lb/A) rate the injury increased to an unacceptable level (4.7 on *Carpobrotus edulis,* but remained slight on *Asparagus densiflorus* 'Sprengeri,' *Ajuga reptans,* and *Campanula garganica.* Slight injury to *Lantana camara* occurred at the 2.24 kg/ha (2.0 lb/A) rate only (Table 1). Eighteen weeks after application, all of the species tested had recovered except for *Carpobrotus edulis* which remained injured. Injury was in the form of small sunken lesions.

Experiment 2. None of the treatments significantly affected any of the species tested with the exception of *Juniperus horizontalis* 'Bar Harbor' which was seriously injured by both Fusilade (fluazifop-butyl) and CGA 82725 at both rates of each herbicide. Four weeks after the first application, the branch tips exhibited 1-2 cm (0.5-1.0 in) of dieback (Table 2). Four weeks after the second application, injury increased to approximately 50% or more dieback in both the Fusilade and CGA 82725 treatments (Table 3).

Experiment 3. There was no significant injury to any of the species tested at any of the rate/adjuvant combinations (Data not shown).

Experiment 4. Both Fusilade (fluazifop-butyl) and Poast (sethoxydim) provided excellent control of bermudagrass at both rates. There was no advantage to using the 2.24 kg/ha (2.0 lb/A) rate over the 1.12 (1.0 lb/A) rate. Dowpon M (dalapon) caused only slight chlorosis in the bermudagrass, which quickly grew out of the injury. The groundcovers were not injured by any of the treatments (Table 4).

Experiment 5. No injury occurred to any of the groundcovers, and Fusilade (fluazifop-butyl) provided excellent bermudagrass control at the 1.12 and 2.24 kg/ha (1.0 and 2.0 lb/A) rates. The 0.56 kg/ha (0.5 lb/A) rate stunted the bermudagrass, but regrowth began prior to the termination of the experiment, particularly where the bermudagrass had been partially covered by the groundcovers (Table 5).

With the exception of *Carpobrotus edulis* and *Juniperus horizontalis* 'Bar Harbor' there was a very broad range of tolerance to the post-emergence grass herbicides tested. It is interesting to note that although Fusilade (fluazifop-butyl) injury to *Carpobrotus edulis* was severe in experiment 1, it did not occur in experiment 5 where established *Carpobrotus edulis* was sprayed in the field, nor did it occur in an earlier observation (not reported) where container-grown *Carpobrotus edulis* was treated in a manner similar to experiment 1. The injury noted in experiment 1 might have been partially related to the thinner cuticle and softer growth of the shade-grown plants. Since *Carpobrotus edulis* is an important groundcover species throughout California and the Southwest, further investigation is warranted before dismissing Fusilade (fluazifop-butyl) as too phytotoxic for use on this species.

The phytotoxicity of both Fusilade (fluazifop-butyl) and CGA 82725 to *J. horizontalis* 'Bar Harbor' was serious and will preclude the use of these herbicides on Bar Harbor juniper. Elmore (2) reported similar injury on Bar Harbor juniper. Unfortunately, the sensitivity of this one juniper cultivar will necessitate testing each cultivar separately rather than obtaining a general label for all junipers, thus delaying registration on this genus.

In field tests bermudagrass was controlled equally well by Poast (sethoxydim) and Fusilade (fluazifop-butyl), and it appears that rates near 1.12 kg/ha (1 lb/A) are sufficient. Earlier tests showed improved control of bermudagrass if Fusilade (fluazifop-butyl) is applied after mechanical fragmentation of stolons and rhizomes by discing, harrowing, or other mechanical cultivation practice (3). This was not done in these tests since it would be impractical in many ornamental situations, particularly in groundcover plantings. It is possible,

Table 1. Crop injury[z] ratings taken 6 and 18 weeks after the application of Fusilade to 23 groundcover species.

	Fusilade rate kg/ha (lb/A)											
	6 weeks after application						18 weeks after application					
Species	Control	0.27 (0.25)	0.56 (0.5)	1.12 (1.0)	2.24 (2.0)	LSD 5%	Control	0.27 (0.25)	0.56 (0.5)	1.12 (1.0)	2.24 (2.0)	LSD 5%
Ajuga reptans	0.0	0.0	0.0	1.0	1.7	0.7	0.0	0.0	1.0	0.3	0.7	1.6
Arctotheca calendula	0.0	0.0	0.0	0.0	0.0	NS	0.3	0.3	0.7	0.3	NS	
Arenaria verna	0.0	0.0	0.3	0.0	0.7	0.5	0.0	0.0	0.0	0.0	0.0	NS
Asparagus densiflorus 'sprengeri'	0.0	0.0	0.0	1.3	1.3	0.8	0.0	0.0	0.0	0.0	0.0	NS
Campanula garganica	0.3	1.3	1.7	1.7	2.3	0.9	0.0	0.3	0.0	0.0	0.0	NS
Carpobrotus edulis	0.3	0.0	1.0	2.7	4.7	0.9	2.7	0.7	1.7	0.3	5.0	1.4
Cerastium tomentosum	0.0	0.0	0.0	0.0	0.0	NS	0.0	0.0	0.0	0.0	0.0	NS
Fragaria chiloensis	0.3	0.0	0.0	0.3	0.3	NS	1.0	0.7	1.3	0.3	1.0	NS
Gazania ringens	0.0	0.0	0.0	0.0	0.0	NS	0.0	0.0	0.0	0.0	0.0	NS
Hedera helix	0.0	0.0	0.0	0.0	0.0	NS	1.0	0.0	0.7	1.0	0.7	0.8
Herniaria glabra	0.0	0.0	0.0	0.0	0.0	NS	2.7	1.3	2.3	2.7	2.7	1.2
Isotoma longiflora	1.3	1.3	1.3	1.0	1.3	NS	3.3	2.7	3.0	2.3	2.7	NS
Lantana camara	0.0	0.0	0.0	0.7	2.7	0.7	0.0	0.3	0.7	0.3	0.3	NS
Lonicera japonica	0.0	0.0	0.0	0.0	0.0	NS	2.0	2.0	2.0	2.5	1.5	0.6
Lysimachia nummularia	0.0	0.0	0.0	0.3	0.7	0.7	0.7	0.3	0.3	0.7	0.7	1.1
Ophiopogon japonicum	0.0	0.0	0.0	0.0	0.0	NS	0.0	0.0	0.0	0.0	0.3	NS
Osteospermum fruticosum	0.0	0.0	0.0	0.3	0.7	0.8	0.0	0.0	0.0	0.0	0.3	NS
Polygonum capitatum	0.0	0.0	0.0	0.0	0.0	NS	1.0	0.7	1.7	1.0	1.3	0.9
Potentilla tabernaemontanii	0.0	0.3	0.3	1.0	0.0	0.9	1.7	1.3	1.7	2.0	1.0	1.4
P. tabernaemontanii 'nana'	0.0	0.0	0.0	0.3	0.0	NS	2.0	1.3	2.0	2.0	2.0	NS
Teucrium chaemadrys	0.0	0.0	0.0	0.0	0.0	NS	1.5	0.3	0.3	0.3	0.3	1.0
Sedum x rubrotinctum 'Christmas Cheer'	0.0	0.0	0.3	0.0	0.3	NS	0.7	0.3	1.0	1.0	1.0	1.3
Vinca minor	1.3	0.0	0.7	1.0	1.0	1.2	0.7	0.3	—	1.0	1.3	0.9

[z]0 = no injury, 10 = death

however, that if mechanical fragmentation was practical, lower rates might be possible.

Significance to the Nursery Industry

The environmental horticulture industry will find Fusilade (fluazifop-butyl) and Poast (sethoxydim) useful for controlling weedy annual and perennial grasses in a wide variety of situations including field and container plantings. In areas where dichondra (*Dichondra micrantha*) is an important lawn substitute, the capability of both Fusilade (fluazifop-butyl) and Poast (sethoxydim) to selectively control weedy grasses in dichondra lawns will be especially significant (although neither effectively controls *Poa annua*). In many cases where uncontrollable perennial grass infestations have rendered landscape plantings so unattractive that complete renovation would have been required, it should be possible in the future (pending registration) to control the grasses through applications of Fusilade (fluazifop-butyl) and Poast (sethoxydim).

(*Ed. note:* This paper reports the results of research only, and does not imply registration of a pesticide under amended FIFRA. Before using any of the products mentioned in this research paper, be certain of their registration by appropriate state and/or federal authorities.)

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Table 2. Injury ratings[z] of 35 landscape species taken 4 weeks after a single application of Fusilade, Poast or CGA 82725.

		Herbicide and Rate in kg/ha (lb/A)					
		Fusilade		Poast		CGA 82725	
Species	Control	0.56 (0.5)	2.24 (2.0)	1.12 (1.0)	2.24 (2.0)	1.12 (1.0)	2.24 (2.0)
Ajuga reptans	1.7	1.0	0.0	0.3	0.3	0.3	0.3
Arbutus unedo	1.0	0.7	0.3	0.0	0.3	1.0	0.7
Arenaria verna	2.3	5.0	2.0	2.3	0.0	2.0	0.0
Asparagus densiflorus 'sprengeri'	0.0	0.3	0.7	0.7	0.7	0.7	1.0
Campanula carpatica	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Cerastium tomentosum	5.3	3.7	5.0	6.0	6.3	5.7	5.0
Eucalyptus citriodora	0.7	0.0	0.0	0.3	0.7	0.7	0.3
Euryops pectinatus	0.3	—	0.0	0.0	0.7	0.7	0.0
Gazania ringens 'leucolaena'	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geijera parviflora	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hedera helix	0.3	0.0	0.0	0.3	0.7	0.7	0.3
Herniaria glabra	0.0	0.7	1.0	1.0	0.7	1.0	1.0
Juniperus chinensis 'Hetzi'	0.0	1.0	1.7	0.3	0.3	0.7	0.5
Juniperus horizontalis 'Bar Harbor' (LSD 5% = .96)	0.7	1.3	3.0	0.3	0.7	2.0	5.0
Juniperus scopulorum 'Wichita Blue'	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Juniperus horizontalis 'wiltonii'	0.0	0.0	1.0	0.3	0.0	0.0	0.3
Leptospermum laevigatum	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ligustrum japonicum	1.3	0.7	1.3	2.3	0.7	1.0	1.0
Liquidambar styraciflua	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Lonicera japonica	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lysimachia nummularia	0.0	0.0	0.0	0.7	0.0	0.0	0.3
Metrosideros excelsus	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nandina domestica	0.3	0.7	1.3	1.0	0.7	1.0	1.7
Nerium oleander	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ophiopogon japonicus	0.0	0.0	1.0	0.0	0.3	—	1.7
Pelargonium domesticum	0.3	0.3	0.7	0.0	0.7	0.7	0.3
Photinia x fraseri	0.3	0.0	0.3	0.0	0.3	0.3	0.3
Polygonum capitatum	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Potentilla tabernaemontanii	0.7	3.0	2.0	2.7	1.7	3.0	1.0
Salix matsudana 'tortuosa'	1.0	1.3	1.0	1.3	1.5	0.3	0.7
Sedum x rubrotinctum 'Christmas Cheer'	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spirea x Vanhoutei	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Syzgium paniculatum	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vinca minor	0.3	1.3	1.0	0.7	1.0	1.0	0.7

[z]0 = no injury; 10 = death. Differences were not significant except for *Juniperus horizontalis* 'Bar Harbor.'

Table 3. Injury ratings[z] of 35 landscape species taken 4 weeks after the second of two applications of Fusilade, Poast or CGA 82725.

		Herbicide and Rate in kg/ha (lb/A)					
		Fusilade		Poast		CGA 82725	
Species	Control	0.56 (0.5)	2.24 (2.0)	1.12 (1.0)	2.24 (2.0)	1.12 (1.0)	2.24 (2.0)
Ajuga reptans	0.7	0.3	0.3	0.7	0.3	0.0	0.7
Arbutus unedo	1.3	0.7	0.3	0.7	1.0	1.0	0.7
Arenaria verna	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Asparagus densiflorus 'sprengeri'	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Campanula carpatica	0.3	0.0	0.3	—	0.0	0.0	0.0
Ceonothus griseus 'horizontalis'	0.0	0.3	0.0	0.0	0.0	1.0	0.3
Cerastium tomentosum	6.3	5.7	5.7	7.0	6.7	6.7	6.3
Cistus x hybridus	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eucalyptus citriodora	0.0	0.0	0.7	1.0	1.0	2.0	0.0
Eucalyptus nicholii	0.3	2.3	—	1.0	2.7	1.0	0.0
Euryops pectinatus	0.0	0.0	0.3	0.0	2.7	0.0	0.0
Gazania ringens 'leucolaena'	0.3	1.0	0.3	0.3	0.5	0.3	0.0
Geijera parviflora	0.0	0.0	0.0	0.3	0.0	1.3	0.0
Hedera helix	0.3	0.0	0.0	0.0	0.0	0.3	0.3
Herniaria glabra	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Juniperus chinensis 'Hetzi'	0.0	0.0	1.0	0.0	0.0	0.0	1.7
Juniperus horizontalis 'Bar Harbor' (LSD 5% = .96)	0.7	5.3	7.7	1.7	0.0	5.7	7.7
Juniperus scopulorum 'Wichita Blue'	0.0	0.0	1.0	0.0	0.0	0.0	1.0
Juniperus horizontalis 'wiltonii'	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leptospermum laevigatum	0.7	0.0	0.0	0.7	0.0	0.0	0.0
Ligustrum japonicum	7.5	1.3	5.3	8.0	3.7	4.7	5.0
Liquidambar styraciflua	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lonicera japonica	0.7	1.0	0.7	0.0	0.3	0.7	0.3
Lysimachia nummularia	0.0	0.0	0.3	0.3	0.0	0.0	0.0
Metrosideros excelsus	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nandina domestica	0.0	0.7	0.3	0.7	0.3	0.0	0.7
Nerium oleander	0.0	0.0	0.0	0.0	0.7	0.0	1.0
Ophiopogon japonicus	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pelargonium domesticum	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Photinia x fraseri	0.7	0.0	0.3	0.0	0.0	0.7	0.0
Podocarpus macrophyllus	0.3	0.3	0.0	0.0	0.3	0.3	0.3
Polygonum capitatum	1.0	2.0	1.5	1.5	2.0	2.0	1.5
Potentilla tabernaemontanii	0.7	1.0	1.0	1.3	0.7	1.0	1.0
Salix matsudana 'tortuosa'	0.0	0.0	0.7	0.0	0.0	0.0	0.3
Sedum x rubrotinctum 'Christmas Cheer'	1.0	0.0	0.0	0.0	0.0	0.7	0.5
Spirea x Vanhoutei	0.5	1.0	0.0	0.7	0.5	2.0	0.0
Syzgium paniculatum	0.0	0.0	0.7	0.0	0.0	0.7	0.0
Vinca minor	0.7	0.7	0.3	0.7	0.3	0.7	1.0

[z]0 = no injury; 10 = death. Differences were not significant except for *Juniperus horizontalis* 'Bar Harbor.'

Table 4. Control of bermudagrass in newly planted groundcovers.

	Rate		Bermudagrass control[z] rating date	
Treatments	kg/ha	lb/A	June 6	June 30
Control	0	0	0.0	0.0
Fusilade	1.12	1.0	6.0	9.7
Fusilade	2.24	2.0	7.7	10.0
Poast	1.12	1.0	6.0	9.7
Poast	2.24	2.0	5.7	10.0
Dowpon	11.2	10.0	1.7	0.0
LSD 5%			1.6	0.8

[z]0 = no control; 10 = complete control.

Groundcovers were unaffected by all treatments.

Table 5. Control of bermudagrass with Fusilade in established groundcovers.

Rate of Fusilade		Bermudagrass control[z]
kg/ha	lb/A	
.56	.5	4.0
1.12	1.0	9.3
2.24	2.0	9.7
0	0	0.0
LSD 5%		2.1

[z]0 = no control; 10 = complete control