

PUBLICATIONS

1993

**Forage Research
in Texas,
1993**

Smutgrass Control

G. W. Evers and J. L. Gabrysch

Summary

Nine herbicides were evaluated for smutgrass (*Sporobolus poiretii* [R.&S.] Hitchc.) control on clay soils at the Angleton Research Station in southeast Texas. Dowpon (dalapon)¹, Velpar (hexazinone), and Fusilade (fluazifop) were the most effective on smutgrass. Velpar is the only herbicide cleared for weed control in pastures at 0.69 to 1.12 lb ai/acre. The 1-lb rate was effective for smutgrass on clay soil at Angleton, but the 0.5-lb rate resulted in only 40% control. Activity of Velpar at rates less than 1 lb/acre depends on soil moisture and time of application. Common bermudagrass (*Cynodon dactylon* (L.) Pers.), but not dallisgrass (*Paspalum dilatatum* Poir.) and bahiagrass (*Paspalum notatum* Flugge), was also injured by the recommended rates of Velpar.

Introduction

Smutgrass is a perennial bunch-type grass that is named for the black fungus (*Helminthosporium ravenelii*), which often attacks the seedhead and at times is found in patches on the leaves. Seed is spread by livestock, water, and wind and have been reported to remain viable for 2 or more years. Each plant produces more than 45,000 seed (Currey et al. 1973). More than 90% of the seed are hard, which allows unharmed passage through cattle when eaten.

Smutgrass is a problem in both improved and native pastures in the southeastern United States. In Texas alone, 16 million acres are infected, most being

in the eastern third of the state, particularly along the Gulf Coast (Meyer and Baur 1979). Cattle graze smutgrass during the winter and early spring, when other forages are not available (Durham and Kothmann 1977). Green, immature growth is of moderate quality, but fiber increases and protein and quality decrease with maturity. Livestock by-pass smutgrass when other forages become available in the spring. High production of hard seed and avoidance by livestock account for the spread and increase of smutgrass in pastures.

Dowpon (dalapon) was cleared for smutgrass control and was used successfully in conjunction with a winter pasture overseeding program (Riewe et al. 1975). However, the dalapon registration label was not renewed in the mid-1980's. Numerous studies have evaluated other herbicides for controlling smutgrass (Teem et al. 1978, Meyer and Baur 1979). Velpar (hexazinone) provided good smutgrass control at 1 to 2 lb ai/acre and limited control at 0.5 to 0.75 lb ai/acre. The federal label was expanded in 1993 for smutgrass control in pastures.

Velpar and other herbicides were evaluated for smutgrass control at the Angleton Research Station in the autumn of 1988 and 1989. Visual injury ratings were also made on common bermudagrass, dallisgrass, and bahiagrass in the 1989 study.

Procedure

1988 Study. The test site was a native pasture with a 70% smutgrass infestation on a Lake Charles clay at the Angleton Research Station. The area was mowed about 1 month before treatment, so smutgrass plants were actively growing when herbicides were applied. Plots were 6 by 15 ft in a complete randomized block design with four replications. Herbicide treatments were applied 14 Oct. 1988 in 16.5 gal water/acre at 30 psi. No surfactants or additives were used. Soil moisture was good at the time of herbicide application but became low until December. Visual estimates of smutgrass control were made 16 May 1989.

Keywords: smutgrass / *Sporobolus poiretii*.

¹This paper reports research involving pesticides. It does not contain recommendations for their use, nor does it imply that the uses discussed here have been registered. All uses of pesticides must be registered by appropriate state and federal agencies before they can be recommended. Commercial products are mentioned in this publication solely for the purpose of providing specific information. Mention of a product does not constitute a guarantee or warranty of performance by the Texas Agricultural Experiment Station or an endorsement over products not mentioned.

1989 Study. The test site was a 2-acre pasture at the Angleton Research Station consisting of smutgrass, common bermudagrass, dallisgrass, and bahiagrass. The area had been grazed by dry cows until 1 week before herbicides were applied. Plot size was 6 by 15 ft in a complete randomized block with four replications. Herbicide treatments were three rates of Velpar with 1 qt of nonphytotoxic petroleum oil², one rate without petroleum oil, three rates of fusilade with petroleum oil, and one rate of Ally with a nonionic surfactant³ (0.25% v/v). Herbicides were applied in 16.5 gal water/acre at 30 psi on 7 Sept. 1989. Soil moisture was moderate; 0.75 in. of rain fell 2 days before herbicide application, but no significant rainfall occurred until November. Visual injury ratings were made 18 Sept. 1989, 11 days after herbicide application. Plant recovery was assessed again 19 Apr. 1990. Statistical analysis was not performed because botanical composition varied from plot to plot so that a plant species may not have been present in each replication of a treatment.

Results

Smutgrass control ranged from 0 to 100% in the 1988 study (Table 1). Dowpon, Fusilade, and the 2-lb rate of Velpar were the most effective (> 90% control). Oust and the high rate of Roundup had moderate

activity, while Touchdown, Attrex, and Ally had poor activity against smutgrass. Velpar and Fusilade were evaluated in 1989 because they demonstrated the best smutgrass control the first year. An Ally treatment was repeated also. All Velpar treatments turned smutgrass brown, resulting in 100% injury rating at 11 days after application (Table 2). Common bermudagrass also became brown except at the low Velpar rate, which caused 70% injury. Dallisgrass and bahiagrass had ≤10% plant injury from Velpar treatments. Fusilade activity was slow because of the poor moisture conditions after herbicide application. Ally had very little effect on any of the grasses in 1989. A visual appraisal on 19 Apr. 1990 estimated smutgrass control at 40, 80, and 90% for 0.5, 1.0, and 2.0 lb ai/acre, respectively, of Velpar when applied with oil (data not shown). The 1-lb rate without crop oil was 65%. The other treatments had less than 40% smutgrass control.

Discussion

Dowpon was the most effective herbicide in controlling smutgrass but is no longer on the market. Velpar did a good job of controlling smutgrass at 1 lb ai/acre with 1 qt/acre of oil. Success with lower rates depends on good soil moisture for active plant growth to enhance Velpar uptake, time of application, and

Table 1. Visual injury ratings (0 = no injury) on smutgrass 16 May 1989 from herbicide treatments applied 14 Oct. 1988.

Herbicide	Rate	Control	Herbicide	Rate	Control
	lb ai/acre	%		lb ai/acre	%
Control		00 h*	Ally	0.24 oz	0 h
Roundup	0.75	20 g	Oust	3.0 oz	45 e
Roundup	1.50	75 c	Oust	6.0 oz	60 d
Touchdown	0.50	00 h	Velpar	1.0	0 h
Touchdown	1.00	35 f	Velpar	2.0	90 b
Attrex	2.00	00 h	Dowpon	5.0	100 a
Attrex	4.00	00 h	Fusilade	0.38	90 b
Ally	0.12 oz	00 h	Poast	0.38	0 h

*Values for % control followed by the same letter are not significantly different at the 0.05 level, Waller-Duncan multiple range test.

²Agridex contains 83% paraffin-based petroleum oil and 17% poly-oxyethylated polyol fatty acid ester. Produced by Helena Chemical Co., 5100 Poplar Ave., Memphis, TN 38137.

³X-77 contains alkylarpolyxyethylene glycols, free fatty acids, and isopropanol. Produced by Valent USA Corp., Box 8025, Walnut Creek, CA 94596.

Table 2. Visual injury ratings (0 = no injury) on smutgrass and other warm-season perennial grasses 11 days after herbicide application.

Herbicide	Rate	Smutgrass	Common bermuda	Dallisgrass	Bahiagrass
	lb ai/acre %			
Control		0	0	0	0
Velpar + P.O. [†]	0.5	100	70	0	0
Velpar + P.O.	1.0	100	100	10	10
Velpar	1.0	100	100	10	10
Velpar + P.O.	1.5	100	100	10	10
Fusilade	0.12	10	10	10	10
Fusilade	0.17	30	30	30	30
Fusilade	0.25	30	30	30	30
Ally + N.S. [*]	0.2 oz	10	10	10	10

[†]Petroleum oil (Agridex), 1 qt/acre.

^{*}Nonionic surfactant (X-77) 0.25% v/v.

use of an additive such as petroleum oil. Experience of these authors and others (Meyer and Baur 1979, Riewe et al. 1975, Teem et al. 1978) is that herbicides are more effective on smutgrass when applied in September and October. It is believed that shorter days and/or cooler temperatures increase translocation to the root system, which enhances herbicide activity (Riewe et al. 1975). Pastures sprayed with Velpar cannot be grazed or harvested for hay within 60 days after application. Velpar at recommended rates of 0.5 to 1.0 lb ai/acre did injure common bermudagrass. Fusilade has some activity on smutgrass, but the interaction of rate, soil moisture, and time of year needs further investigation.

Literature Cited

- Currey, W. L., R. Parrado, and D. W. Jones. 1973. Seed characteristics of smutgrass (*Sporobolus poiretii*). Soil and Crop Sci. Soc. of Florida Proc. 32:53-54.
- Meyer, R. E., and J. R. Baur. 1979. Smutgrass (*Sporobolus poiretii*) control in pastures with herbicides. Weed Sci. 27:361-366.
- Durham, A. J., and M. M. Kothmann. 1977. Forage availability and cattle diets on the Texas Coastal Prairie. J. Range Manage. 30:103-106.
- Riewe, M. E., G. W. Evers, and M. G. Merkle. 1975. Smutgrass control and winter grazing establishment with herbicides. Proc. Southern Weed Sci. Soc. 28:112.
- Teem, D. H., W. R. Ocumpaugh, W. L. Currey, and J. L. Yager. 1978. Influence of Velpar on smutgrass and bahiagrass. Proc. Southern Weed Sci. Soc. 31:148.