

Effect of Certainty and Velocity on cultivars of roughstalk bluegrass

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Objective:

Compare effectiveness of Certainty and Velocity on different roughstalk bluegrass cultivars.

Rationale:

Roughstalk bluegrass has become a major weed problem on golf courses, athletic fields and home lawns. Two promising selective herbicides for roughstalk bluegrass are Certainty and Velocity. Cultivar variability could potentially affect the effectiveness of both Certainty and Velocity in controlling roughstalk bluegrass. A 2004 study tested the effectiveness of Certainty on 14 different roughstalk bluegrass phenotypes and effectiveness varied widely among the different phenotypes. It is important to understand the potential variable effects of those herbicides on roughstalk bluegrass. It is feasible that one herbicide may be more effective on certain cultivars than the other herbicide.

Materials and Methods:

This study was conducted in 2006 and 2007 at the W.H. Daniel Turfgrass Research and Diagnostic Center, West Lafayette, IN. Adjacent studies were done under either 0.5" or 2" mowing heights. All experimental areas were seeded on August 30, 2005, at 2 lbs/1000ft². Experimental design was a split-plot design with three replications. Main plots were cultivars of roughstalk bluegrass and subplots were herbicide treatments. Eight roughstalk bluegrass cultivars were studied in this project and included 'Sabre II', 'Sun-up', 'Bariviera', 'Winterlinks', 'Racehorse', 'Pulsar', 'Proam', and 'Laser' which were all commercially available in 2005. Herbicide treatments included an untreated control, Certainty 75 WDG, and Velocity 80 SP (Table 1). Certainty treatments included MON 0818 surfactant at 0.25% v/v. Initial applications were made on June 13, 2006, and on June 13, 2007. All herbicide applications were applied in 2 gal/water/1000 ft² water with a CO₂-pressurized backpack sprayer using a three-nozzle (Tee Jet XR8001.5VS, Spraying Systems Co., Wheaton, IL) boom at 207 kPa. In both years and at both mowing heights, percent cover was rated visually every two weeks during the growing season.

Results:

0.5' mowing height:

2006:

- By 8 WAIT (weeks after initial treatment) there were no differences among cultivars when treated with Certainty or Velocity, but there were differences between the untreated checks ranging from 'Pulsar' with 7% cover to 'Bariviera' with 78% cover (Figure 1).
- Velocity reduced roughstalk bluegrass cover to $\leq 1\%$ at 12 WAIT regardless of cultivar, while cultivars treated with Certainty ranged from 1% cover ('Pulsar') to 10% cover ('Laser'), but these differences are not agronomically important (Figure 1).
- Cover in the untreated checks at 12 WAIT ranged from 'Pulsar' with 16% cover to Laser with 91% cover suggesting that 'Laser' is less sensitive to summer stresses than 'Pulsar' (Figure 1).

2007:

- Averaged over cultivars, Certainty and Velocity decreased roughstalk bluegrass cover at 4, 8, and 12 WAIT to ≤ 16 , 11, and 11%, respectively, compared to the untreated checks at 21, 20, and 26% cover, respectively (Figure 2).
- Velocity was more effective than Certainty decreasing cover to 8, 2, and 2% at 4, 8, and 12 WAIT, respectively, while Certainty decreased cover to 16, 11, and 11%, respectively (Figure 2).

2" mowing height:

2006:

- No agronomically important effects were seen at the 2" mowing height in 2006.

2007:

- Certainty decreased cover to 36%, Velocity decreased cover to 5%, and cover in the untreated checks was 73% at 8 WAIT (Figure 2).
- All cultivars responded similarly to the herbicide treatments.

Conclusions:

- Cultivars used in this study did not affect roughstalk bluegrass control from Certainty or Velocity.
- However, since roughstalk bluegrass contamination may take years to develop, likely contaminants are roughstalk bluegrass cultivars available at the time of seeding and/or those unimproved phenotypes already present on site which are likely much older than those used in our study.
- Ensuing research should include older cultivars or unimproved phenotypes of roughstalk bluegrass to determine if these grasses respond variably to these herbicides.

Table 1. Herbicide treatments

Herbicide	Rate (oz/A)	Application Dates	
		2006	2007
Certainty 75 WDG	0.25 + 0.25	6/13, 6/27	6/12, 6/26
Velocity 80 SP	0.65 + 0.65 + 0.65 + 0.65	6/13, 6/27, 7/10, 7/26	6/12, 6/26, 7/10, 7/24
Check	--	--	--

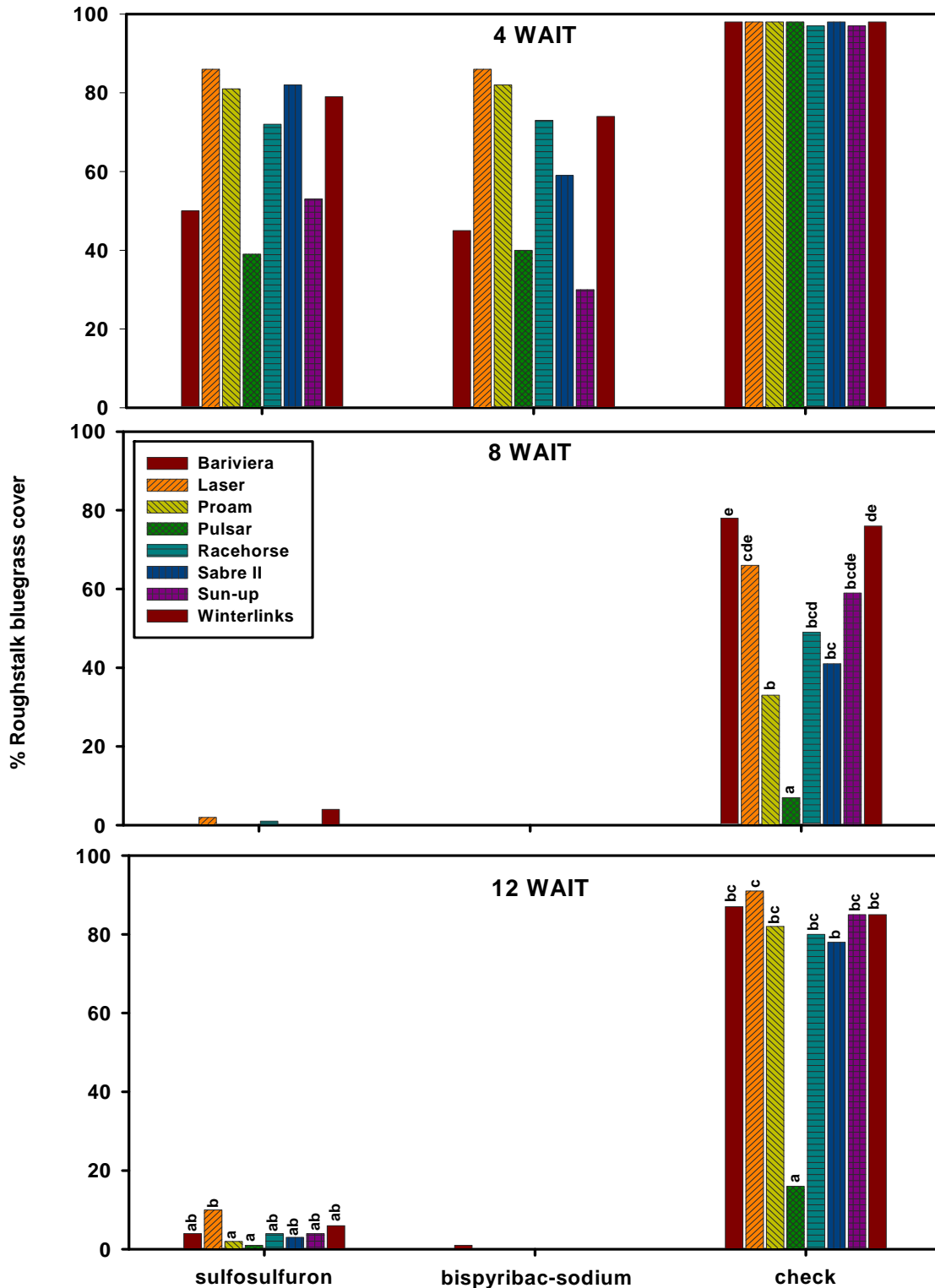


Figure 1: Differences among cultivars mowed at 0.5" as a result of Certainty and Velocity in 2006 at 4, 8, and 12 weeks after initial treatment (WAIT). Means of cultivars within herbicides with the same letter or no letter are not significantly different at ($P < 0.05$).

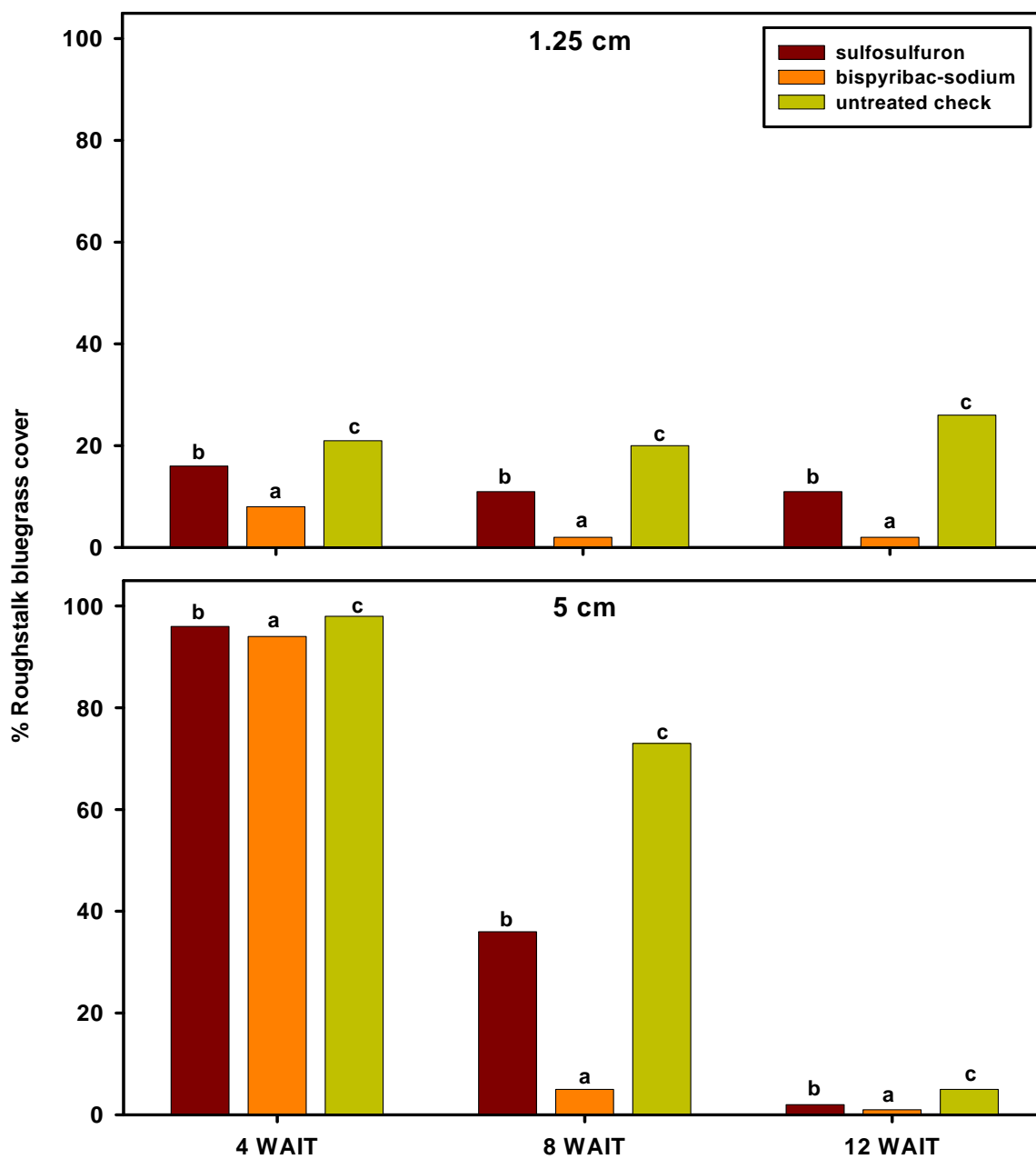


Figure 2. Percent cover as affected by Certainty and Velocity in the 0.5” and 2” study in 2007 at 4, 8, and 12 weeks after initial treatment (WAIT). Bars with the same letter are not significantly different within each rating date ($P < 0.05$).