

# The Effects of Fall Applied Velocity SP Herbicide on Annual Bluegrass Reduction

James B. Ross and Mark A. Anderson

## Summary

The objective of this trial was to test the effectiveness of the herbicide Velocity SP when applied in the cooler fall period. Small reductions in annual bluegrass populations occurred following four applications of the product at the highest rate of application. However, there was also a high level of turf injury, which would likely be unacceptable to a Golf Course Superintendent. Results of this trial would indicate that Velocity SP applied in the fall is not effective and that applications need to commence and be complete prior to the onset of cooler temperatures.

## Introduction

The product, Velocity SP Herbicide (active ingredient bispyribac-sodium), has been registered for use in Canada to remove annual bluegrass (*Poa annua*) from creeping bentgrass. A condition of the registration is that the product not be applied to bentgrass that is mowed lower than 9mm. Unfortunately, the majority of bentgrass grown in western Canada is for use on golf course putting greens, which is typically mowed at a height of 3-5mm.

In earlier studies conducted by the PTRC at the Carstairs Community Golf Club, creeping bentgrass maintained at a height of 3.2mm (0.125") was noticeably discoloured after applications of Velocity SP Herbicide at the label rate or lower. Discolouration was thought to be a phytotoxic reaction to the applications and was high enough to be of concern. This discolouration appeared after the second application and was particularly noticeable at the two higher rates (0.23g and 0.31g/100m<sup>2</sup>). As a result, applications were discontinued after the third application. The lower rates of application (0.08g and 0.16g/100m<sup>2</sup>) produced good control of annual bluegrass with less discolouration.

The objective of this trial was to assess a fall applied herbicide, Velocity SP, for the reduction of annual bluegrass and turf discolouration in creeping bentgrass turf.

## Methodology

A trial to assess the herbicide, Velocity SP, commenced on August 31, 2010 at the Olds Central Highlands Golf Club (Olds, Alberta). The plot sizes were 0.5 X 0.5 meters and were replicated four times in a completely randomized block design. The treatments were applied weekly for four weeks with a CO<sub>2</sub> sprayer equipped with a single Teejet 8002 even flat fan nozzle that was calibrated to deliver 3L/100m<sup>2</sup>. A turf colourant, Indicator Green, was incorporated into the spray solution at a rate of 3g/100m<sup>2</sup> to help reduce discolouration of the turf (Table 1).

Table 1 - Application Rates of Velocity SP Herbicide

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1. Untreated Control
  2. ¼ Label rate 0.08g/100m<sup>2</sup>
  3. ½ Label rate 0.16g/100m<sup>2</sup>
  4. ¾ Label rate 0.23g/100m<sup>2</sup>
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The plots were rated weekly beginning on September 10. Annual bluegrass reduction was assessed by estimating the percent of the plot area infested, while turf injury was assessed using a 1 - 5 scale (Table 2).

Table 2 - Turf injury 1-5 scale:

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1. Unaffected; no turf colour change, turf appears healthy.
  2. Slight; turf colour change detected, turf damage barely seen.
  3. Moderate; noticeable turf colour change, turf damage clearly seen.
  4. Severe; significant turf colour change, turf mortality present.
  5. Completely dead; turf colour completely bleached, necrosis present
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### Results

Ratings that were conducted on October 12 and 18, showed a significant reduction in annual bluegrass populations for the highest rate of application ( $0.23\text{g}/100\text{m}^2$ ) of the velocity SP (table 3). There was still a reduction when rated in early June, 2011, although the populations had increased.



(Insert Photo Caption)

Table 3 – Estimation of the annual bluegrass infestation

Treatment Rate	Sept 10	Sept 17	Sept 24	Oct 1	Oct 12	Oct 18	June 9 2011
	% of plot area						
Untreated Control	40a	36a	38a	38a	36a	50a	58ab
¼ X rate 0.08g/100m <sup>2</sup>	53a	57a	46a	51a	40a	36b	71a
½X rate 0.16g/100m <sup>2</sup>	52a	58a	42a	45a	31ab	31b	62a
¾ X rate 0.23g/100m <sup>2</sup>	52a	55a	41a	43a	20b	17c	38b
LSD <sub>0.05</sub> =	n/s	n/s	n/s	n/s	13	9	22

When rated at the end of the trial period, the plots that received the higher rates of Velocity SP were discoloured and injury to the bentgrass was evident (Table 4). The discolouration was so severe that it was thought that there would be dead patches in the spring. However, when rated in June of the following year, recovery was complete and there was no evidence of injury.

Table 4 - Turf injury as a result of treatments of the herbicide Velocity SP.

Treatment Rate	Sept 10	Sept 17	Sept 24	Oct 1	Oct 12	Oct 18	June 9 2011
	1- 5 scale						
Untreated Control	1.0a	1.0a	1.0a	1.0b	1.0c	1.0c	1.0a
¼ X rate 0.08g/100m <sup>2</sup>	1.0a	1.0a	1.0a	1.5b	1.7b	1.5c	1.0a
½X rate 0.16g/100m <sup>2</sup>	1.0a	1.2a	1.2a	1.5b	2.7a	2.7b	1.0a
¾ X rate 0.23g/100m <sup>2</sup>	1.0a	1.5a	1.7a	2.2a	3.0a	3.7a	1.0a
LSD <sub>0.05</sub> =	n/s	n/s	n/s	0.5	0.6	0.7	n/s

## Discussion

Results of this trial showed that Velocity was less effective when applied in the cooler temperatures of the fall in comparison to the previous trial at Carstairs that was conducted in the summer months. It also appeared that there was greater turf injury, or less recovery, during this time of the year.