

Downy Brome Control in Kentucky Bluegrass with Dimethenamid-P (Outlook) and Pendimethalin (Prowl)

Richard Affeldt and John McKenzie

Introduction

Kentucky bluegrass (*Poa pratensis*) fields are usually burned and propane-flamed in order to stimulate fertile tiller development after seed harvest. These fields are then irrigated from September to mid-October before the Kentucky bluegrass goes dormant for the winter. Downy brome (*Bromus tectorum*) often germinates during this September/October irrigation period and can grow throughout much of the remaining fall and winter. It may grow up to 4 to 6 inches in diameter by the time Kentucky bluegrass goes dormant for the winter. Downy brome of this size can be difficult to control with herbicides during the dormant period.

Outlook[®] (dimethenamid-P) and Prowl H₂O[®] (pendimethalin) are currently registered for use in grass seed production. Ideal application timing for these two herbicides is after field burning and prior to the first irrigation. However, some crop consultants have had concerns about Kentucky bluegrass injury when these herbicides are tank-mixed. Also it has been difficult to quantify the extent to which these herbicides are controlling downy brome. The objective of this research was to evaluate Kentucky bluegrass tolerance at this application timing and quantify downy brome control with dimethenamid-P and pendimethalin.

Methods and Materials

A field trial was conducted in a commercial field of Kentucky bluegrass grown for seed near Culver, Oregon. The trial consisted of 10-ft by 28-ft plots arranged in randomized complete blocks replicated four times. Herbicide treatments were applied on September 11, 2007 with a CO₂-pressurized backpack sprayer calibrated to deliver 20 gal/acre at 40 psi at the rates and timings shown in Table 1. At the time dimethenamid-P and pendimethalin were applied in this trial, the field had been burned and some charcoal remained on the soil surface. There was also no Kentucky bluegrass regrowth. The trial was placed along an edge of the field that had a severe infestation of downy brome. The field was sprinkler irrigated and the first irrigation following seed harvest occurred the day after the herbicide treatments were applied. Crop injury and weed control were evaluated visually with a 0 to 100 percent rating scale.

Results and Discussion

The emergence of downy brome within the trial area was very low in two of the four replications, so control ratings in Table 1 are the result of only two replications. However, even in the two replications with downy brome emergence, it was difficult to evaluate control until May. The higher rates of dimethenamid-P and pendimethalin delayed the fall regrowth of Kentucky bluegrass (Table 1). However, this injury was

minor and by May 21, 2008 there were no visual signs of crop injury and no reduction in seed heading was observed in any of the treated plots on July 3, 2008.

Dimethenamid-P controlled downy brome better than pendimethalin at the rates tested. The combination of dimethenamid-P and pendimethalin did not improve control of downy brome compared to dimethenamid-P alone. None of the herbicide treatments controlled more than 90 percent of the downy brome, but downy brome populations were greatly reduced from all herbicide treatments.

The downy brome suppression and minimal crop injury from dimethenamid-P applied post-harvest could improve management of this difficult weed.

Acknowledgements

We would like to thank Kurt Locke for accommodating this research in his production field.

Table 1. Kentucky bluegrass injury and downy brome control from pendimethalin (Prowl) and dimethenamid-P (Outlook) near Culver, Oregon, 2007-2008.

Treatment ¹	Rate lb/acre	Kentucky bluegrass			Downy brome ²
		08/Oct/07 0.5-inch ht	21/May/08 4-inch ht	03/Jul/08 heading	21/May/08 heading
		% injury			% control
Pendimethalin	2.0	3	0	0	55
Pendimethalin	3.0	10	0	0	63
Dimethenamid-P	0.7	9	0	0	83
Dimethenamid-P	1.0	15	0	0	70
Pendimethalin + Dimethenamid-P	2.0 + 0.7	6	0	0	70
Pendimethalin + Dimethenamid-P	3.0 + 1.0	19	0	0	75

¹Applied September 11, 2007, the day before the first irrigation following seed harvest.

After harvest the field was burned and some charcoal remained on the soil surface.

²Ratings are for downy brome control across two replications.