

Medusahead (*Taeniatherum caput-medusae*) Control with Fall Applications of Pre-Emergence Herbicides Currently Labeled in Kentucky Bluegrass

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Abstract

Reports indicate that medusahead is present in Kentucky bluegrass seed production fields in central Oregon. As part of an integral approach to control medusahead, pre-emergence herbicides can be used to control germination of seeds in infested fields. A field study was conducted at the Central Oregon Research Center (COARC) located in Madras, Oregon, to evaluate the efficacy of pre-emergence herbicides currently labeled for use in established stands of Kentucky bluegrass for medusahead control. Herbicides were applied in October, 2012 and supplemental irrigation was used after application to ensure proper herbicide incorporation. The best medusahead control was obtained with the following herbicides: Outlook[®] at 21 fl oz/acre, Callisto[®] at 6 fl oz/acre, and Nortron[®] at 3 qt/acre, with weed control ranging between 88 and 99 percent. Several of the tested labeled herbicides had no impact on medusahead control when applied pre-emergence. Results indicate that options are available among labeled herbicides to prevent establishment of medusahead from seed.

Introduction

Control of annual grasses within a field of perennial grasses is difficult because of their morphological and physiological similarities. The invasive annual grass medusahead is an aggressive invader of rangelands and pastures, and recent reports indicate that the species is present in Kentucky bluegrass (KBG) seed production fields of central Oregon. The presence of medusahead raises concerns among producers because it has the potential to reduce yields, and affect seed quality. The best way to address the medusahead problem is an integral approach that includes control practices that promote healthy and vigorous stands of KBG, avoid weed seed dispersal into production fields and a weed control program that includes herbicides. The use of pre-emergence herbicides is critical to the control of medusahead as they can provide control of seeds already present in an infested field. Therefore, testing the effectiveness for medusahead control of herbicides already labeled in Kentucky bluegrass is a priority because obtaining a label for a new product is costly and requires time.

Materials and Methods

A field study looking at pre-emergence herbicides applied in fall for medusahead control was initiated in October, 2012. The study was conducted on an established Kentucky bluegrass field at COARC. The study design was a randomized complete block with four replications. Plot size was 10 ft wide by 30 ft long. Medusahead seeds were planted inside a permanent 6 ft² quadrant to ensure weed infestation in all plots. The treatments consisted of dimethenamid (Outlook[®]), mesotrione (Callisto[®]), ethofumasate (Nortron[®]), oxyfluorfen (Goal 2 XL[®]), pendimethalin (Prowl H₂O[®]), terbacil (Sinbar[®]), and metolachlor (Dual Magnum[®]). Herbicides were applied with a backpack sprayer calibrated to deliver 20 gallons of spray solution per acre at 40 psi pressure using XR 8002 Teejet[®] nozzles. Following herbicide application the study area was

irrigated for soil incorporation of the herbicides. Application date and environmental conditions are detailed in Table 1. Herbicide rates are detailed in Table 2. Herbicide efficacy was evaluated in spring of 2013.

Results and Discussion

Among the tested pre-emergence herbicides, three stood out for their effectiveness in medusahead control. Outlook[®] at 21 fl oz/acre, Callisto[®] at 6 fl oz/acre, and Nortron[®] at 3 qt/acre provided 90, 88 and 99 percent control respectively. In contrast, no medusahead control was observed with the pre-emergence application of Goal 2 XL[®], Prowl H20[®], Sinbar[®] and Dual Magnum. No crop injury was observed after the application of the herbicide treatments. Results from this study indicate that control of medusahead seed germination infesting established stands of Kentucky bluegrass is possible with the use of pre-emergence herbicides already labeled for use in the crop. This study was repeated this fall for results next spring of 2014, to confirm initial findings.

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Table 1. Application date and environmental conditions for the herbicide applications.

Application Date	10/2
Time of Day	9 AM
Air temperature (F)	57
Relative Humidity (%)	54
Wind Speed (MPH)	6
Wind Direction	SSE

Table 2. Medusahead percent control compared to the untreated checks in spring of 2013.

	Treatment ¹	Rate	Unit	Percent Control ¹
1	Outlook [®]	21	fl oz/acre	90 b
2	Callisto [®]	6	fl oz/acre	88 b
3	Nortron [®]	3	qt/acre	99 b
4	Goal 2 XL [®]	3	fl oz/acre	0 c
5	Prowl H20 [®]	3	qt/acre	0 a
6	Sinbar [®]	1	lb/acre	0 a
7	Dual Magnum [®]	21	fl oz/acre	0 a
	Untreated Check			0 a
LSD (P=.05)			8	

¹Means among columns followed by the same letter are not different at P=0.05.