

Medusahead (*Taeniatherum caput-medusae*) Control with Applications of Post-emergence Herbicides Labeled in Kentucky Bluegrass applied in spring

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Abstract

Reports indicate that medusahead is present in Kentucky bluegrass seed production fields in central Oregon. An integral approach to control medusahead should include the possibility of using post emergence herbicides to control emerged medusahead plants. A field study was conducted at the Central Oregon Research Center (COARC) located in Madras, Oregon, to evaluate the efficacy of post emergence herbicides currently labeled for use in established stands of Kentucky bluegrass for medusahead control. Herbicides were applied in April, 2013 to medusahead plants with 2 true leaves fully expanded. Herbicides tested included: Beacon[®], Sencor 75DF, dicamba, Axiom[®], Everest[®], and Callisto[®]. Evaluations performed 30 days after treatment showed none of the tested herbicides provided acceptable levels of medusahead control. The implementation of an integral approach for medusahead control is necessary to overcome the limitation of not having effective post emergence herbicides as an option for control.

Introduction

Because of their morphological and physiological similarities, it is difficult to control annual grasses within a field of perennial grasses. The persistence of annual grass infestations results in a perpetual loss of yield. Medusahead is a ubiquitous invader of rangelands and pastures, and recent reports indicate that this annual grassy weedy species is present in Kentucky bluegrass (KBG) seed production fields in 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, vigorous stands of KBG, avoid weed seed dispersal to production fields and a weed control program that includes herbicides. The use of post emergence herbicides is critical for the success of an integral approach since they can provide control of emerged plants actively growing 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 post emergence herbicides for Medusahead control was initiated in April, 2013. 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 primisulfuron (Beacon[®]), metribuzin (Sencor 75DF) dicamba, flufenacet + metribuzin (Axiom[®]), flucarbazone (Everest[®]), mesotrione (Callisto[®]). 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. Application date and

environmental conditions are detailed in Table 1. Herbicide rates and adjuvants are detailed in Table 2. Herbicide efficacy was evaluated 30 days after application.

Results and Discussion

Medusahead control provided by all tested post emergence herbicides currently labeled for use in Kentucky bluegrass was poor and never reached levels of commercially acceptable control. The best control was recorded for Sencor 75DF at 0.5 lb/acre with only 31 percent control. Results from this first study indicate that control of developed medusahead plants infesting established stands of Kentucky bluegrass with labeled post emergence herbicide is deficient and won't provide a commercially acceptable level of control. The low efficacy levels observed for medusahead control with labeled herbicides emphasizes the need to implement an integral control program that includes cultural practices that ensure vigorous stands of Kentucky bluegrass, seed dispersal prevention and the use of pre-emergence herbicides among other efforts. The current study will be repeated in 2014, to confirm initial findings and explore other potential options.

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Table 1. Application date, environmental conditions for herbicide applications.

Application Date	4/18
Time of Day	9 AM
Air temperature (F)	47
Relative Humidity (%)	54
Wind Speed (MPH)	3
Wind Direction	WNW

Table 2. Medusahead percent control compared to the untreated checks 30 days after application.

	Treatment	Rate	Unit	Percent Control
1	Beacon [®]	0.75	oz/acre	19
	MSO	1	% v/v	
	Ammonium sulfate	2	% v/v	
2	Sencor 75DF [®]	0.5	lb/acre	31
	NIS	0.25	% v/v	
	Ammonium sulfate	2	% v/v	
3	Dicamba	2	qt/acre	0
	NIS	0.25	% v/v	
	Ammonium sulfate	2	% v/v	
4	Axiom [®]	10	oz/acre	19
	NIS	0.25	% v/v	
	Ammonium sulfate	2	% v/v	
5	Everest 70 WDG [®]	0.85	oz/acre	13
	NIS	0.25	% v/v	
	Ammonium sulfate	2	% v/v	
6	Callisto [®]	6	fl oz/acre	13
	NIS	0.25	% v/v	
	Ammonium sulfate	2	% v/v	

