

DOWNY BROME CONTROL IN NEWLY PLANTED KENTUCKY BLUEGRASS GROWN FOR SEED UNDER COLUMBIA BASIN CONDITIONS

D.A. Ball

Introduction

A study was conducted in seedling Kentucky bluegrass (KBG) to evaluate downy brome control during the seedling establishment period under pivot irrigated, Columbia Basin growing conditions. The specific objectives were to investigate possible optimum timing of Callisto® (mesotrione) and tank-mix combinations with Callisto for downy brome control.

Methods and Materials

The experiment was located at the Hermiston Agricultural Research and Extension Center, Hermiston, OR. Downy brome seed was broadcast in the plot area and lightly incorporated with a spike tooth harrow immediately prior to seeding of ‘Barduke’ KBG on August 26, 2009. Preemergence (PRE) herbicide applications were made August 26, 2009, and post-emergence (EPOST and MPOST) applications on October 5 and October 28, 2009. Conditions at time of applications are summarized in Table 1. All treatments were applied with a hand-held CO₂ sprayer delivering 16 gpa at 30 psi. Plots were 6 ft by 35 ft in size, in an RCB arrangement, with 4 replications. Soil at the site was a sandy loam (66.9% sand, 24.9% silt, 8.2% clay, 1.1% organic matter, 6.5 pH, and CEC of 9.1 meq/100g). Plots were swathed on May 28 and harvested on July 8, 2010 with a Hege small plot combine and further cleaned with a ‘Clipper’ cleaner.

Results and Discussion

No Kentucky bluegrass injury was noted from any treatment when observed during September, October, or April evaluations (Table 2). Control of downy brome was fair to good from several treatments when evaluated on October 27, but the level of control declined to mostly unacceptable levels with most

treatments when observed on April 16 (Table 2). The dense downy brome infestation level that resulted from broadcast seeding of that weed contributed to the poor, late-season downy brome control. In addition, seedling Kentucky bluegrass is slow to establish and is a poor competitor with weeds. Split postemergence (EPOST / MPOST) applications of Callisto provided the highest level of downy brome control, especially if combined with a reduced rate of Beacon® (primisulfuron). All treated plots had significantly higher yields than the untreated control plots which averaged only 200 lb/a. Tuper-san® (siduron) (PRE) followed by Callisto (MPOST) had the highest yield at 743 lb/a.

Complete control of common mallow was obtained with all treatments, whether applied PRE or POST. Other trials conducted with Callisto have shown similar results in controlling henbit, and other broadleaf weeds such as various mustards and lambsquarters. Carryover is one consideration for use of Callisto and Beacon in KBG in the Columbia Basin. Currently, there is an 18 month plant-back restriction to sugar beet, pea, dry and snap beans, cucurbits and other rotational crops not specifically listed on the Callisto label.

The use of products in this trial were for experimental purposes and do not imply a product endorsement or recommendation for commercial use. Consult respective herbicide product labels for appropriate use rates, application timings, and other restrictions. Support for this work has been contributed by the Washington State Turfgrass Seed Commission and the USDA-CSREES-Grass Seed Cropping Systems for a Sustainable Agriculture program.

Table 1. Conditions at time of herbicide applications.

	Aug. 26, 2008	Oct. 5, 2009	Oct. 28, 2009
Kentucky bluegrass growth stage	Preemergence	1-3 tiller	2-4 tiller
Downy brome growth stage	Preemergence	8-10 tiller	fully tillered
Timing	PRE	EPOST	MPOST
Air temp (F)	82	54	48
Relative humidity (%)	42	54	74
Wind velocity (mph)	NW @ 3	N @ 4	calm
Soil temp 1 inch (F)	84	60	43

Table 2. Downy brome control in seedling Kentucky bluegrass, Hermiston, OR.

Treatment ¹	Product rate per acre	Timing ²	Downy brome			Seed control 4/16/10	yield 7/8/10 (lb/a)
			Crop injury 10/27/09	4/16/10	(%)		
Untreated control	--	--	0	0	0	200	
Beacon / Beacon	0.375 oz / 0.375 oz	EPOST / MPOST	0	0	75	532	
Beacon / Callisto	0.375 oz / 3 fl oz	EPOST / MPOST	0	0	73	558	
Beacon / Callisto	0.28 oz / 3 fl oz	EPOST / MPOST	0	0	61	512	
Beacon / Callisto	0.188 oz / 3 fl oz	EPOST / MPOST	0	0	68	466	
Callisto / Callisto	3 fl oz / 3 fl oz	EPOST / MPOST	0	0	80	573	
Callisto / Beacon + Callisto	3 fl oz / 0.188 oz + 3 fl oz	EPOST / MPOST	0	0	85	604	
Tupersan / Callisto	2 lb / 3 fl oz	PRE / MPOST	0	0	71	743	
Callisto / Callisto	3 fl oz / 3 fl oz	PRE / MPOST	0	0	70	582	
LSD (0.05)			NS	NS	9	203	

¹ All EPOST and MPOST treatments included a Crop Oil Concentrate + 32% Nitrogen liquid at 1% and 2.5% v/v, respectively.

²PRE – preemergence treatments applied August 26, 2009, EPOST – postemergence treatments applied October 5, 2009, MPOST – late postemergence treatments applied October 28, 2009.