WetBlade Applications for Broadleaf Weed Control in Cool Season Grasses

Introduction

Land managers who are actively involved in weed management have looked to new herbicide and herbicide application technologies as a means to improve weed control, increase labor efficacy, and decrease long term maintenance costs. One of these new application technologies, the WetBlade, allows for a combination of mowing and herbicide application in 1 machine. The herbicide solution is applied by a wiping or wicking principle as the mowing blades cut vegetation. This technology holds promise for land managers, especially roadside vegetation managers. The WetBlade could allow for a mowing cycle that has already been scheduled and an herbicide application to be performed in a low visible manner. The WetBlade has been tested previously in Kentucky for woody plant control but not for herbaceous broadleaf weeds. A trial was installed in 2007 to examine several herbicide treatments applied through the WetBlade system for Canada thistle and goldenrod control.

Methods and Materials

The trial was located in a tall fescue field at the University of Kentucky Agricultural Experiment Station Spindletop Farm in Lexington, KY. Previous management of the site was frequent mowing although no mowing was performed after the spring of 2007. The area was dominated by tall fescue. Dominate weeds included Canada thistle and tall goldenrod while amur honeysuckle, tall ironweed, and other species were present as well. Five herbicide treatments were evaluated in a randomized complete block design with 3 replications. Plots measured 20' by 100' with the WetBlade mower having an 8' effective width. This left a 4' running check for comparison purposes after 2 passes per plot. Plots were treated at 2.5 GPA on June 15, 2007. Data were collected 20 and 62 DAT and included visual percent control of Canada thistle, Canada goldenrod, and overall broadleaf weed control. Data were analyzed in ARM and treatment means were separated using Fisher's LSD at $p = 0.05$.

Results

The initial evaluation of weed control 20 DAT showed promising and effective results. There were no differences between treatments for Canada thistle control, Canada goldenrod control, and overall weed control 20 DAT (Table 1). Canada thistle control ranged from 87 % to 92 %. Canada goldenrod control was not as high nor a s equally consistent as Canada thistle as control levels ranged from 43 % to 67 %. Overall weed control levels ranged from 72 % to 75 %. Control levels decreased dramatically from 20 DAT to 62 DAT for both Canada thistle and Canada goldenrod as well as for overall weed control. An unacceptable amount of resprouting was noted with Canada thistle across all treatments. Control levels ranged from 27 % with ForeFront R & P to 10 % with 2,4-D amine. There were no significant differences in Canada goldenrod control between treatments and control levels ranged from 24 % with the ForeFront R & P

treatment and 10 % with the 2,4-D amine treatment. ForeFront R & P resulted in a significantly higher level of overall weed control than 2,4-D amine 62 DAT; however, control levels for all treatments were unacceptable.

The effective burndown of Canada thistle and the appearance on Canada goldenrod control 20 DAT showed much promise. The decrease in control levels may be indicative of a too high of application rate (i.e. 2.5 GPA). Further testing is needed to determine if a lower application rate (1 – 1.5 GPA or less) would prove to be effective.

Table 1: Treatments and results for WetBlade applications on broadleaf weed control

Treatment	Rate per acre	v/v rate	Percent Control					
			20 DAT			62 DAT		
			Canada thistle	Canada goldenrod	Overall	Canada thistle	Canada goldenrod	Overall
Milestone VM	7 fl oz	2.19 %	90 a	53 a	72 a	22 ab	18 a	20 ab
ForeFront R&P	42 fl oz	13.1 %	88 a	67 a	73 a	27 a	24 a	25 a
2,4-D amine	64 fl oz	20 %	87 a	67 a	72 a	10 b	10 a	10 b
Garlon 3A	85 fl oz	26.6 %	88 a	63 a	75 a	20 ab	20 a	20 ab
Banvel	24 fl oz	7.5 %	92 a	43 a	72 a	17 ab	17 a	17 ab

Note: Treatment means in the same column followed by the same letter are not statistically different using Fisher's LSD at p = 0.05.