

Reduced-Risk Weed Management

Kurt Hockemeyer, Bruce Schweiger, and Paul Koch, Ph.D.
University of Wisconsin - Madison
Department of Plant Pathology

OBJECTIVE

To determine the efficacy of various reduced-risk herbicides primarily for the control of various broadleaf weeds in a lawn.

MATERIALS AND METHODS

The study was conducted at the O.J. Noer Turfgrass Research and Education Facility in Madison, WI on lawn height Kentucky bluegrass/perennial ryegrass mixture with heavy weed infestations. The individual plots measured 3 ft X 10 ft and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 p.s.i using a CO₂ pressurized boom sprayer equipped with XR Teejet AI8004 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft², except for Adios herbicide, which was applied in 4.5 gallons of water per 1000 ft². One herbicide application was initiated on 10/30/2015, while the rest were initiated in the spring of 2016 on various dates with various reapplications according to label directions. Weed counts were conducted 3 times in spring/summer of 2016. Results were subjected to an analysis of variance and means were separated using Fisher's LSD ($P = 0.05$). Results are displayed in Tables 1 and 2.

RESULTS AND DISCUSSION

Weed infestations were very high when the trial was initiated, and all treatments on at least one rating date were significantly better than the nontreated control (Table 1). On the May 9th rating date, only 4 of the 8 herbicides performed better than the control. Larger differences were observed on the June 9th rating date with 7 of the 8 herbicides performing better than the control., with Trimec 1000 and Defendor-Spring performing the best. On the July 12th rating date, creeping charlie made a resurgence and weed percentages went back up from the previous rating date. Only 5 of the 8 herbicides performed better than the control on July 12th, with Trimec 1000 averaging 5.56%, while Defendor-Spring, Defendor-Fall, Turflon Ester Ultra, and Adios ranged from 24-44% weeds. Quicksilver, Tenacity, Fiesta, and the control averaged from 48-66% weeds.

On the first rating date, significant differences were observed in how many dandelions were present and how many of those dandelions were blooming (Table 2). While the majority of treatments had many blooming dandelions (average of 163 per plot), Defendor-Fall and Defendor-Spring averaged very close to zero blooming dandelions. Defendor-Fall also suppressed unbloomed dandelions very close to zero. Defendor-Spring averaged 70.8 unbloomed dandelions per plot, but still contained less total dandelions than all other treatments.

Table 1. Mean percent weeds per treatment at the OJ Noer Turfgrass Research and Education Facility in Madison, WI in 2016.

Treatment	Rate	Application Date	Percent Weeds ^a		
			May 9	Jun 9	Jul 12
1 Non-treated control			77.08a	61.11a	66.67a
2 Fiesta	25.2 fl oz/1000 ft ²	4/29, 5/19	45.83b	33.33c	51.39ab
3 Tenacity	5 fl oz/A	4/29, 5/19	76.39a	13.89d	48.61ab
4 Quicksilver	2 fl oz/A	4/29, 5/19	48.61b	43.75bc	48.61ab
5 Adios	192 fl oz/1000 ft ²	5/2, 5/19, 5/31	64.58a	48.61ab	44.45b
6 Defendor-Spring	4 fl oz/A	4/12, 5/19	38.89b	13.88d	24.31c
7 Defendor-Fall	4 fl oz/A	10/30	34.72b	38.89bc	34.72bc
8 Turflon Ester Ultra	0.5 qts/A	4/29, 5/31	72.92a	37.50bc	34.03bc
9 Trimec 1000	1.5 fl oz/1000 ft ²	4/29, 5/31	64.59a	18.75d	5.56d

^aWeeds were visually assessed using a 36-point grid and tallying weeds at each point per plot. Means in each column followed by the same letter do not significantly differ (P=.05, Fisher LSD).

Table 2. Mean bloomed and unbloomed dandelion counts per treatment at the OJ Noer Turfgrass Research and Education Facility in Madison, WI on May 9th, 2016.

Treatment	Rate	Application Date	Dandelion Counts ^a	
			Bloomed	Unbloomed
1 Non-treated control			196.8a	11.9b
2 Fiesta	25.2 fl oz/1000 ft ²	4/29, 5/19	109.8b	14.4b
3 Tenacity	5 fl oz/A	4/29, 5/19	185.8a	8.3b
4 Quicksilver	2 fl oz/A	4/29, 5/19	168.5ab	16.5b
5 Adios	192 fl oz/1000 ft ²	5/2, 5/19, 5/31	171.0ab	26.7ab
6 Defendor-Spring	4 fl oz/A	4/12, 5/19	0.0c	70.8a
7 Defendor-Fall	4 fl oz/A	10/30	0.3c	0.6c
8 Turflon Ester Ultra	0.5 qts/A	4/29, 5/31	153.8ab	28.2ab
9 Trimec 1000	1.5 fl oz/1000 ft ²	4/29, 5/31	160.3ab	17.9ab

^aDandelion counts were visually assessed on 5/9/16. Means in each column followed by the same letter do not significantly differ (P=.05, Fisher LSD).