

## Effects of Fiesta on Broadleaf Weeds and Turf Quality

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### Introduction

Interest in eco-friendly, or green herbicides, has grown recently. Some homeowners are looking for alternative products they feel are safer for the environment. Eco-friendly herbicides commonly use organic oils or minerals that dissipate faster than traditional herbicides, which decreases the restriction period of the herbicide. These organic herbicides are contact herbicides and often require multiple applications for effective weed control. The objective of this study was to determine what application rates and frequency of applications allowed for similar weed control compared with a conventional herbicide.

### Materials and Methods

Research was conducted at the Iowa State University Horticulture Research Station, Ames, Iowa, on an existing Kentucky bluegrass (*Poa pratensis*) stand infested with broadleaf weeds. Dandelion (*Taraxacum officinale*) was the most prominent weed. The Kentucky bluegrass stand was on a native soil rootzone and received 2 lb of nitrogen fertilizer per 1,000 ft<sup>2</sup> spread out during the growing season.

The experimental design was a randomized complete block with four replications. Treatments included an untreated control; Fiesta (Iron HEDTA) at three different rates (12.6 oz., 25.2 oz., and 50 oz./1,000 ft<sup>2</sup>) applied at two different application intervals (14-day, 28-day); and industry conventional

standard Trimec Classic (1.5 oz./1,000 ft<sup>2</sup>) applied once. Treatments were applied using a CO<sub>2</sub>-pressurized backpack spray system with TeeJet 8002VS nozzles calibrated to spray one gallon of water/1,000 ft<sup>2</sup>. Initial application of the treatments was July 10, 2018.

Visual turf color (1-9 scale with 1 being yellow and 9 being dark green, and 6 or greater being acceptable), quality ratings (1-9 scale with 6 or greater being acceptable), and percent of weeds (0-100% scale) covering the plots were collected weekly. Data was analyzed using SAS at the 0.05 level of significance and means were separate with Fishers LSD.

### Results and Discussion

There was a significant treatment effect on turf quality ratings for 3 of the 11 rating dates (Table 1). All of the Fiesta treatments resulted in significantly lower turf quality compared with the untreated control and Trimec Classic. The Fiesta treatments were below acceptable standards by the second rating date. Some foliar burn occurred with the Fiesta treatments. However, all treatments recovered to acceptable quality by the end of the trial. Trimec Classic was the only treatment with acceptable turf quality on every rating date.

All of the treatments resulted in lower percent weed cover compared with the control (Table 2). The Fiesta treatments provided the quickest reduction in percent weed cover, but the percent weed cover increased soon after. Fiesta is a contact herbicide, so this quick reduction in percent weed cover was expected. Trimec Classic had the lowest percent weed cover at the end of the trial. Although Fiesta treatments did not produce the same results as Trimec Classic, these still could be used in rotation with traditional herbicides or used as part of a long-term weed management plan.

**Table 1. Visual turf quality of Kentucky bluegrass subjected to various herbicide applications and timings, 2018.**

Treatment <sup>a</sup>	Application rate (fl oz/1,000 ft <sup>2</sup> )	Application interval	Weeks after initial treatments										
			0	1	2	3	4	5	6	7	8	9	15
Fiesta	12.6	14-Day	7.8 <sup>b</sup>	5.5	6.0	4.8	6.3	6.5	7.3	7.5	7.8	8.0	7.3
Fiesta	12.6	28-Day	7.8	5.5	5.3	6.3	7.0	6.8	7.8	7.8	8.0	8.0	7.3
Fiesta	25.2	14-Day	7.3	5.8	5.5	5.5	6.8	6.5	7.3	7.5	7.8	7.8	7.8
Fiesta	25.2	28-Day	7.5	5.0	5.5	6.0	7.3	6.0	7.3	8.0	8.3	7.5	6.8
Fiesta	50	14-Day	7.5	5.3	4.5	5.5	6.8	6.8	7.3	7.0	7.8	7.3	6.8
Fiesta	50	28-Day	7.8	5.3	5.8	6.0	7.5	6.8	7.5	8.0	8.3	7.3	7.5
Trimec Classic	1.5	Applied once	7.8	7.0	6.5	6.8	7.3	7.0	7.8	8.0	8.3	8.3	7.0
Untreated	-	-	7.3	7.8	7.3	7.5	7.5	7.8	8.3	8.3	8.3	7.8	6.5
LSD (0.05) <sup>c</sup>			NS <sup>d</sup>	1.15	0.87	1.03	NS						

<sup>a</sup>All treatments included crop oil in tank mix (1% v/v).

<sup>b</sup>Turf quality ratings 1-9, 1 = poorest or dead turf and 9 = outstanding or ideal turf. A rating 6 or above is acceptable.

<sup>c</sup>Means were separated using Fisher's LSD.

<sup>d</sup>NS = not significant at the alpha level = 0.05.

**Table 2. Percent of weed cover after various herbicide applications and timings, 2018.**

Treatment <sup>a</sup>	Application rate (fl oz/1,000 ft <sup>2</sup> )	Application Interval	Weeks after initial treatments										
			0	1	2	3	4	5	6	7	8	9	15
Fiesta	12.6	14-Day	83 <sup>b</sup>	15	41	3	15	14	23	11	21	39	63
Fiesta	12.6	28-Day	76	14	36	58	74	41	61	81	85	26	78
Fiesta	25.2	14-Day	85	9	19	4	28	11	26	5	20	34	60
Fiesta	25.2	28-Day	74	6	24	45	64	25	24	44	61	9	53
Fiesta	50	14-Day	76	4	20	4	15	6	16	3	10	28	60
Fiesta	50	28-Day	81	4	14	34	64	13	21	61	65	5	46
Trimec Classic	1.5	Applied once	85	58	38	10	3	3	7	14	16	23	28
Untreated	-	-	85	89	89	86	86	86	85	88	90	90	86
LSD (0.05) <sup>c</sup>			NS <sup>d</sup>	9.9	12.5	14.4	17.7	11.4	13.6	13.1	12.6	11.2	18.6

<sup>a</sup>All treatments included crop oil in tank mix (1% v/v).

<sup>b</sup>Percent weed cover 0-100, 0 = no weeds present and 100 = plots completely covered with weeds.

<sup>c</sup>Means were separated using Fishers LSD.

<sup>d</sup>NS = not significant at the alpha level = 0.05.