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Herbicide Efficacy Trial

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Abstract
The objectives of the 2009 BASF Herbicide Efficacy Trial were to compare the effectiveness of Drive XLR8 to Drive 75DF in order to demonstrate enhanced efficacy, and to compare Drive XLR8 to other postemergence crabgrass herbicides applied at a multi-leaf (2 to 4 leaf) stage and at a multi-tiller (1 to 2 tiller) stage.

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Herbicide Efficacy Trial

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Introduction

The objectives of the 2009 BASF Herbicide Efficacy Trial were to compare the effectiveness of Drive XLR8 to Drive 75DF in order to demonstrate enhanced efficacy, and to compare Drive XLR8 to other postemergence crabgrass herbicides applied at a multi-leaf (2 to 4 leaf) stage and at a multi-tiller (1 to 2 tiller) stage.

Materials and Methods

This study was conducted at the Iowa State University Horticulture Research Station. The soil in the study area is a disturbed Nicollet clay soil, with Moonlight Kentucky bluegrass. The study was designed as a split-plot, with whole plots arranged in a randomized complete block (RCBD) design. The RCBD consisted of four replications and six treatments (Table 1), including an untreated control.

The first treatments (multi-leaf stage) were applied June 17, while the second treatments (multi-tiller stage) were applied on the adjacent split-plot on July 2. Treatments were applied using a CO_2 backpack sprayer at 40 psi, and a spray volume equivalency rate of three gallons/1000 ft^2, using TeeJet® 8002VS nozzles. Treatments, with the exception of Acclaim, were applied using either a non-ionic surfactant or methylated seed oil, according to labeled rates.

Data collected included percentage cover of crabgrass, phytotoxicity to crabgrass following treatments, and phytotoxicity to bluegrass, if any, following treatments.

Results and Discussion

As a general trend, products applied at the multi-tiller stage provided better crabgrass control than when the products were applied at the multi-leaf stage. However, the Acclaim treatment was the only statistically unique product in terms of crabgrass control between the early and late postemergence application (Table 2). The early postemergence application of Acclaim provided the least, while the late postemergence application provided the best control of crabgrass of all products, numerically, at the end of the growing season.

Phytotoxicity to the bluegrass was minimal. There was very little phytotoxicity following the first application (Table 3), with plots treated with QuinStar showing some phytotoxicity. Following the late post application, plots treated with mesotrione displayed some sign of phytotoxicity. However, plots treated with Acclaim as a late post treatment displayed the most phytotoxicity. This is consistent with what was observed last season for the same study.

Six days following the late postemergence application, crabgrass in the plots treated with Drive XLR8 displayed the most damage (Table 3). Crabgrass in plots treated with QuinStar displayed similar damage as the plots treated with Drive XLR8.

Table 1. Treatment list for 2009 BASF Crabgrass Trial.

Trt #	Product	Rate	Rate/25 ft^2	MSO Rate
1a and b	Control	-		
2a	Drive XLR8	1.5 oz/1000 ft^2	1.11 mL	0.41 mL
2b	Drive XLR8	1.5 oz/1000 ft^2	1.11 mL	0.41 mL
3a	Drive 75DF	0.367 oz/1000 ft^2	0.26 g	0.41 mL
3b	Drive 75DF	0.367 oz/1000 ft^2	0.26 g	0.41 mL
4a	Acclaim Extra	0.3 oz/1000 ft^2	0.22 mL	
4b	Acclaim Extra	0.64 oz/1000 ft^2	0.47 mL	
5a	QuinStar	0.367 oz/1000 ft^2	0.26 g	0.41 mL
5b	QuinStar	0.367 oz/1000 ft^2	0.26 g	0.41 mL
6a	Mesotrione	5 oz/A	0.085 mL	0.7 mL (NIS)
6b	Mesotrione	5 oz/A	0.085 mL	0.7 mL (NIS)

Table 2. Percentage cover of crabgrass.

Treatment	Timing[†]	June 24	July 1	July 15	July 29	Aug 18
Control	A	12.7	18.3	26.7	33.3	46.7
Control	B	4.7	10.7	18.3	30.0	40.0
Drive XLR8	A	0.0	0.0	5.3	9.0	19.0
Drive XLR8	B	7.7	15.0	0.7	3.7	4.7
Drive 75DF	A	0.0	0.0	6.0	11.7	21.7
Drive 75DF	B	18.3	28.3	2.0	5.7	10.7
Acclaim Extra	A	2.3	6.0	23.3	28.3	46.7
Acclaim Extra	B	15.0	30.0	1.0	0.3	1.3
QuinStar	A	0.0	0.0	3.7	10.0	18.3
QuinStar	B	15.0	20.0	0.0	1.0	2.7
Mesotrione	A	0.7	0.7	6.3	10.7	15.0
Mesotrione	B	20.0	31.7	7.7	8.7	14.3
LSD (0.05)		9.4	14.1	11.7	13.2	19.6

[†]A = applied pre-tiller, B = applied multi-tiller.

Table 3. Phytotoxicity ratings for bluegrass and crabgrass.[1]

	Phyto to blue		Phyto CG
Treatment	June 24	July 15	July 8
Control	9.0	9.0	9.0
Control	9.0	9.0	9.0
Drive XLR8	9.0	9.0	9.0
Drive XLR8	9.0	9.0	2.3
Drive 75DF	9.0	9.0	9.0
Drive 75DF	9.0	9.0	3.3
Acclaim Extra	9.0	9.0	9.0
Acclaim Extra	9.0	7.7	6.7
QuinStar	8.0	9.0	9.0
QuinStar	9.0	9.0	2.7
Mesotrione	9.0	9.0	9.0
Mesotrione	9.0	8.3	5.7
LSD (0.05)	0	0.4	0.6

[1]Ratings based on 9-1 scale, with 9 = highest quality; 1 = lowest quality; 6 = minimally acceptable turf.