

# Evaluation of Certainty Herbicide® on Lawn Height Kentucky Bluegrass

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## Introduction

Phytotoxicity, quality, and density evaluations were conducted on a mature stand of lawn height 'Park' Kentucky bluegrass (*Poa pratensis*) at the Valentine Turfgrass Research Center, Penn State University, University Park, Pa. The objective of the study was to determine the phytotoxicity, quality, and density of Kentucky bluegrass populations after applications of Certainty Herbicide®.

## Methods and Materials

The study was a randomized complete block design with three replications (Figure 1). Plot size for the study was 30 ft<sup>2</sup>. Treatments were applied on June 4 (JUNE), June 30 (4 WAT), August 4 (8 WAT), and September 1, 2009 (12 WAT) using a three foot CO<sub>2</sub> powered boom sprayer calibrated to deliver 40 gpa using one, flat fan, TP9504EVS nozzle at 40 psi.

The test site was mowed at two inches twice weekly with a rotary mower with clippings returned to the site. The site was fertilized and irrigated similar to a home lawn or golf course rough.

## Results and Discussion

Turfgrass phytotoxicity, quality, and density were rated nine times each during the study (Table 1, 2 and 3 respectively). Only turfgrass treated with Certainty applied four times revealed unacceptable phytotoxicity and quality on the 9/10 rating date. There was no unacceptable phytotoxicity or quality found on any other rating date.

Turfgrass density was never rated below 92 percent cover on any rating date.

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**Table 1.** Evaluations of Kentucky bluegrass phytotoxicity where 0 = worst, 7 = acceptable, and 10 = no phytotoxicity in 2009.

Treatment	Form	Rate oz/A	Timing	(-----Phytotoxicity-----)				
				6/19	7/2	7/16	7/30	8/13
CERTAINTY	75WG	0.75	JUNE/4 WAT	7.8	10.0	8.0	10.0	10.0
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT					
CERTAINTY	75WG	0.5	JUNE/4 WAT	8.3	10.0	9.0	10.0	10.0
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT					
CHECK				10.0	10.0	10.0	10.0	10.0
CERTAINTY	75WG	0.5	JUNE/4/8 WAT	8.7	10.0	8.3	10.0	8.8
ACTIVATOR 90		0.25% v/v	JUNE/4/8 WAT					
CERTAINTY	75WG	0.5	JUNE/4/8/12 WAT	8.3	10.0	8.7	10.0	8.3
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT					
CERTAINTY	75WG	0.25	JUNE/4/8/12 WAT	9.3	10.0	8.8	10.0	9.3
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT					

**Table 1 (continued).** Evaluations of Kentucky bluegrass phytotoxicity where 0 = worst, 7 = acceptable, and 10 = no phytotoxicity in 2009.

Treatment	Form	Rate oz/A	Timing	(-----Phytotoxicity-----)			
				8/27	9/10	9/24	10/8
CERTAINTY	75WG	0.75	JUNE/4 WAT	10.0	10.0	10.0	10.0
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT				
CERTAINTY	75WG	0.5	JUNE/4 WAT	10.0	10.0	10.0	10.0
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT				
CHECK				10.0	10.0	10.0	10.0
CERTAINTY	75WG	0.5	JUNE/4/8 WAT	10.0	10.0	10.0	10.0
ACTIVATOR 90		0.25% v/v	JUNE/4/8 WAT				
CERTAINTY	75WG	0.5	JUNE/4/8/12 WAT	10.0	6.0	7.7	10.0
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT				
CERTAINTY	75WG	0.25	JUNE/4/8/12 WAT	10.0	6.3	7.0	10.0
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT				

**Table 2.** Evaluations of Kentucky bluegrass quality where 0 = poor quality and 10 = highest quality in 2009.

Treatment	Form	Rate oz/A	Timing	Quality				
				6/19	7/2	7/16	7/30	8/13
CERTAINTY	75WG	0.75	JUNE/4 WAT	7.0	7.5	7.0	8.5	8.2
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT					
CERTAINTY	75WG	0.5	JUNE/4 WAT	7.2	7.5	7.8	8.5	8.2
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT					
CHECK				7.2	7.5	8.2	8.5	8.0
CERTAINTY	75WG	0.5	JUNE/4/8 WAT	7.3	7.5	7.7	8.5	8.0
ACTIVATOR 90		0.25% v/v	JUNE/4/8 WAT					
CERTAINTY	75WG	0.5	JUNE/4/8/12 WAT	7.2	7.5	7.5	8.5	7.8
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT					
CERTAINTY	75WG	0.25	JUNE/4/8/12 WAT	7.3	7.5	7.8	8.5	7.8
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT					

**Table 2 (continued).** Evaluations of Kentucky bluegrass quality where 0 = poor quality and 10 = highest quality in 2009.

Treatment	Form	Rate oz/A	Timing	Quality			
				8/27	9/10	9/24	10/8
CERTAINTY	75WG	0.75	JUNE/4 WAT	8.5	8.3	8.5	8.0
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT				
CERTAINTY	75WG	0.5	JUNE/4 WAT	8.5	8.5	8.5	8.0
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT				
CHECK				8.5	8.2	8.5	8.0
CERTAINTY	75WG	0.5	JUNE/4/8 WAT	8.5	8.5	8.5	8.0
ACTIVATOR 90		0.25% v/v	JUNE/4/8 WAT				
CERTAINTY	75WG	0.5	JUNE/4/8/12 WAT	8.5	6.0	8.0	8.0
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT				
CERTAINTY	75WG	0.25	JUNE/4/8/12 WAT	8.5	6.0	8.0	8.0
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT				

**Table 3.** Evaluations of percent Kentucky bluegrass density on a scale 0 – 100%, taken in 2009.

Treatment	Form	Rate oz/A	Timing	Density <sup>1</sup>				
				6/19	7/2	7/16	7/30	8/13
CERTAINTY	75WG	0.75	JUNE/4 WAT	93.3ab	95.0a	95.0a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT					
CERTAINTY	75WG	0.5	JUNE/4 WAT	92.0b	95.0a	98.0a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT					
CHECK				95.0ab	95.0a	97.0a	98.0a	98.0a
CERTAINTY	75WG	0.5	JUNE/4/8 WAT	96.0a	95.0a	96.0a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4/8 WAT					
CERTAINTY	75WG	0.5	JUNE/4/8/12 WAT	95.0ab	95.0a	96.0a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT					
CERTAINTY	75WG	0.25	JUNE/4/8/12 WAT	95.0ab	95.0a	97.7a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT					

1 - Means followed by same letter do not significantly differ (P=0.05, Duncan's New MRT)

**Table 3 (continued).** Evaluations of percent Kentucky bluegrass density on a scale 0 – 100%, taken in 2009.

Treatment	Form	Rate oz/A	Timing	Density <sup>1</sup>			
				8/27	9/10	9/24	10/8
CERTAINTY	75WG	0.75	JUNE/4 WAT	95.0a	97.7a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT				
CERTAINTY	75WG	0.5	JUNE/4 WAT	95.0a	97.0a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4 WAT				
CHECK				95.0a	97.3a	98.0a	98.0a
CERTAINTY	75WG	0.5	JUNE/4/8 WAT	95.0a	97.7a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4/8 WAT				
CERTAINTY	75WG	0.5	JUNE/4/8/12 WAT	95.0a	97.0a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT				
CERTAINTY	75WG	0.25	JUNE/4/8/12 WAT	95.0a	97.0a	98.0a	98.0a
ACTIVATOR 90		0.25% v/v	JUNE/4/8/12 WAT				

1 - Means followed by same letter do not significantly differ (P=0.05, Duncan's New MRT)



*Figure 1: Overview of the Kentucky bluegrass test area. Photo taken August 26, 2009.*