

Preemergence Crabgrass Control with Various Herbicides

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SUMMARY: Crabgrass (*Digitaria* spp.) is often considered to be the most problematic weed in lawns. Crabgrass is a summer annual grassy weed that typically germinates in April in the Midwest (early April in southern areas and late-April in northern areas). The best approach to controlling crabgrass is using a preemergence herbicide such as dithiopyr (Dimension), pendimethalin (Pendulum), prodiamine (Barricade), sulfentrazone + prodiamine (Echelon), and others. The objective of this experiment was to evaluate Quali-Pro's new prodiamine liquid formulation and compare to other preemergence herbicides for efficacy of crabgrass. All preemergence treatments performed better than the untreated check on all rating dates. Quali-Pro Prodiamine 65WDG and Barricade 65WDG performed the same on all rating dates and QP Dithiopyr 40WP and Dimension Ultra 40WP had equal control on all rating dates. QP Dithiopyr 40WP, Barricade 65WDG, and Dimension Ultra 40WP had lower percent coverage of crabgrass than QP Prodiamine 4L and Barricade 4L when rated on 1 September, and despite delivering the same amount of active ingredient, Quali-Pro Prodiamine 65 WDG and Barricade 65WDG reduced crabgrass coverage more than QP Prodiamine 4L and Barricade 4L, but it is not clear why these formulation differences occurred.

Large crabgrass (*Digitaria sanguinalis*) and smooth crabgrass (*Digitaria ischaemum*) are both species of crabgrass found in the Midwest that are collectively referred to as crabgrass. Crabgrass is often considered to be the most problematic weed in lawns. Crabgrass is a summer annual grassy weed that typically germinates in April in the Midwest (early April in southern areas and late-April in northern areas). Proper mowing (higher mowing heights), proper fertilization (some rather than none to improve turf density), irrigation to prevent summer dormancy during drought, and aerification of compacted areas to improve turf health are all cultural practices that can be used to reduce crabgrass. Despite proper cultural practices, crabgrass may still remain problematic in certain "hot spots" such as next to sidewalks and

driveways as well as sunny areas. The best approach to controlling crabgrass is using a preemergence herbicide such as dithiopyr (Dimension), pendimethalin (Pendulum), prodiamine (Barricade), sulfentrazone + prodiamine (Echelon), and others. These herbicides inhibit cell division and prevent crabgrass seeds from properly emerging. Since these herbicides work on germinating seeds, they must be applied prior to germination with the exception of dithiopyr which controls crabgrass before and after germination until it reaches one tiller. The objective of this experiment was to evaluate Quali-Pro's new post-patent prodiamine liquid formulation and compare to other preemergence herbicides for efficacy of crabgrass.

MATERIALS AND METHODS

The experiment was conducted at the W.H. Daniel Turfgrass Research and Diagnostic Center in West Lafayette, IN. The area was an established Kentucky bluegrass blend with a history of crabgrass pressure. Experimental design was randomized complete block with three replications and an individual plot size of 25 ft². Plots were mown as needed at 2 inches. Plots were treated with herbicides on 26 April. Herbicides were applied

ADDITIONAL INDEX WORDS:

Barricade, Dimension, dithiopyr, prodiamine, Quali-Pro.

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in 30 gpa water with a CO₂-pressurized sprayer at 30 psi. Crabgrass coverage was visually rated. All data were analyzed using SAS (SAS Institute, Inc). Means separated using Fisher's protected least significant difference when F tests were significant at $\alpha=0.05$.

RESULTS AND DISCUSSION

All treatments performed better than the check on all rating dates (Table 1). Quali-Pro Prodiamine 65WDG and Barricade 65WDG performed the same on all rating dates. QP Dithiopyr 40WP and Dimension Ultra 40WP had equal control

on all rating dates. QP Prodiamine 4L was statistically better than Barricade 4L when rated on 1 September but neither were commercially acceptable. QP Dithiopyr 40WP, Barricade 65WDG, and Dimension Ultra 40WP had lower percent coverage of crabgrass than QP Prodiamine 4L and Barricade 4L when rated on 1 Sept. Despite delivering the same amount of active ingredient, Quali-Pro Prodiamine 65 WDG and Barricade 65WDG reduced crabgrass coverage more than QP Prodiamine 4L and Barricade 4L, but it is not clear why these formulation differences occurred.

Table 1. Preemergence herbicide effects on crabgrass coverage.

Herbicide	rate	Crabgrass coverage			
		9 June	28 June	5 Aug	1 Sept
		%			
Untreated	--	12 a ^a	62 a	99 a	98 a
QP Prodiamine 4L	24 fl oz/A	0 b	2 b	20 b	27 c
Quali-Pro Prodiamine 65WDG	1.15 lb/A	0 b	1 b	12 c	18 cd
QP Dithiopyr 40WP	1.25 lb/A	0 b	0 b	4 d	8 e
Barricade 4L	24 fl oz/A	0 b	1 b	25 b	37 b
Barricade 65WDG	1.15 lb/A	0 b	0 b	7 cd	12 de
Dimension Ultra 40WP	1.25 lb/A	0 b	0 b	8 cd	15 de
P-value		<0.0001	<0.0001	<0.0001	<0.0001

^a Means followed by the sample letter are not significantly different.