

Preemergence Herbicide Demonstration in Corn

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Introduction

The purpose of this study was to evaluate crop injury and weed control for preemergence herbicide programs in corn.

Materials and Methods

The study was established using a randomized complete block design with three replications. Herbicides were applied in 15 gallons of water/acre. The crop rotation was corn following soybean. The pre-plant seedbed was prepared with a field cultivator, and corn was planted at 35,600 seeds/acre in 30-in. rows on June 1. The first rep of treatments was unplanted for demonstration purposes. Preemergence (PRE) herbicide treatments were applied June 1. Weed species in the study included woolly cupgrass, common waterhemp, and eastern black nightshade. Weed densities were very low (especially for woolly cupgrass) with average population densities of < 5 plants/plot. Common waterhemp emergence improved late in the season. Visual estimates of corn injury and percentage weed control were made during the growing season. These observations are compared with an untreated control and made on a zero to 99 rating scale (0 percent = no control or injury; 99 percent = complete control or crop kill).

Results and Discussion

Summarized in Tables 1 and 2 are the results of the study. None of the PRE treatments caused corn injury, and all treatments provided complete weed control through June 22, 21 days after the PRE application

(data not shown). All treatments provided excellent weed control through July 2, 31 days after application (Table 1). Parallel Plus gave 93 percent control of common waterhemp, and the remaining treatments provided 99 percent control. All treatments gave complete control of woolly cupgrass and eastern black nightshade.

All treatments still provided 99 percent control of woolly cupgrass July 23, 52 days after application (Table 2). Common waterhemp control was 80, 90, and 93 percent and eastern black nightshade control was 96, 93, and 93 percent for Parallel Plus, Corvus and Bicep Lite II Magnum, respectively. All other treatments gave 99 percent control of common waterhemp and eastern black nightshade.

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Mike Owen, extension weed specialist and project leader of the Weed Science Research and Demonstration Program since 1984, retired in 2018. We thank Mike for 35 years of guidance and faithful service to Iowa growers and the crop protection industry. Prashant Jha, Montana State University, will succeed Mike as the new extension weed specialist and will continue the leadership role for the Weed Science Research and Demonstration Program. We look forward to continuing this work with Prashant in 2019 and beyond.

Additional research results from numerous sites for 2019 can be downloaded free of charge at the following address:

<https://store.extension.iastate.edu/Topic/Crops/Weeds-and-Weed-Control?S=0&A=0&F=0>

Table 1. Preemergence herbicide demonstration in corn.

Treatment	Rate	Appln timing	Erbvi ^a	Amata	Solam
			Jul 2	Jul 2	Jul 2
	product/acre		----- % weed control -----		
Untreated			0	0	0
Acruon	1.5 qt	PRE	99	99	99
Acuron Flexi	1.125 qt	PRE	99	99	99
Lumax EZ	1.5 qt	PRE	99	99	99
SureStart II	2.5 pt	PRE	99	99	99
Corvus	3.33 fl oz	PRE	99	99	99
Harness Xtra 6SE	1.33 qt	PRE	99	99	99
Bicep Lite II Magnum	1.25 qt	PRE	99	99	99
Parallel Plus	1.25 qt	PRE	99	93	99
LSD (P = .05)			-	6	-

^aErbvi = woolly cupgrass, Amata = common waterhemp, Solam = eastern black nightshade.

Table 2. Preemergence herbicide demonstration in corn.

Treatment	Rate	Appln timing	Erbvi ^a	Amata	Solam
			Jul 23	Jul 23	Jul 23
	product/acre		----- % weed control -----		
Untreated			0	0	0
Acruon	1.5 qt	PRE	99	99	99
Acuron Flexi	1.125 qt	PRE	99	99	99
Lumax EZ	1.5 qt	PRE	99	99	99
SureStart II	2.5 pt	PRE	99	99	99
Corvus	3.33 fl oz	PRE	99	90	93
Harness Xtra 6SE	1.33 qt	PRE	99	99	99
Bicep Lite II Magnum	1.25 qt	PRE	99	93	96
Parallel Plus	1.25 qt	PRE	99	80	96
LSD (P = .05)			-	9	8

^aErbvi = woolly cupgrass, Amata = common waterhemp, Solam = eastern black nightshade.