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Weed Management in Corn

Michael D. Owen

Iowa State University, mdowen@iastate.edu

James F. Lux

Iowa State University, jlux@iastate.edu

Damian D. Franzenburg

Iowa State University, dfranzen@iastate.edu

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Weed Management in Corn

Abstract

The purpose of this study was to evaluate various postemergence applied herbicides for crop phytotoxicity and weed control in corn production.

Keywords

Agronomy

Disciplines

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Weed Management in Corn

Micheal D. K. Owen, professor,
James F. Lux, ag specialist,
Damian D. Franzenburg, ag specialist,
Department of Agronomy

Introduction

The purpose of this study was to evaluate various postemergence applied herbicides for crop phytotoxicity and weed control in corn production.

Materials and Methods

The crop rotation was corn following soybean. The seedbed was prepared with fall disking followed by spring field cultivation. Crop residue was 16 percent at planting. A randomized complete block design with three replications was used. Herbicides were applied in 20 gallons of water per acre. Visual estimates of crop 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 100 rating scale (0 percent = no control or injury; 100 percent = complete control or crop kill).

'Dekalb hybrid 545 RR' corn was planted on May 16 and preemergence (PRE) treatments

followed. Early postemergence (EPOST) and postemergence (POST) treatments were applied on June 12 and June 15, respectively. Corn growth stage was V4 and 6 to 7 inches tall on June 12, and on June 15 corn was V5 and 6 to 7 inches tall. Weed growth stage was 1 to 6 leaves and 0.5 to 3 inches tall on June 12. On June 15, weeds were 1 to 8 leaves and 0.5 to 4 inches tall. Weed species occurring in this study included: giant foxtail, common lambsquarters, common waterhemp, and velvetleaf with an average population of 4, 2, 2, and 3 plants/ft², respectively.

Results and Discussion

Summarized in Table 1 are the results of the study. Data on corn injury and percentage weed control as affected by herbicide treatment and postemergence application timing are presented. Significant corn injury from EPOST and POST herbicide applications was observed on June 15. Treatments that included Marksman or Aim in tank-mixtures caused the most injury. When observed on June 27, symptoms continued to persist although injury was now 10% or less. Nearly all treatments provided excellent control of giant foxtail, common lambsquarters, common waterhemp and velvetleaf when observed on June 27. Celebrity and Hornet applied POST did not effectively control velvetleaf.

Table 1. Evaluation of postemergence applied herbicides for weed control in corn.

Treatment ^a	Rate	Appl. time	Injury 6/15	Injury 6/27	Gift 6/27	Colq 6/27	Cowh 6/27	Vele 6/27
	Product/A		---- (%) ---		----- (%weed control ^b) ----			
Control	-	-	0	0	0	0	0	0
Bicep II Magnum 5.5 L+ (Prowl 3.3 EC+Basis Gold 89.5 DF+ COC+AMS)	1.58 qt+ (2.4 pt+14.0 oz+ 1.0 %v/v+2.0 lb/A)	PRE+ (POST)	10	3	99	99	99	96
Guardsman 5 SE+ (Distinct 70 WG+ NIS+28%N)	2.5 qt+ (4.0 oz+ 0.25 %v/v+1.25 %v/v)	PRE+ (POST)	7	2	99	99	99	95
Outlook 6 EC+ (Marksman 3.2 SC+28%N)	17.9 oz+ (3.5 pt+2.5%v/v)	PRE+ (EPOST)	42	10	99	99	99	99
Outlook 6 EC+ (Celebrity Plus 70 WG+ NIS+28%N)	11.9 oz+ (4.8 oz+ 0.25 %v/v+2.5 %v/v)	PRE+ (POST)	10	2	99	99	99	78
Axiom 68 DF+ (Marksman 3.2 SC+28%N)	23.0 oz+ (3.0 pt+2.5%v/v)	PRE+ (EPOST)	35	3	99	99	99	98
Harness 7 EC+ (Hornet WDG 68.5 WG+ COC+AMS)	2.5 pt+ (3.0 oz+ 1.0%v/v+2.0 lb/A)	PRE+ (POST)	7	0	99	99	99	92
Harness 7 EC+ (Hornet WDG 68.5 WG+ NIS+AMS)	2.5 pt+ (3.0 oz+ 0.25 %v/v+2.0 lb/A)	PRE+ (POST)	5	0	99	99	99	88
Balance Pro 4 SC+ (Accent Gold 83.8 DF+COC+28%N)	1.5 oz+ (2.9 oz+1.0 %v/v+2.0 qt/A)	PRE+ (POST)	10	2	99	99	99	99
Leadoff 5 SL+ (Accent Gold 83.8 DF+ Clarity 4 SL+COC+28%N)	0.75 qt+ (2.9 oz+ 4.0 oz+1.0%v/v+2.0 qt/A)	PRE+ (POST)	12	5	99	99	99	96
Dual II Magnum 7.64 EC+ (Aim 40 DF+Atazine 90 DF+NIS)	1.67 pt+ (0.32 oz+0.83 lb+0.25%v/v)	PRE+ (EPOST)	22	5	99	99	99	99
Dual II Magnum 7.64 EC+ (Aim 40 DF+Clarity 4 SL+NIS)	1.67 pt+ (0.32 oz+8.0 oz+0.25%v/v)	PRE+ (EPOST)	33	8	98	99	99	99
Dual II Magnum 7.64 EC+ (Aim 40 DF+ Northstar 47.4 WG+NIS)	1.67 pt+ (0.32 oz+ 5.0 oz+0.25 %v/v)	PRE+ (EPOST)	30	7	99	99	99	99
Dual II Magnum 7.64 EC+ (Northstar 47.4 WG+ NIS+28%N)	1.67 pt+ (5.0 oz+ 0.25 %v/v+2.0 qt/A)	PRE+ (POST)	7	5	98	99	99	92
Topnotch 3.2 CS+ (Resource 0.86 EC+ Atrazine 90 DF+COC)	5.0 pt+ (4.0 oz+ 1.1 lb+1.0 %v/v)	PRE+ (EPOST)	28	10	99	99	99	99
LSD (0.05)			8	6	1	0	0	6

^a COC = Herbimax, an oil plus surfactant and NIS = Activator 90 a non-ionic surfactant penetrant from Loveland Industries; 28%N = mixture of urea and ammonium nitrate.

^b Percent weed control: Gift = giant foxtail, Colq = common lambsquarters, Cowh = common waterhemp, Vele = velvetleaf.