Two-Pass Herbicide Demonstration in Soybean

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Introduction

The purpose of this study was to evaluate various soybean herbicide programs utilizing both preemergence and postemergence applications.

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 soybean following corn. The pre-plant seedbed was prepared with one pass using a disk and a second pass using a field cultivator. Soybean was planted at 189,417 seeds/acre in 30-in. rows May 25. Preemergence (PRE) treatments were applied May 25. Postemergence (POST) treatments were applied June 27 to soybean at the V4 growth stage. Weeds were generally 7–14 in. tall. Weed species in the study included giant foxtail, velvetleaf, and common waterhemp with average populations of 100, 1, and 3 plants/plot, respectively. Visual estimates of soybean injury and percentage weed control were made during the growing season. These observations were 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).

Results and Discussion

Summarized in Tables 1 (June data) and 2 (July data) are the results of the study. None of the PRE treatments exhibited more than 15 percent soybean injury when observed at the POST application timing on June 27. (Table 1). PRE Rowel FX caused 5 percent injury, and Surveil, Enlite, Panther PRO and Fierce MTZ SC caused 12 to 15 percent injury. No other PRE treatments caused injury. Soybean injury from POST treatments was most visible at nine days after application on July 6 (Table 2). POST treatments containing EverpreX, Anthem Maxx, Warrant Ultra, and Storm caused 17–25 percent injury, and Flexstar GT 3.5 + Outlook, Cobra, and Flexstar GT 3.5 + Dual II Magnum caused 35–40 percent injury. Injury levels were generally reduced by half seven days later (data not shown).

Giant foxtail control by PRE Zidua PRO, Zidua SC + Sharpen, Panther PRO, Broadaxe XC, Moccasin MTZ, and Fierce MTZ was similarly effective at 87–96 percent (Table 1). Surveil, Enlite, and Boundary provided 77–82 percent control, and Authority First DF and Rowel FX gave only 58 and 53 percent control, respectively.

PRE Zidua PRO, Surveil, Rowel FX, Panther PRO, Broadaxe XC, Moccasin MTZ, and Fierce MTZ SC gave 87–99 percent velvetleaf control (Table 1). Zidua SC + Sharpen and Authority First DF provided 80 and 72 percent control, respectively. The remaining PRE treatments did not provide more than 58 percent control of velvetleaf.

All PRE treatments provided more than 90 percent common waterhemp control with the exception of 85 percent by Boundary (Table 1).

All treatments afforded complete control of giant foxtail and velvetleaf July 27, 30 days after the POST application (Table 2). Common waterhemp control by all treatments also was excellent with at least 94 percent.

Table 1. Two-pass herbicide demonstration in soybean (June data).

Treatment	Rate	Appln timing	Injury Jun 27	Setfa[f] Jun 27	Abuth Jun 27	Amata Jun 27
	product/acre		- (%) -	(% weed control)		
Untreated	-	-	0	0	0	0
Zidua PRO (Flexstar GT 3.5 + AMS[a] + Outlook + MSO[b])	6.0 fl oz + (2.0 qt + 8.5 lb/100 gal + 10.0 fl oz + 0.5 % v/v[c])	PRE + (POST)	0	90	91	93
Zidua SC + Sharpen + (Roundup PowerMAX + AMS)	4.9 fl oz + 1.0 fl oz + (32.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	0	87	80	93
Surveil + (Abundit Edge + EverpreX + AMS)	4.2 oz wt + (22.0 fl oz + 1.0 pt + 2.0 lb)	PRE + (POST)	12	82	95	98
Enlite + (Abundit Edge + EverpreX + AMS)	3.5 oz wt + (22.0 fl oz + 1.0 pt + 2.0 lb)	PRE + (POST)	12	77	53	91
Authority First DF + (Anthem Maxx + Roundup PowerMAX + AMS)	6.4 oz wt + (2.5 fl oz + 32 fl oz + 8.5 lb/100 gal)	PRE + (POST)	0	58	72	91
Rowel FX + (Warrant Ultra + Roundup PowerMAX + AMS)	3.0 oz wt + (50.0 fl oz + 32.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	5	53	87	96
Panther Pro + (Cobra + COC[d] + Credit Xtreme + AMS)	15.0 fl oz + (10.0 fl oz + 1.0 pt + 32.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	15	96	99	96
BroadAxe XC + (Flexstar GT 3.5 + Dual II Magnum + AMS + MSO)	25.0 fl oz + (3.5 pt + 1.0 pt + 8.5 lb/100 gal + 1.0 % v/v)	PRE + (POST)	0	87	55	92
Boundary + (Flexstar GT 3.5 + Dual Magnum + AMS + MSO)	2.0 pt + (3.5 pt + 1.0 pt + 8.5 lb/100 gal + 1.0% v/v)	PRE + (POST)	0	82	37	85
Moccasin MTZ + (Storm + Roundup PowerMAX + N-Pak AMS Liquid[e])	40.0 fl oz + (24.0 fl oz + 32.0 fl oz + 6.0 pt)	PRE + (POST)	0	87	93	98
Fierce MTZ SC + (Roundup PowerMAX + AMS + Cobra + COC)	1.0 pt + (32.0 fl oz + 2.5 lbs + 12.0 fl oz + 1.0 pt)	PRE + (POST)	13	92	96	99
LSD (P = 0.05)			2	10	12	7

[a]AMS = ammonium sulfate (sprayable fertilizer).
[b]MSO = Succeed Ultra modified vegetable oil
[c]v/v = Volume of product per volume tank mix.
[d]COC = Premium Crop oil concentrate.
[e]N-Pak AMS liquid = ammonium sulfate.
[f]Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp.

Table 2. Two-pass herbicide demonstration in soybean (July data).

Treatment	Rate	Appln timing	Injury Jul 6	Setfa[f] Jul 27	Abuth Jul 27	Amata Jul 27
	product/acre		- (%) -	(% weed control)		
Untreated	-	-	0	0	0	0
Zidua PRO (Flexstar GT 3.5 + AMS[a] + Outlook + MSO[b])	6.0 fl oz + (2.0 qt + 8.5 lb/100 gal + 10.0 fl oz + 0.5 % v/v[c])	PRE + (POST)	33	99	99	99
Zidua SC + Sharpen + (Roundup PowerMAX + AMS)	4.9 fl oz + 1.0 fl oz + (32.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	3	99	99	96
Surveil + (Abundit Edge + EverpreX + AMS)	4.2 oz wt + (22.0 fl oz + 1.0 pt + 2.0 lb)	PRE + (POST)	17	99	99	99
Enlite + (Abundit Edge + EverpreX + AMS)	3.5 oz wt + (22.0 fl oz + 1.0 pt + 2.0 lb)	PRE + (POST)	23	99	99	94
Authority First DF + (Anthem Maxx + Roundup PowerMAX + AMS)	6.4 oz wt + (2.5 fl oz + 32 fl oz + 8.5 lb/100 gal)	PRE + (POST)	25	99	99	95
Rowel FX + (Warrant Ultra + Roundup PowerMAX + AMS)	3.0 oz wt + (50.0 fl oz + 32.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	25	99	99	98
Panther Pro + (Cobra + COC[d] + Credit Xtreme + AMS)	15.0 fl oz + (10.0 fl oz + 1.0 pt + 32.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	35	99	99	99
BroadAxe XC + (Flexstar GT 3.5 + Dual II Magnum + AMS + MSO)	25.0 fl oz + (3.5 pt + 1.0 pt + 8.5 lb/100 gal + 1.0 % v/v)	PRE + (POST)	35	99	99	96
Boundary + (Flexstar GT 3.5 + Dual Magnum + AMS + MSO)	2.0 pt + (3.5 pt + 1.0 pt + 8.5 lb/100 gal + 1.0% v/v)	PRE + (POST)	37	99	99	98
Moccasin MTZ + (Storm + Roundup PowerMAX + N-Pak AMS Liquid[e])	40.0 fl oz + (24.0 fl oz + 32.0 fl oz + 6.0 pt)	PRE + (POST)	25	99	99	99
Fierce MTZ SC + (Roundup PowerMAX + AMS + Cobra + COC)	1.0 pt + (32.0 fl oz + 2.5 lbs + 12.0 fl oz + 1.0 pt)	PRE + (POST)	40	99	99	99
LSD (P=0.05)			5	0	0	5

[a]AMS = ammonium sulfate (sprayable fertilizer).
[b]MSO = Succeed Ultra modified vegetable oil.
[c]v/v = Volume of product per volume tank mix.
[d]COC = Premium Crop oil concentrate.
[e]N-Pak AMS liquid = ammonium sulfate.
[f]Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp.