

# Weed Management in Soybean Production

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## Introduction

The purpose of this study was to evaluate several residual herbicides followed by postemergent applications of Roundup Ultra and others for soybean phytotoxicity and weed control in glyphosate resistant soybean.

## Materials and Methods

The crop rotation was soybean following corn. The seedbed was prepared with chisel plowing in the fall, followed by spring field cultivation. Crop residue was 35 to 40 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).

'Asgrow variety 2401 RR' soybean was planted on May 10 and preemergence (PRE) treatments followed. Postemergence (POST)1 and POST2 treatments were applied on June 15 and June 23, respectively. Soybean was two trifoliolate and 3 to 4 inches tall on June 15, and on June 23 soybean was three to four trifoliolate and 4.5 to 5 inches tall.

Weed growth stage was two to numerous leaves and 1 to 4 inches tall on June 15. On June 23, weeds were one to numerous leaves and were 2.5 to 7 inches tall. POST3 treatments were applied on July 19. Soybean was at the R2 stage of growth and 20 to 24 inches tall. Weeds were two to numerous leaves and 10 to 20 inches tall. Weed species occurring in this study included: giant foxtail, common lambsquarters, common waterhemp, Pennsylvania smartweed, and velvetleaf with an average population of 6, 1, 1, 2, and 1 plants/ft<sup>2</sup>, respectively.

## Results and Discussion

Summarized in Table 1 are the results of the study. Raptor plus Flexstar applied POST2, and POST1 Basagran plus Poast Plus plus Ultra Blazer caused significant soybean injury when observed on July 19. All treatments demonstrated excellent giant foxtail, velvetleaf, common waterhemp, common lambsquarters and Pennsylvania smartweed control on July 19, except FirstRate plus Glyphomax Plus POST2, FirstRate plus Flexstar plus Select POST1 and FirstRate plus Flexstar plus Fusion POST1, which did not provide acceptable control of common lambsquarters. A similar trend was noted on August 8 (data not presented). POST2 applied Raptor plus Flexstar and PRE Outlook followed by POST1 Basagran, Poast Plus and Ultra Blazer each yielded 52 bu/A. The remaining treatments yielded from 57 to 62 bu/A, excluding the untreated check.

**Table 1. Evaluation of preemergence and postemergence applied herbicides for weed control in glyphosate resistant soybeans.**

Treatment <sup>a</sup>	Rate	Appl. time	Injury 7/19	Gift 7/19	Colq 7/19	Cowh 7/19	Pesw 7/19	Vele 7/19	Yield 10/4
	Product/A		- (%) -	-----	(% weed control <sup>b</sup> )	-----			bu/A
Control	-	-	0	0	0	0	0	0	34
Raptor 1AS+	5.0 oz+	POST2	25	91	90	99	94	99	52
Flexstar HL 1.88 SL+Sun-it II+ AMS	1.25 pt+1 %v/v+ 2.5 lb/A								
Extreme 2.17 SL+NIS+ AMS	3.0 pt+0.125 %v/v+ 15 lb/100gal	POST2	7	99	98	85	98	99	58
Outlook 6 EC+ (Basagran 4SL+Poast Plus 1EC+ Ultra Blazer 2 SL+28%N)	11.0 oz+ (2.0 pt+1.6 pt+ 0.64 pt+1.25 %v/v)	PRE+ (POST1)	20	96	87	98	98	99	52
Outlook 6 EC+ (Roundup Ultra 4SL+AMS)	11.0 oz+ (1.0 qt+2.5 lb/A)	PRE+ (POST2)	0	99	96	99	98	99	62
Outlook 6 EC+ Roundup Ultra 4SL+AMS	11.0 oz+ 1.0 qt+2.5 lb/A	POST1	0	99	99	99	99	99	61
FirstRate 84 WG+ Glyphomax Plus 4 SL+AMS	0.3 oz+ 0.75 qt+2.0 lb/A	POST2	3	99	70	85	99	99	58
FirstRate 84 WG+ Flexstar HL 1.88 SL+Select 2EC+ MSO+AMS	0.3 oz+ 0.63 pt+6.0 oz+ 1.0 %v/v+2.0 lb/A	POST1	8	98	68	99	95	99	58
Authority 75 WG+ (Classic 25WG+ Roundup Ultra 4SL+ NIS+28%N)	0.25 lb+ (0.32 oz+ 0.75 qt+ 0.25 %v/v+2 qt/A)	PRE+ (POST1)	0	91	99	99	99	99	62
Command 3ME CS+ Authority 4F+ (Roundup Ultra 4SL+AMS)	0.8 pt+ 4.8 oz+ (0.75 qt+17 lb/100gal)	PRE+ (POST2)	2	99	99	99	99	99	61
FirstRate 84 WG+ Authority 75 WG+ (Roundup Ultra 4SL+AMS)	0.44 oz+ 0.25 lb+ (0.75 qt+17 lb/100gal)	PRE+ (POST2)	0	99	99	99	99	99	61
Micro-tech 4CS+ (Roundup Ultra 4SL+AMS)	2.0 qt+ (1.0 qt+17 lb/100gal)	PRE+ (POST2)	0	96	98	99	93	99	60
Roundup Ultra 4SL+AMS+ (Roundup Ultra 4SL+AMS)	1.0 qt+17 lb/100gal (1.0 qt+17 lb/100gal)	POST1 (POST3)	3	93	98	90	96	94	62
Dual II Magnum 7.64 EC+ (Roundup Ultra 4SL+AMS)	1.25 pt+ (1.0 qt+17 lb/100gal)	PRE+ (POST2)	0	99	99	99	98	99	62
FirstRate 84 WG+ Flexstar HL 1.88 SL+ Fusion 2.66EC+ COC	0.3 oz+ 1.0 pt+ 0.5 pt+1.0 %v/v	POST1	7	99	67	99	99	98	58
Touchdown 3SL+ Flexstar HL 1.88 SL+AMS+ (Touchdown 3SL+AMS)	1.5 pt+ 1.25 pt+4.25 lb/100gal+ (2.0 pt+4.25 lb/100gal)	POST1+ (POST3)	12	99	99	99	99	99	57
LSD (0.05)			4	4	13	8	4	4	4

<sup>a</sup> Sun-it oil = crop oil surfactant adjuvant, a modified vegetable oil surfactant from American Cyanamid; NIS = Activator 90, a nonionic surfactant from Loveland Industries, Inc.; 28%N = mixture of urea and ammonium nitrate; MSO = Methylated seed oil from Loveland Industries, Inc.; COC = Herbimax, an oil plus surfactant from Loveland Industries.

<sup>b</sup> % weed control: Gift = giant foxtail, Colq = common lambsquarters, Cowh = common waterhemp, Pesw = Pennsylvania smartweed, Vele = velvetleaf.