

Weed Management Programs Using Roundup Ready Xtend and LibertyLink Soybean

RFR-A1755

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Introduction

The purpose of this study was to evaluate herbicide programs for Roundup Ready Xtend and LibertyLink soybean for crop injury and weed control.

Materials and Methods

The study was established using a split-plot design with four replications. Herbicides were applied in 15 gallons of water/acre. The crop rotation was soybean following corn. The pre-plant seedbed was prepared with spring disking and field cultivation. PRE treatments were applied May 31. Soybean was planted at 188,000 seeds/acre in 30-in. rows May 29. Postemergence (POST) treatments were applied June 24 to soybean at V2 to V3 growth stages. Weeds were generally 2–5 in. tall at the POST application dates. Weed species in the study included giant foxtail, velvetleaf, and common waterhemp, with average populations of 1, <1 and <1 plants/ft², 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 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 more than 11 percent injury (data not shown), and none of the POST treatments

caused more than 10 percent injury to soybean (Table 1). Giant foxtail control at soybean canopy closure (August 4) by PRE Valor SX or Authority Maxx plus POST Liberty gave 92 and 91 percent control, respectively, compared with 99 percent control for PRE Authority Maxx plus POST Liberty + Zidua (Table 1). Treatments applied to Roundup Ready Xtend soybean gave 95 to 97 percent giant foxtail control. Velvetleaf and common waterhemp control at canopy ranged from 94 to 99 percent for all treatments.

Common waterhemp control at harvest (October 4) varied significantly between treatments planted to LibertyLink soybean with 95, 90 and 98 percent (Table 2). Giant foxtail control was significantly improved when Liberty was tank-mixed with Zidua. There were no significant differences in weed control at harvest between treatments applied to Roundup Ready Xtend soybean. All treatments with Roundup PowerMAX + Xtendimax wVGT provided at least 96 percent weed control at harvest.

Overall, treatments with POST Liberty + Zidua provided weed control similar to treatments with Xtendimax wVGT + Roundup PoweMAX. PRE Authority Maxx plus POST Liberty provided significantly reduced giant foxtail and common waterhemp control without POST Zidua. Soybean yield was similar for the untreated controls planted to Roundup Ready Xtend and LibertyLink soybean. There were no significant differences between any of the herbicide treatments for soybean yield.

Acknowledgements

We thank Ken Pecinovsky and farm staff for their assistance with this study. Funding was provided by Monsanto.

Table 1. Weed management programs utilizing Roundup Ready Xtend and LibertyLink Soybean.

Treatment	Rate	Appln timing	Injury Jul 10	Setfa ^e Aug 4	Abuth Aug 4	Amata Aug 4
	product/acre		- (%) -	(% weed control)		
Roundup Ready Xtend	188,000 seeds					
Untreated	-	-	0	0	0	0
Roundup Ready Xtend	188,000 seeds					
Rowel + (Xtendimax wVGT ^a + Roundup PowerMAX + Intact ^b)	2.0 oz wt + (22.0 fl oz + 32.0 fl oz + 0.5% v/v ^c)	PRE + (POST)	8	95	99	99
Roundup Ready Xtend +	188,000 seeds					
Rowel + Xtendimax wVGT + (Xtendimax wVGT + Roundup PowerMAX + Intact)	2.0 oz wt + 22 fl oz + (22.0 fl oz + 32.0 fl oz + 0.5% v/v)	PRE + (POST)	9	97	99	99
Roundup Ready Xtend	188,000 seeds					
Rowel + Xtendimax wVGT + (Xtendimax wVGT + Roundup PowerMAX + Warrant + Intact)	2.0 oz wt + 22 fl oz + (22.0 fl oz + 32.0 fl oz + 48 fl oz + 0.5% v/v)	PRE + (POST)	10	97	99	98
LibertyLink	188,000 seeds					
Untreated	-	-	0	0	0	0
LibertyLink	188,000 seeds					
Valor SX + (Liberty + AMS ^d)	2.0 oz wt + (29.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	4	92	98	96
LibertyLink	188,000 seeds					
Authority Maxx + (Liberty + AMS)	6.4 oz wt + (29.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	0	91	99	94
LibertyLink	188,000 seeds					
Authority Maxx + (Liberty + Zidua SC+ AMS)	6.4 oz wt + (29.0 fl oz + 3.25 fl oz + 8.5 lb/100 gal)	PRE + (POST)	6	99	98	99
LSD (P = 0.05)			3	5	1	4

^awVGT = with Vapor Grip Technology.

^bIntact = drift control and foliar retention agent, Precision Laboratories.

^cv/v = volume of product per volume tank mix.

^dAMS = ammonium sulfate.

^eSetfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp.

Table 2. Weed management programs utilizing Roundup Ready Xtend and LibertyLink Soybean.

Treatment	Rate	Appln timing	Setfa ^e Oct 4	Abuth Oct 4	Amata Oct 4	Yield Oct 24
	product/acre		(% weed control)			(bu/a)
Roundup Ready Xtend Untreated	188,000 seeds -	-	0	0	0	31
Roundup Ready Xtend Rowel + (Xtendimax wVGT ^a + Roundup PowerMAX + Intact ^b)	188,000 seeds 2.0 oz wt + (22.0 fl oz + 32.0 fl oz + 0.5% v/v ^c)	PRE + (POST)	96	99	99	59
Roundup Ready Xtend + Rowel + Xtendimax wVGT + (Xtendimax wVGT + Roundup PowerMAX + Intact)	188,000 seeds 2.0 oz wt + 22 fl oz + (22.0 fl oz + 32.0 fl oz + 0.5% v/v)	PRE + (POST)	96	99	98	61
Roundup Ready Xtend Rowel + Xtendimax wVGT + (Xtendimax wVGT + Roundup PowerMAX + Warrant + Intact)	188,000 seeds 2.0 oz wt + 22 fl oz + (22.0 fl oz + 32.0 fl oz + 48 fl oz + 0.5% v/v)	PRE + (POST)	97	99	98	59
LibertyLink Untreated	188,000 seeds -	-	0	0	0	36
LibertyLink Valor SX + (Liberty + AMS ^d)	188,000 seeds 2.0 oz wt + (29.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	94	99	95	59
LibertyLink Authority Maxx + (Liberty + AMS)	188,000 seeds 6.4 oz wt + (29.0 fl oz + 8.5 lb/100 gal)	PRE + (POST)	90	99	90	56
LibertyLink Authority Maxx + (Liberty + Zidua SC+ AMS)	188,000 seeds 6.4 oz wt + (29.0 fl oz + 3.25 fl oz + 8.5 lb/100 gal)	PRE + (POST)	99	98	98	57
LSD (P = 0.05)			5	1	5	7

^awVGT = with Vapor Grip Technology.

^bIntact = drift control and foliar retention agent, Precision Laboratories.

^cv/v = volume of product per volume tank mix.

^dAMS = ammonium sulfate.

^eSetfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp.