

## Programs for Weed Control in No-Tillage Xtend Soybean

### RFR-A20117

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### Introduction

The purpose of this study was to evaluate weed control in no-tillage Xtend soybean for various herbicides in programs with preplant plus postemergence applications.

### Materials and Methods

The study was established using a randomized complete block design with three replications. The crop rotation was soybean following soybean. The preplant seedbed was left untilled from the 2019 crop season. Early preplant (EPP) treatments were applied May 9 delivering 15 gallons/acre with 110015TTI tips at 35 psi. Glyphosate and dicamba tolerant soybean, Asgrow AG24X7, was planted at 130,500 seeds/acre in 30-in. rows May 13. Postemergence (POST) treatments were applied June 16 delivering 15 gallons/acre with 110015TTI tips at 35 psi. to soybean at the V3 growth stage. Weed species in the study included velvetleaf and common waterhemp that were 1-3 and 2-6 in. tall, at POST applications, respectively. Average populations were 2 and 3 plants/ft<sup>2</sup>, respectively. Visual estimates of percentage soybean injury and weed control during the growing season were compared with an untreated control; 0 percent = no injury or control and 99 percent = complete crop kill or control.

### Results and Discussion

None of the EPP treatments caused soybean injury when observed 23 days after application June 1 (data not shown). POST Anthem Maxx caused 8 percent injury and

POST Perpetuo treatments caused 17-18 percent compared with 5-8 percent injury for the remaining treatments July 3, 17 days after the June 16 POST application (Table 1).

EPP Xtendimax with VaporGrip + Roundup PowerMAX did not provide any residual control of velvetleaf June 1, 23 days after application, while velvetleaf control was at least 93 percent for EPP treatments with residual herbicides (Table 1). Velvetleaf control July 3, 17 days after POST, varied only 98-99 percent for all EPP treatments (Table 2).

Residual common waterhemp control did not exist with EPP Xtendimax with VaporGrip + Roundup PowerMAX June 1 (Table 1). EPP treatments containing residual herbicides afforded at least 98 percent control (Table 1). All treatments that included a residual herbicide with the EPP application provided at least 95 percent common waterhemp control by July 3 (Table 2). However, common waterhemp control on July 3 for the EPP applications containing only Xtendimax with VaporGrip + Roundup PowerMAX gave 73-88 percent control.

Soybean yield was 53-62 bushels/acre for herbicide treatments compared with only 26 bushels/acre for the untreated control (Table 2). There were no significant yield differences between herbicide treatments.

### Acknowledgements

We thank Kent Berns, superintendent, Central Iowa Research Farms and staff for their assistance with this study. Funding for this work was provided by Valent.

**Table 1. Programs for weed control in no-tillage Xtend soybean in June and July.**

Treatment	Rate	Appln timing	Abuth <sup>d</sup> Jun 1	Amata Jun 1	Injury Jul 3
	product/acre		----- % weed control -----		
Untreated			0	0	0
Xtendimax with VaporGrip + Roundup PowerMAX + NIS <sup>a</sup> + Intact <sup>c</sup> +	22.0 fl oz + 32.0 fl oz + 0.25% v/v <sup>b</sup> + 0.5% v/v +	EPP +	0	0	7
(Xtendimax with VaporGrip + Roundup PowerMAX + Select Max + NIS + Intact)	(22.0 fl oz + 32.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
Xtendimax with VaporGrip + Roundup PowerMAX + NIS + Intact +	22.0 fl oz + 32.0 fl oz + 0.25% v/v + 0.5% v/v +	EPP +	0	0	17
(Xtendimax with VaporGrip + Roundup PowerMAX + Perpetuo + Select Max + NIS + Intact)	(22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce EZ + NIS + Intact +	22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 0.25% v/v + 0.5% v/v +	EPP +	96	99	8
(Xtendimax with VaporGrip + Roundup PowerMAX + Select Max + NIS + Intact)	(22.0 fl oz + 32.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce MTZ SC + NIS + Intact +	(22.0 fl oz + 32.0 fl oz + 1.0 pt + 0.25% v/v + 0.5% v/v +	EPP +	98	99	5
(Xtendimax with VaporGrip + Roundup PowerMAX + Select Max + NIS + Intact)	(22.0 fl oz + 32.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
LSD (P = 0.05)			9	1	5

<sup>a</sup>NIS = preference, nonionic surfactant from Winfield United.

<sup>b</sup>Volume of product per volume tank mix.

<sup>c</sup>Intact = drift control and deposition agent from Precision Laboratories.

<sup>d</sup>Abuth = velvetleaf, Amata = common waterhemp.

**Table 1 (continued). Programs for weed control in no-tillage Xtend soybean in June and July.**

Treatment	Rate product/acre	Appln timing	Abuth <sup>d</sup> Jun 1	Amata Jun 1	Injury Jul 3
		----- % weed control -----			
Xtendimax with VaporGrip + Roundup PowerMAX + Authority MTZ DF + NIS <sup>a</sup> + Intact <sup>c</sup> + (Xtendimax with VaporGrip + Roundup PowerMAX + Anthem Maxx + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 11.0 oz wt + 0.25% v/v <sup>b</sup> + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 2.5 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	93	98	8
Xtendimax with VaporGrip + Roundup PowerMAX + Zidua PRO + NIS Intact + (Xtendimax with VaporGrip + Roundup PowerMAX + Pertetuo + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 0.25% v/v + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	98	99	18
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce EZ + NIS Intact (Xtendimax with VaporGrip + Roundup PowerMAX + Pertetuo + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 0.25% v/v + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	93	99	17
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce MTZ SC + NIS + Intact + (Xtendimax with VaporGrip + Roundup PowerMAX + Pertetuo + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 1.0 pt + 0.25% v/v + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	95	99	18
LSD (P = 0.05)			9	1	5

<sup>a</sup>NIS = preference, nonionic surfactant from Winfield United.<sup>b</sup>Volume of product per volume tank mix.<sup>c</sup>Intact = drift control and deposition agent from Precision Laboratories.<sup>d</sup>Abuth = velvetleaf, Amata = common waterhemp.

**Table 2. Programs for weed control in no-tillage Xtend soybean in July.**

Treatment	Rate product/acre	Appln timing	Abuth <sup>d</sup> Jul 3	Amata Jul 3	Yield Oct 15 bu/acre
Untreated			0	0	26
Xtendimax with VaporGrip + Roundup PowerMAX + NIS <sup>a</sup> + Intact +	22.0 fl oz + 32.0 fl oz + 0.25% v/v <sup>b</sup> + 0.5% v/v +	EPP +	99	73	57
(Xtendimax with VaporGrip + Roundup PowerMAX + Select Max + NIS + Intact <sup>c</sup> )	(22.0 fl oz + 32.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
Xtendimax with VaporGrip + Roundup PowerMAX + NIS + Intact +	22.0 fl oz + 32.0 fl oz + 0.25% v/v + 0.5% v/v +	EPP +	98	88	58
(Xtendimax with VaporGrip + Roundup PowerMAX + Perpetuo + Select Max + NIS + Intact)	(22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce EZ + NIS + Intact +	22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 0.25% v/v + 0.5% v/v +	EPP +	99	96	59
(Xtendimax with VaporGrip + Roundup PowerMAX + Select Max + NIS + Intact)	(22.0 fl oz + 32.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce MTZ SC + NIS + Intact +	(22.0 fl oz + 32.0 fl oz + 1.0 pt + 0.25% v/v + 0.5% v/v +	EPP +	99	98	62
(Xtendimax with VaporGrip + Roundup PowerMAX + Select Max + NIS + Intact)	(22.0 fl oz + 32.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	(POST)			
LSD (P = 0.05)			2	6	13

<sup>a</sup>NIS = preference, nonionic surfactant from Winfield United.

<sup>b</sup>Volume of product per volume tank mix.

<sup>c</sup>Intact = drift control and deposition agent from Precision Laboratories.

<sup>d</sup>Abuth = velvetleaf, Amata = common waterhemp.

**Table 2 (continued). Programs for weed control in no-tillage Xtend soybean in July.**

Treatment	Rate product/acre	Appln timing	Abuth <sup>d</sup> Jul 3	Amata Jul 3	Yield Oct 15
Xtendimax with VaporGrip + Roundup PowerMAX + Authority MTZ DF + NIS <sup>a</sup> + Intact <sup>c</sup> + (Xtendimax with VaporGrip + Roundup PowerMAX + Anthem Maxx + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 11.0 oz wt + 0.25% v/v <sup>b</sup> + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 2.5 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	98	95	61
Xtendimax with VaporGrip + Roundup PowerMAX + Zidua PRO + NIS Intact + (Xtendimax with VaporGrip + Roundup PowerMAX + Pertetuo + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 0.25% v/v + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	99	99	58
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce EZ + NIS Intact (Xtendimax with VaporGrip + Roundup PowerMAX + Pertetuo + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 0.25% v/v + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	98	96	59
Xtendimax with VaporGrip + Roundup PowerMAX + Fierce MTZ SC + NIS + Intact + (Xtendimax with VaporGrip + Roundup PowerMAX + Pertetuo + Select Max + NIS + Intact)	22.0 fl oz + 32.0 fl oz + 1.0 pt + 0.25% v/v + 0.5% v/v + (22.0 fl oz + 32.0 fl oz + 6.0 fl oz + 9.0 fl oz + 0.25% v/v + 0.5% v/v)	EPP +    (POST)	99	99	53
LSD (P = 0.05)			2	6	13

<sup>a</sup>NIS = preference, nonionic surfactant from Winfield United.<sup>b</sup>Volume of product per volume tank mix.<sup>c</sup>Intact = drift control and deposition agent from Precision Laboratories.<sup>d</sup>Abuth = velvetleaf, Amata = common waterhemp.