

## AN EVALUATION OF WEED CONTROL IN XTEND SOYBEAN AT WHEATON, MN IN 2016

Thomas J. Peters<sup>1</sup> and Andrew B. Lueck<sup>2</sup>

<sup>1</sup>Extension Sugarbeet Agronomist and Weed Control Specialist, <sup>2</sup>Sugarbeet Research Specialist Plant Sciences Department, North Dakota State University & University of Minnesota, Fargo, ND

The objective of this study was to evaluate weed control systems options that combine at least two, and preferably three, sites of action for controlling waterhemp in RR2 Xtend soybean in a field in sequence with Roundup Ready sugarbeet.

### MATERIALS AND METHODS

An experiment was conducted near Wheaton, MN in 2016. The trial site was prepared by the grower cooperator on May 15, 2016. '16X07N' Roundup Ready 2Xtend soybean from Peterson Farm Seed was seeded in 22-inch rows at 160,000 seeds per acre on May 17 with a John Deere 1700XP 6-row planter. Preemergence (PRE) treatments were applied May 18. Postemergence (POST) treatments were applied June 16 and 29. All herbicide treatments were applied with a bicycle sprayer in 17 gpa spray solution through 8002 XR flat fan nozzles pressurized with CO<sub>2</sub> at 30 psi to the center four rows of six row plots 30 feet in length. Soybean injury and common lambsquarters, redroot pigweed, and waterhemp control were evaluated June 29, July 18, and August 31.

All soybean injury and weed control evaluations were a visual estimate of percent fresh weight reduction in the four treated rows compared to the adjacent untreated strip. Experimental design was randomized complete block with 4 replications for each trial. Data were analyzed with the ANOVA procedure of ARM, version 2016.4 software package.

**Table 1. Application Information – Wheaton, MN 2016**

Date	May 18	June 16	June 29
Time of Day	12:00 PM	1:00 PM	11:45 AM
Air Temperature (F)	72	75	77
Relative Humidity (%)	29	66	45
Wind Velocity (mph)	4.5	9	5.5
Wind Direction	SE	SE	SW
Soil Temp. (F at 6")	56	62	72
Soil Moisture	Poor	Good	Poor
Cloud Cover (%)	10	10	20
Next Rainfall (amount)	May 25	June 18	July 9
Soybean Stage	PRE	V1 – V2	V2 – V4
Common Lambsquarters	-	8 inch	1 inch
Waterhemp	-	7 inch	1 inch

### SUMMARY

Xtend soybeans are tolerant to both dicamba and glyphosate. Soybean injury was non-existent in this trial (Table 2). All products tested at all rates applied gave excellent crop safety.

Weed pressure for this trial was light, to very light, and all herbicide treatments performed well. The June 29 evaluation was taken 13 days after the first POST treatments had been applied, and was the only evaluation where differences could be observed among treatments. Redroot pigweed control ranged from 98% to 100% for all but one treatment. Preemergence Warrant at 3.25 pt/A fb Engenia at 12.8 fl oz/A gave 96% redroot pigweed control. Three treatments showed less common lambsquarters control compared to all other treatments on June 29, but PRE Warrant fb Engenia gave the least control at 89%. Two POST only treatments of Engenia+Roundup PowerMax+ Basagran at 95% and Roundup PowerMax at 94% gave less waterhemp control than other treatments. However, all treatments gave near perfect weed control midway through, and at the end of the season. This trial demonstrated how effective weed management in prior years can contribute to effective weed control from a number of different herbicide options in the current year.

**Table 2. Soybean injury and weed control in Xtend soybeans at Wheaton, MN in 2016.**

Treatment	Rate	Appl <sup>1</sup>	-----June 29-----			-----July 18-----			-----August 31-----		
			rrpw <sup>2</sup>	colq	wahe	soyb	colq	wahe	soyb	colq	wahe
			%cntl	%cntl	%cntl	% inj	%cntl	%cntl	% inj	%cntl	%cntl
Warrant	3.25 pt	A	100	100	100	1	100	98	0	100	91
Engenia+PMax <sup>3</sup>	12.8+32 fl oz+fl oz	B									
Warrant+Sharpen	3+1 pt + fl oz	A	100	100	100	5	100	100	3	100	100
Engenia+PMax <sup>3</sup>	12.8+32 fl oz+fl oz	B									
Warrant	3 pt	A	100	100	100	3	100	100	0	100	100
Engenia+PMax <sup>3</sup>	12.8+28 fl oz+fl oz	B									
Engenia+PMax <sup>3</sup>	12.8+28 fl oz+fl oz	C									
Warrant	3.25 pt	A	96	89	99	4	100	99	3	100	100
Engenia	12.8 fl oz	B									
RU PowerMax <sup>4</sup>	32 fl oz	C									
Engenia	25.6 fl oz	A	100	99	100	5	100	100	0	100	100
Engenia+Warrant	12.8+3 fl oz + pt	B									
RU PowerMax <sup>4</sup>	32 fl oz	C									
Sharpen	1 fl oz	A	100	98	99	4	100	100	0	100	100
Engenia+Warrant	12.8+3 fl oz + pt	B									
RU PowerMax <sup>4</sup>	32 fl oz	C									
Warrant	2.25 pt	A	100	94	100	3	100	100	0	100	100
Engenia+Warrant	12.8+2.25 fl oz + pt	B									
RU PowerMax <sup>4</sup>	32 fl oz	C									
Engenia+PMax <sup>3</sup>	12.8+28 fl oz+fl oz	B	98	94	96	1	100	100	0	100	100
Engenia+PMax <sup>3</sup>	12.8+28 fl oz+fl oz	C									
Engenia+PMax	12.8+28 fl oz+fl oz	BC	99	98	95	3	100	100	0	100	100
+Basagran <sup>3</sup>	+12.8 +fl oz	BC									
RU PowerMax <sup>4</sup>	32 fl oz	B	99	96	94	5	100	100	0	100	99
RU PowerMax <sup>4</sup>	32 fl oz	C									
<b>LSD (0.05)</b>			<b>2.4</b>	<b>4.9</b>	<b>4.0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>

<sup>1</sup>Appl refers to application information in Table 1.<sup>2</sup>soyb=soybean; colq=common lambsquarters; wahe=waterhemp<sup>3</sup>PMax=Roundup PowerMax and indicates addition of Class Act Ridion at 1 %v/v provided by Winfield.<sup>4</sup>Indicates addition of ammonium sulfate (AMS) at 8.5 lb/100 gal and non-ionic surfactant (NIS) at 0.25% v/v. N-Pak AMS provided by Winfield and Prefer 90 NIS provided by West Central, Inc.