

SOYBEAN WEED CONTROL SYSTEM COMPARISON

TRIAL OVERVIEW

- Multiple herbicide-tolerant trait systems are available for weed management in soybean.
- Optimizing the use of effective residual and post-emergence herbicides within a weed management system contributes to season-long weed control.

Treatment	Soybean Trait	Herbicide Treatment
1	Roundup Ready 2 Xtend® soybeans	Non-treated
2	Roundup Ready 2 Xtend soybeans	2 oz. Rowel® Herbicide PRE* 22 oz. XtendiMax® herbicide with VaporGrip® Technology POST** 32 oz. Roundup PowerMAX® herbicide POST
3	Roundup Ready 2 Xtend soybeans	2 oz. Rowel Herbicide PRE 22 oz. XtendiMax with VaporGrip Technology PRE and POST 32 oz. Roundup PowerMAX herbicide POST
4	Roundup Ready 2 Xtend soybeans	2 oz. Rowel Herbicide PRE 22 oz. XtendiMax with VaporGrip Technology PRE and POST 32 oz. Roundup PowerMAX herbicide POST 48 oz. Warrant® Herbicide POST
5	LibertyLink® soybeans	Non-treated
6	LibertyLink soybeans	2 oz. Valor® SX herbicide PRE 29 oz. Liberty® herbicide*** POST
7	LibertyLink soybeans	6.4 oz. Authority® Maxx herbicide PRE 29 oz. Liberty herbicide*** POST
8	LibertyLink soybeans	6.4 oz. Authority Maxx herbicide PRE 29 oz. Liberty herbicide*** POST 2 oz. Zidua® herbicide POST

*PRE = Pre-emergence; **POST = Post-emergence; ***AMS was added. Application rates were on a per-acre basis. XtendiMax® herbicide with VaporGrip® Technology is a restricted use pesticide for retail sale to and use only by Certified Applicators or persons under their direct supervision.

Table 1. Treatment list

RESEARCH OBJECTIVE

- Evaluate weed control and soybean yield under different herbicide treatments in the Roundup Ready Xtend® Crop System and the LibertyLink® system.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Gothenburg, NE	Silty Loam	Wheat	Strip tillage	05/26/2017	10/15/2017		130,000
North Platte, NE	Silty Loam	Soybean	No tillage	05/15/2017	10/26/2017		140,000
Brookings, SD	Silty Clay Loam	Corn	Conventional	05/26/2017	10/11/2017		140,000
Fargo, ND	Silty Clay Loam	Soybean	Conventional	05/10/2017	10/05/2017		150,000

SITE NOTES:

- The study was arranged as a split plot design with two factors, herbicide-tolerance trait and herbicide program, with each treatment replicated 4 times.
- The Roundup Ready 2 Xtend® soybeans used in the trial had RMs of 3.1 at Gothenburg, 2.8 at North Platte, and 0.9 at Brookings and Fargo. The LibertyLink® soybeans used in the trial had RMs of 3.2 at Gothenburg and North Platte, 1.8 at Brookings, and 0.8 at Fargo.
- PRE-herbicide treatments were applied within 1 day of planting and POST-herbicide treatments were applied at the V3 stage.
- All plots were irrigated with sprinkler systems. Row spacing was 30 inches in Gothenburg, North Platte, and Fargo, and 22 inches in Brookings. All other agronomic practices were the same for the region.

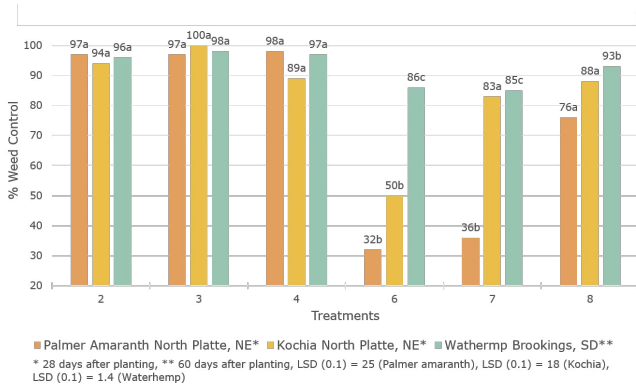


Figure 1. Palmer amaranth, kochia, and waterhemp control

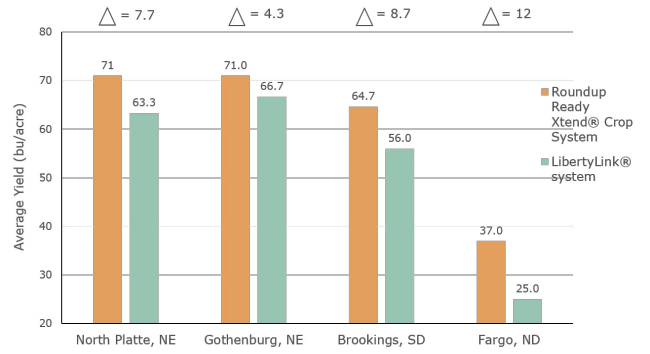


Figure 2. Yields in the Roundup Ready Xtend® Crop System over the LibertyLink® system across treatments by location. Yield deltas show the yield advantage of the Roundup Ready Xtend® Crop System over the LibertyLink® system

Treatment	Average yield (bu/acre)			
	Gothenburg, NE	North Platte, NE	Brookings, SD	Fargo, ND
Roundup Ready Xtend® Crop System				
1 Roundup Ready 2 Xtend® soybeans non-treated	67 ab	14 b	-	-
2 Rowel® Herbicide PRE + XtendiMax® herbicide with VaporGrip® Technology POST + Roundup PowerMAX® herbicide POST	71 ab	74 a	65 a	36 a
3 Rowel Herbicide PRE + XtendiMax with VaporGrip Technology PRE and POST + Roundup PowerMAX herbicide POST	72 a	72 a	64 a	37 a
4 Rowel Herbicide PRE + XtendiMax with VaporGrip Technology PRE and POST + Roundup PowerMAX herbicide POST + Warrant® Herbicide POST	70 ab	67 a	65 a	38 a
LibertyLink® system				
5 LibertyLink® soybeans non-treated	63 b	7 b	-	-
6 Valor® SX herbicide PRE + Liberty® herbicide POST	65 ab	73 a	51 c	17 c
7 Authority® Maxx herbicide PRE + Liberty herbicide POST	67 ab	58 a	57 b	28 b
8 Authority Maxx herbicide PRE + Liberty herbicide POST + Zidua® herbicide POST	68 ab	59 a	60 ab	30 b
LSD (0.05)	5	16	5	4

Means followed by a different letter are significantly different (P = 0.05). XtendiMax® herbicide with VaporGrip® Technology is a restricted use pesticide for retail sale to and use only by Certified Applicators or persons under their direct supervision.

Table 2. Average soybean yield in the different treatments and locations



Figure 3. Weed control at Gothenburg, NE. The untreated Roundup Ready 2 Xtend® soybeans plot (left). LibertyLink® system with Valor® SX herbicide followed by Liberty® herbicide 30 days after application (middle). Roundup Ready Xtend® Crop System with Rowel® Herbicide followed by XtendiMax® herbicide with VaporGrip® Technology + Roundup PowerMAX® herbicide 30 days after application (right).

UNDERSTANDING THE RESULTS



- Consistent control of palmer amaranth, waterhemp, and kochia was obtained using XtendiMax® herbicide with VaporGrip® Technology, whereas weed control with Liberty® herbicide was variable.
- Combining effective residual and POST herbicides provided the greatest weed control late into the season.
- Yields did not necessarily correspond to the intensity of the herbicide program, but yields in the Roundup Ready Xtend® Crop System were significantly greater across treatments compared to the LibertyLink® system at each location (Figure 2).

WHAT DOES THIS MEAN FOR YOUR FARM?

- Season-long weed control and minimization of the weed seedbank are important components for maximizing yield and improving long-term weed management.

LEGAL STATEMENT

The information discussed in this report is from a multiple site, replicated demonstration. This information piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

For additional agronomic information, please contact your local brand representative. Developed in partnership with Technology Development & Agronomy by Monsanto.

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Roundup Ready 2 Xtend® soybeans contains genes that confer tolerance to glyphosate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your Monsanto dealer or refer to Monsanto's Technology Use Guide for recommended weed control programs. Roundup Technology® includes Monsanto's glyphosate-based herbicide technologies. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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