



Roundup Ready® Xtend Crop System Benefits and Weed Management Recommendations





»» It's the System that Makes the Difference



Key Reasons Demand for Roundup Ready® Xtend Crop System Expected to More than Double in 2018

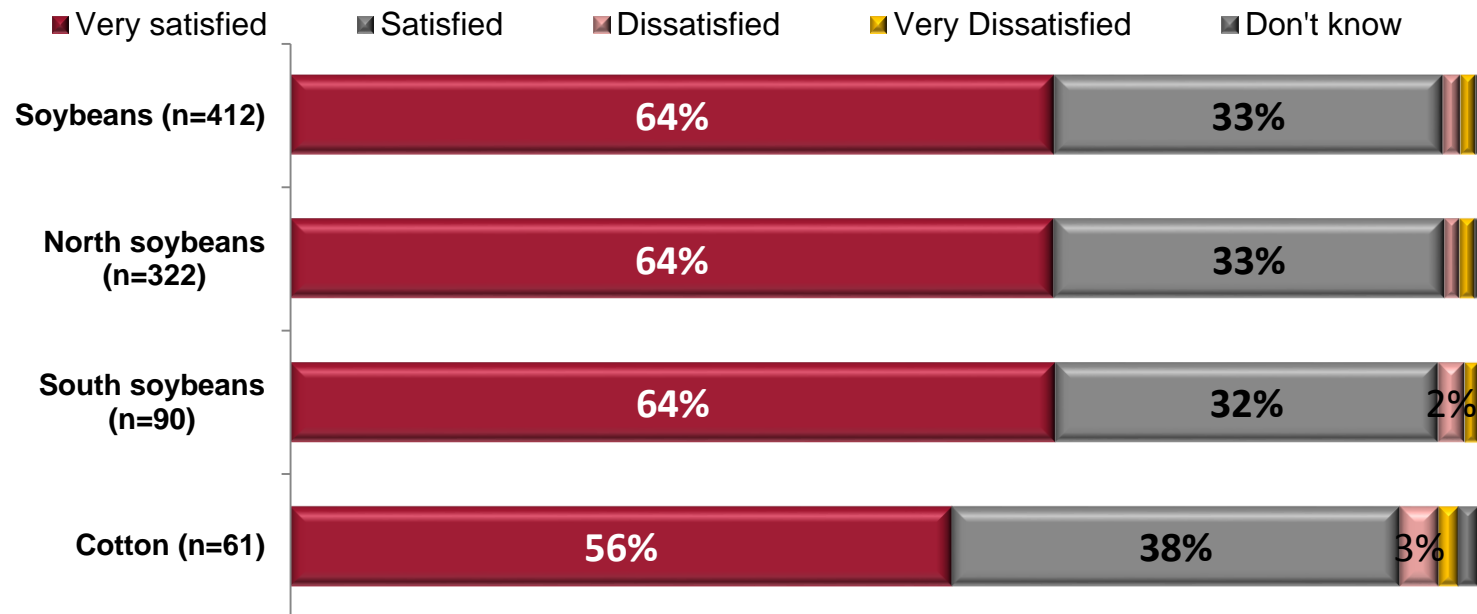
- **Industry leading genetics** in Roundup Ready 2 Xtend® soybeans and cotton with XtendFlex® Technology
- **Provides more weed control** and added value than any other weed control system on the market
- **Spray with confidence** utilizing XtendiMax® herbicide with VaporGrip® Technology
 - Proprietary VaporGrip® Technology designed to significantly reduce volatility
 - Enhanced application requirements and label to support successful use of XtendiMax® with VaporGrip® Technology, a restricted use pesticide
 - Expert recommendations and incentives through Roundup Ready PLUS® Crop Management Solutions

Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

XtendiMax[®] herbicide with VaporGrip[®] Technology, a restricted use pesticide

97% of soybean growers surveyed who applied XtendiMax[®] with VaporGrip[®] Technology in 2017 were satisfied with weed control

Satisfaction With Weed Control

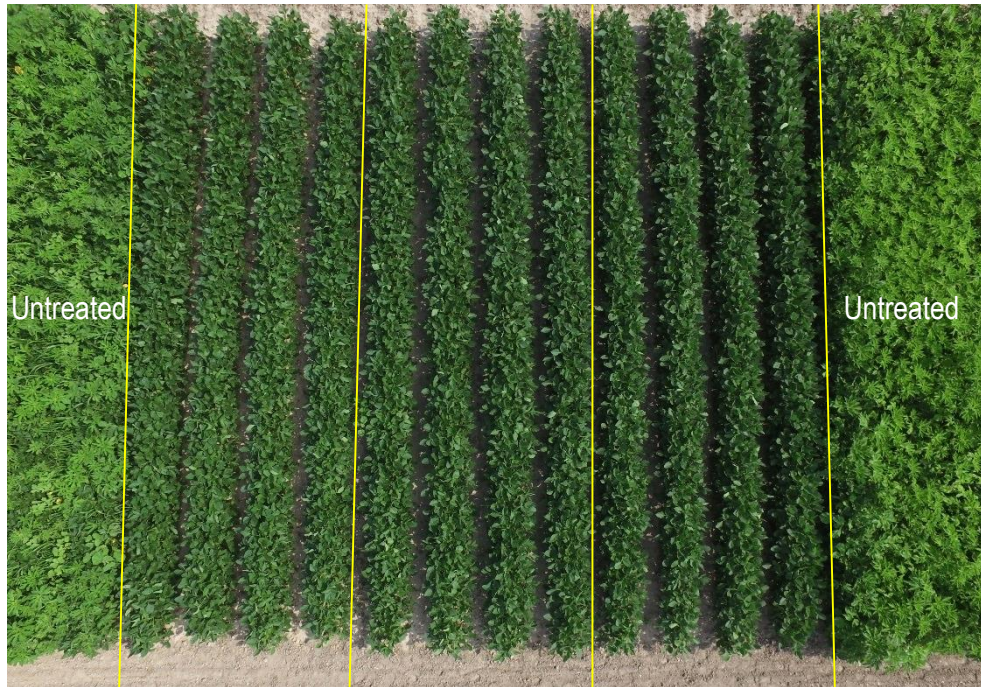


XtendiMax[®] with VaporGrip[®] Technology Grower Survey – August 2017

All growers surveyed were required to have 50+ acres of Roundup Ready 2 Xtend[®] soybeans or cotton with XtendFlex[®] Technology and treat at least some acres with XtendiMax[®] with VaporGrip[®] Technology to qualify

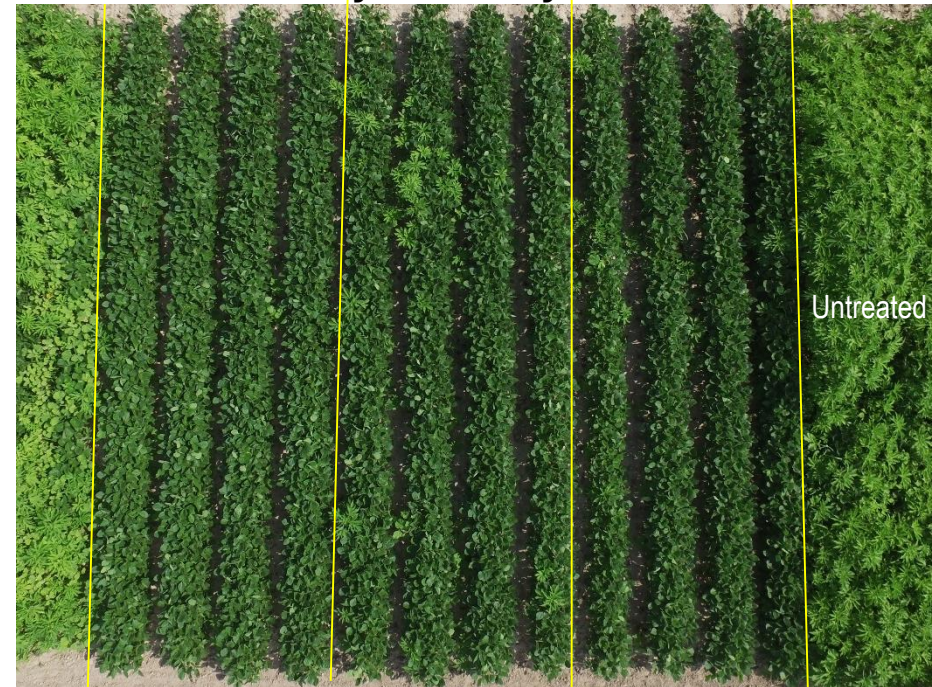
System comparisons: Weed Control at Canopy (7-13-17)

Roundup Ready 2 Xtend® soybeans



- | | | |
|---|---|---|
| <p>PRE- Rowel®
Herbicide 2oz
Fb POST
XtendiMax® with
VaporGrip®
Technology 22oz +
Roundup
PowerMAX®
herbicide 32oz</p> | <p>PRE – Rowel®
Herbicide 2oz +
XtendiMax® with
VaporGrip® Technology
22oz
Fb POST
XtendiMax® with
VaporGrip® Technology
22oz + Roundup
PowerMAX® herbicide
32oz</p> | <p>PRE – Rowel® Herbicide
2oz + XtendiMax® with
VaporGrip® Technology
22oz
Fb POST
XtendiMax® with
VaporGrip® Technology
22oz + Roundup
PowerMAX® Herbicide
32oz + Warrant®
Herbicide 48oz</p> |
|---|---|---|

LibertyLink® soybeans

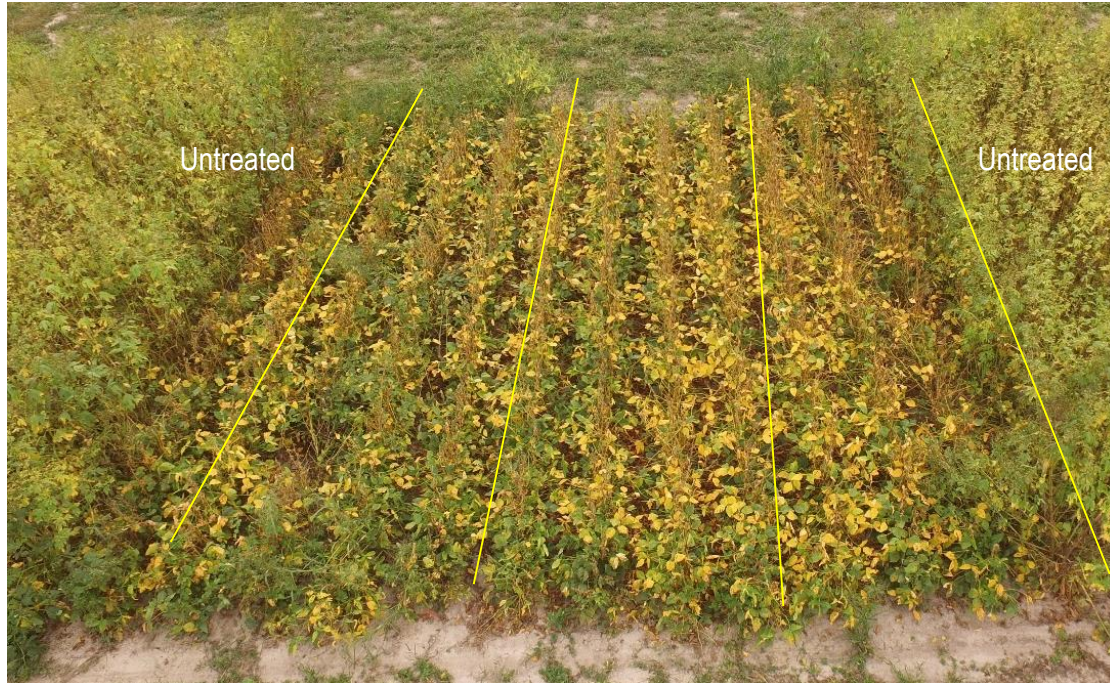


- | | | |
|---|---|--|
| <p>PRE – Valor® SX
herbicide 2oz
Fb POST
Liberty® herbicide
29oz</p> | <p>PRE – Authority®
MAXX herbicide
6.4oz
fb POST
Liberty® herbicide
29oz</p> | <p>PRE - Authority®
MAXX herbicide 6.4oz
fb POST
Liberty® herbicide
29oz
+ Zidua® herbicide
2oz</p> |
|---|---|--|

SIU Research Farm – Belleville, IL. Planting date 6/1/17

System comparisons: Pre-Harvest Weed Control (9-21-17)

Roundup Ready 2 Xtend[®] soybeans



PRE- Rowel[®]
 Herbicide 2oz
 Fb POST
 XtendiMax[®] with
 VaporGrip[®]
 Technology 22oz +
 Roundup
 PowerMAX[®]
 herbicide 32oz

PRE – Rowel[®]
 Herbicide 2oz +
 XtendiMax[®] with
 VaporGrip[®] Technology
 22oz
 Fb POST
 XtendiMax[®] with
 VaporGrip[®] Technology
 22oz + Roundup
 PowerMAX[®] herbicide
 32oz

PRE – Rowel[®] Herbicide
 2oz + XtendiMax[®] with
 VaporGrip[®] Technology
 22oz
 Fb POST
 XtendiMax[®] with
 VaporGrip[®] Technology
 22oz + Roundup
 PowerMAX[®] Herbicide
 32oz + Warrant[®]
 Herbicide 48oz

LibertyLink[®] soybeans



PRE – Valor[®] SX
 herbicide 2oz
 Fb POST
 Liberty[®] herbicide
 29oz

PRE – Authority[®]
 MAXX herbicide
 6.4oz
 fb POST
 Liberty[®] herbicide
 29oz

PRE - Authority[®]
 MAXX herbicide 6.4oz
 fb POST
 Liberty[®] herbicide
 29oz
 + Zidua[®] herbicide
 2oz

SIU Research Farm – Belleville, IL. Planting date 6/1/17

Plant for Yield. Plan for Profit.

Roundup Ready® Xtend Crop System vs LibertyLink® System

<u>2017 Trial Results</u>	
<i>Step 1:</i>	
5.7 Bu/A	Yield Advantage¹ <i>(Genetics + Weed Control)</i>
x \$9.75 /Bu	Commodity Price
<hr/>	<hr/>
~\$55.00 /A	Revenue
<i>Step 2:</i>	
- \$13.00 /A	System Cost Difference² <i>(Seed + Herbicide)</i>
<hr/>	<hr/>
~\$42.00 /A	Average Profit Advantage

5.7 Bu/A average advantage vs. LibertyLink® in 2017 herbicide system trials

- ✓ 13 locations
 - Monsanto Systems Trials
 - 3rd Party Trials
 - University Trials

Historical Performance
5.4 Bu/A average advantage vs. LibertyLink® in 2015 & 2016 herbicide system trials

- ✓ 2015 & 2016 Monsanto System Trials
 - 14 locations in 2015
 - 19 locations in 2016

¹ Source: 2017 Monsanto Systems Trials (27 locations in 2017 reporting yield data). Significant at P ≤ 0.05 LSD of 1.6 Bu. Data as of November 13, 2017. Roundup Ready® Xtend Crop System data = Roundup Ready 2 Xtend® soybeans treated with dicamba, glyphosate and various residual herbicides. LibertyLink® system data = LibertyLink® soybeans treated with Liberty® herbicide and various residual herbicides. Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

² Based on estimated Suggested Retail Price herbicide and seed costs minus calculated incentives from Roundup Ready PLUS® Crop Management Solutions Cash Incentives and LibertyLink incentives. Visit www.roundupreadyplus.com/soybean-profitability-calculator



»» Regional Weed Management Recommendations For the Roundup Ready® Xtend Crop System



2018 Missouri* Bootheel Weed Management Recommendations Cotton with XtendFlex® Technology



Herbicide Practice	Herbicide Recommendation
Before Planting	
Early Burndown	Roundup PowerMAX® II Herbicide (32 oz) + 2,4-D (0.75 lb) or Dicamba (0.25-0.5 lb)
At Planting	
PRE At Planting	Roundup PowerMAX® II Herbicide** (32 oz) or Gramoxone® SL 2.0 Herbicide (2.5-3 pt) + Warrant® Herbicide (3 pt) + labeled preemergence herbicide* according to soil type *Cotoran®, Caparol®, Direx® or Brake® + Cotoran® herbicides **XtendiMax® with VaporGrip® Technology (22-44 oz) + labeled DRA may be tank-mixed to Caparol® Herbicide or Direx® with Roundup PowerMAX® II herbicide if GR-Horseweed is present
POST (After Cotton Emergence)	
All applications of XtendiMax™ with VaporGrip™ must be made prior to June 1st	
POST 1 (< 4" weeds and < 30 days from PRE or 2-3 leaf cotton)	Roundup PowerMAX® II Herbicide (32 oz) + XtendiMax® herbicide with VaporGrip® Technology (22 oz) + labeled DRA or Roundup PowerMAX® II Herbicide (32 oz) + Warrant® Herbicide (3 pt) The addition of Warrant® Herbicide (3 pt) may provide improved residual control of palmer amaranth and certain grass species. This tank-mixture may also cause some visual crop response under some environmental conditions that is usually temporary with no subsequent effect on yield.
POST 2 6-8 leaf cotton	Liberty® Herbicide (32 oz)
LAY-BY HOODED SPRAYER	Direx® Herbicide (1.5 pt) or Valor® Herbicide (2 oz) + Roundup PowerMAX® II Herbicide (32 oz) or MSMA (2 lbs ai)

*Check with your local Monsanto dealer or representative or U.S. EPA and your state pesticide regulatory agency for the product registration status and additional restrictions in your state.

2018 Missouri* Bootheel Weed Management Recommendations for Roundup Ready 2 Xtend® Soybeans



Herbicide Practice	Herbicide Recommendation
Before Planting	
Early Burndown	Roundup PowerMAX® II (32 oz) + 2,4-D (0.75 lb) or XtendiMax® herbicide with VaporGrip® Technology (22 – 44 oz)
At Planting	
PRE At Planting	<p>*Roundup PowerMAX® II Herbicide** (32 oz) or Gramoxone® SL 2.0 Herbicide (2.5-3.0 pt) + Warrant® Herbicide (3 pt)</p> <p>*Use metribuzin rate based on soil type and pH (0.25 – 0.38 (lb/a) where PPO resistant palmer amaranth are present</p> <p>**Add XtendiMax® herbicide with VaporGrip® Technology (22-44 oz) + labeled DRA to Roundup PowerMAX® II Herbicide if GR-Horseweed is present</p>
POST 1 (over-the-top)	
All applications of XtendiMax™ with VaporGrip™ must be made prior to June 1st	
POST 1 (< 4" weeds and within 18 to 24 days after PRE application)	Roundup PowerMAX® II Herbicide (32 oz) + XtendiMax® herbicide with VaporGrip® Technology (22 oz) + labeled DRA
POST 2 (over-the-top)	
POST 2 (prior to canopy closure)	<p>Roundup PowerMAX® II Herbicide (32 oz) + Warrant® Ultra Herbicide (50 oz)</p> <p>POST application of herbicides Blazer®, Cobra®, or Select® can be used to control broadleaf weed or grass escapes</p>

*Check with your local Monsanto dealer or representative or U.S. EPA and your state pesticide regulatory agency for the product registration status and additional restrictions in your state.

Important Notices

- **XtendiMax® herbicide with VaporGrip® Technology is part of the Roundup Ready® Xtend Crop System and is a restricted use pesticide for retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.** ALWAYS READ AND FOLLOW DIRECTIONS FOR USE ON PESTICIDE LABELING. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. XtendiMax® herbicide with VaporGrip® Technology and cotton with XtendFlex® Technology may not be approved in all states and may be subject to use restrictions in some states. Check with your local Monsanto dealer or representative or U.S. EPA and your state pesticide regulatory agency for the product registration status and additional restrictions in your state. For approved tank-mix products and nozzles visit XtendiMaxApplicationRequirements.com

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ALWAYS READ AND FOLLOW DIRECTIONS FOR USE ON PESTICIDE LABELING. IT IS A VIOLATION OF FEDERAL AND STATE LAW to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba or glyphosate are approved for in-crop use with Roundup Ready 2 Xtend® soybeans. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans.

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.

All technologies and brands referenced may not yet be registered in all states. Check with your Monsanto representative for the registration status in your state.

Roundup Technology® includes Monsanto's glyphosate-based herbicide technologies.

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Always read and follow IRM, where applicable, grain marketing and all other stewardship practices and pesticide label directions. Warrant® Herbicide and Warrant® Ultra Herbicide are not registered in all states and may be subject to use restrictions. The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited. Check with your local Monsanto dealer or representative for the product registration status in your state. Roundup PowerMAX®, Roundup Ready 2 Xtend®, Roundup Ready PLUS®, Roundup Technology®, VaporGrip®, Warrant®, XtendFlex® and XtendiMax® are registered trademarks of Monsanto Technology LLC. Liberty® and LibertyLink® are registered trademarks of Bayer. Direx® is a registered trademark of E.I. Du Pont de Nemours and Company. Caparol® and Gramoxone® are registered trademarks of a Syngenta group company. Cobra®, Fierce® and Valor® are registered trademarks of Valent U.S.A. Corporation. Some of the product(s) discussed herein are restricted use pesticide(s) and may not be registered in all states. The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited. Check with your local dealer or product representative for the product registration status in your state. All other trademarks are the property of their respective owners. ©2018 Monsanto Company All Rights Reserved.