

2021 SOYBEAN WEED MANAGEMENT



COMPARISON OF HERBICIDES FOR USE IN SOYBEAN					
Herbicides	Roundup® Brand Glyphosate-only Agricultural herbicides	XtendiMax® herbicide with VaporGrip® Technology* (a restricted use pesticide)	Liberty® 280 SL herbicide	Alite™ 27 (a restricted use pesticide)	Enlist One® herbicide
Chemistry Features	Broad-spectrum herbicides for grass and broadleaf weed control	A low-volatility dicamba formulation. ¹ Approved tank mix products are listed on XtendimaxApplicationRequirements.com	Offers nonselective control of many broadleaf and grass weeds Labeled for in-season use on all LibertyLink® crops	Preemergence residual herbicide used for broad spectrum weed control Resistant weed management	Optimized with Colex-D® technology: - Ultra low volatility - Minimizes potential for physical drift
Active Ingredient(s)	Glyphosate	Dicamba	Glufosinate	Isoxaflutole	2,4-D choline (quaternary ammonium salt)
Amount of Translocation	Translocated through xylem or phloem	Translocated through xylem or phloem	Limited	Translocates	Translocated through xylem or phloem
Soil Activity	Little to none	Up to 14 days of soil activity on certain small-seeded broadleaf weeds ²	Little to none	Persistent in soil	Little to none
Ground Application Carrier Volume (GPA)	10 to 20	Minimum of 15	Minimum of 15	Minimum of 10	10 to 15
Aerial Application Carrier Volume (GPA)	3 to 15	Do not use aerial applications of XtendiMax herbicide with VaporGrip Technology	Minimum of 10	Not permitted	Aerial applications are restricted
In-Crop Application Window	Burndown through R2	Dicamba tolerant soybeans: Up to and including June 30 Applications occurring after R1 are prohibited as crop response may occur and in no event can applications be made after June 30	Emergence up to (not through) bloom stage (R1)	May be applied up to 21 days prior to planting GT27 or isoxaflutole-resistant soybeans	Up to R2
Maximum Rate/Year	5.3 qts/A	88 fl oz/A	87 fl oz/A (burndown to bloom)	3 fl oz/A	6.0 pts/A
Pre-harvest Interval	7 to 14 days (see label for details)	Allow a minimum of 7 days between application and harvest.	70 days	-	30 days
Rainfastness	Roundup WeatherMAX® herbicide: 30 minutes	This product is rainfast 4 hours after application to most weed species. Rainfall or irrigation occurring within 4 hours after application may necessitate retreatment or may otherwise result in reduced weed control.	4 hours	-	Heavy rainfall soon after application may wash off this product from the foliage
Rotation Restrictions	None	When not rotating to a dicamba tolerant crop refer to label for regional rotational restrictions. Planting at intervals less than specified may result in crop injury.	None for canola, corn, cotton, rice, soybeans, and sugarbeets 70 days for small grains, root, tuber, and brassica vegetables. 180 days for other crops	4 month for wheat 6 months for non isoxaflutole-resistant soybeans 10 months for alfalfa, cotton, rice (Refer to product label for additional rotational crop restrictions)	The user is advised to rotate mechanisms of action in subsequent crops to avoid development of weed resistance to this herbicide group.
Features and Benefits (Pros/Cons)	PRO: No plant-back restrictions (crops can be planted or seeded directly following application) PRO: Broad spectrum control of broadleaf weeds and grasses CON: Glyphosate-resistant weeds	PRO: Effective on a wide variety of broadleaf weeds including glyphosate-resistant marestail, Palmer amaranth, and waterhemp PRO: Outstanding efficacy on many winter annuals and perennial weeds compared to other auxins like 2,4-D CON: For best performance, control weeds early when they are less than 4 inches.	PRO: Alternative weed control tool for glyphosate-resistant weeds CON: Limited grass activity CON: Weed size must be very small (<3 in) to obtain effective control	PRO: Preemergence residual herbicide CON: No in-season application CON: Rotational restrictions CON: Can leach and persist in soil	PRO: Effective on a wide variety of broadleaf weeds including glyphosate-resistant Palmer amaranth and waterhemp CON: No soil activity
Recommended Droplet Size	Medium to very coarse	Very coarse to ultra coarse	Medium to coarse	Large recommended in low humidity	See label

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COMPARISON OF SOYBEAN WEED MANAGEMENT SYSTEMS				
Soybean Trait	Roundup Ready® Xtend Crop System		LibertyLink® GT27™ Soybeans	Enlist E3™ Soybeans
	Roundup Ready 2 Xtend® Soybeans	XtendFlex® Soybeans		
Availability	Currently available	Available for the 2021 season	Currently available	Currently available
Company	Bayer	Bayer	BASF, MS Technologies, and Mertec LLC	Corteva (Dow AgroSciences)
Seed features including herbicide tolerance	Built on Genuity Roundup Ready 2 Yield® technology. Enables farmers to use dicamba as a burndown, PRE and POST herbicide on Roundup Ready 2 Xtend soybeans.	Stacked with tolerance to glyphosate, dicamba, and glufosinate	Stacked with tolerance to isoxaflutole, glyphosate, and glufosinate Potential use pending regulatory approval	Stacked with tolerance to glyphosate, 2,4-D, and glufosinate
Mode of Action	Synthetic auxin (growth regulator) + amino acid synthesis inhibitor	Synthetic auxin (growth regulator) + amino acid synthesis inhibitor + nitrogen metabolism (glutamine synthesis inhibitor)	HPPD inhibitors + amino acid synthesis inhibitor + glutamine synthesis inhibitor (nitrogen metabolism)	Amino acid synthesis inhibitor + synthetic auxin (growth regulator) + glutamine synthesis inhibitor (nitrogen metabolism)
Herbicide Class	Glycines + benzoic acids	Glycines + benzoic acids + phosphinic acids	Isoxazoles + glycines + phosphinic acids	Glycines + phenoxyalkanoic acids + phosphinic acids
HRAC Group	Group G; Group O	Group G; Group O; Group H	Group F2; Group G; Group H	Group G; Group O; Group H
WSSA Group	9, 4	9, 4, 10	27, 9, 10	9, 4, 10
Weed Species Labeled ³	~ 311	~ 337	~ 246	~ 265

¹XtendiMax® herbicide with VaporGrip® Technology is part of the Roundup Ready® Xtend Crop System, is a restricted use pesticide and must be used with VaporGrip® Xtra Agent (or an equivalent vapor reducing agent). For approved tank-mix products (including VRAs and DRAs), nozzles and other important label information visit XtendiMaxApplicationRequirements.com.

²Results may vary, depending on rainfall and soil type. Always use dicamba with residual herbicides in pre-emergence and postemergence applications that have different, effective sites of action, along with other Diversified Weed Management Practices.

³Based on approved EPA herbicide labels for the herbicides recommended for use in each system as of 10/28/2020. Roundup Ready Xtend Crop System with Roundup Ready 2 Xtend soybeans includes XtendiMax and Roundup PowerMAX® herbicides and with XtendFlex® soybeans includes XtendiMax, Roundup PowerMAX and Liberty® herbicides. LibertyLink GT27 Soybeans include Roundup PowerMAX, Liberty, and Alite™ 27 herbicides. Enlist® Weed Control System includes Enlist One®, Roundup PowerMAX, and Liberty herbicides.

This information is for educational purposes only and is not an offer to sell Roundup Xtend™ with VaporGrip™ Technology. These products are not yet registered or approved for sale or use anywhere in the United States.

*Commercialization is dependent on multiple factors, including successful conclusion of the regulatory process. The information presented herein is provided for educational purposes only, and is not and shall not be construed as an offer to sell, or a recommendation to use, any unregistered pesticide for any purpose whatsoever. It is a violation of federal law to promote or offer to sell an unregistered pesticide.

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ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. 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. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® Technology. 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 or products with XtendFlex® Technology.

Roundup Technology® includes glyphosate-based herbicide technologies.

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.

Roundup Ready® 2 Technology contains genes that confer tolerance to glyphosate. Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Products with XtendFlex® Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.

XtendiMax® is a restricted use pesticide. Not all products are 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 dealer or representative for the product registration status in your state. Tank mixtures: The applicable labeling for each product must be in the possession of the user at the time of application. Follow applicable use instructions, including application rates, precautions and restrictions of each product used in the tank mixture. Not all tank mix product formulations have been tested for compatibility or performance other than specifically listed by brand name. Always predetermine the compatibility of tank mixtures by mixing small proportional quantities in advance. Liberty®, LibertyLink® and LibertyLink® and the Water Droplet Design® are trademarks of BASF 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. Bayer, Bayer Cross, Roundup Ready 2 Xtend®, Roundup Ready 2 Yield®, Roundup Ready®, Roundup Technology®, Roundup PowerMAX®, Roundup WeatherMAX®, Roundup Xtend™, Roundup®, VaporGrip®, XtendFlex® and XtendiMax® are trademarks of Bayer Group. All other trademarks are the property of their respective owners. For additional product information call toll-free 1-866-99-BAYER (1-866-992-2937) or visit our website at www.BayerCropScience.us. Bayer CropScience LP, 800 North Lindbergh Boulevard, St. Louis, MO 63167. ©2020 Bayer Group. All rights reserved.

