



## Spring Herbicide Burndown in Cotton

- // Burndown herbicide applications are an essential part of weed management in cotton.
- // An early burndown can help fields dry out quicker from winter and spring moisture.
- // Early burndowns can help conserve soil moisture in drought-prone areas.

Prior to planting cotton, fields should be free of live weed growth unless the cultural weed control practice of planting into green cover is being utilized. This can be accomplished with tillage or burndown herbicides. Ideally, existing weeds should be controlled at least a couple of weeks prior to planting to allow for decomposition of the plant material. Planting into existing weeds, or heavy, non-decayed weed residue can interfere with seed placement and reduce emergence due to poor seed-to-soil contact.

If herbicides are used as a burndown, the herbicide labels MUST be reviewed for timing intervals between application and cotton planting date. The full recommended herbicide rate and proper application timing should be used for the toughest-to-control weed species in the field.

The emergence profiles of weeds can significantly affect the performance of weed management programs and should be a major consideration for planning. In addition to starting with a clean field, removing weeds after planting when weeds are less than 4 inches tall is necessary to help preserve yield potential. Integrated pest management principles should be utilized to help determine the appropriate herbicide program for each field. Sequential herbicide applications combining different sites of action, and foliar and residual activity provide the most effective weed management plans.

Controlling weeds early can help fields dry from winter and spring moisture. In drought-prone areas, early weed control prevents weeds from using precious moisture that can be used later by cotton plants. Weed management tactics for tough-to-control weeds, such as marehail, giant ragweed, kochia, lambsquarters, *Amaranthus* species, and others, can be found at:

<https://www.roundupreadyxtend.com/products/Pages/xtendimax.aspx>.

Environmental conditions affect the rate of weed growth, crop development, crop tolerance to herbicides, and herbicide performance. Fluctuating day and night temperatures are typical in the spring. The efficacy of a burndown herbicide application can be reduced by cold temperatures. It is recommended to wait on applying herbicides until nighttime temperatures are above 40° F and daytime temperatures are in the high 50s to low 60s.<sup>1</sup> Weed control may be even more effective if there are several days of warmer weather prior to herbicide applications rather than applying on the first warm day of the season.

XtendiMax® herbicide with VaporGrip® Technology, a Restricted Use Pesticide (RUP), is labeled for burndown applications in some geographical areas. The herbicide label and individual state notifications MUST be read and followed (<http://www.roundupreadyxtend.com/stewardship/education/Pages/default.aspx>). XtendiMax with VaporGrip Technology applications may only be made by dicamba-trained certified applicators.

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**Table 1. Early Burndown Recommendations for Cotton with XtendFlex® Technology**

	OPTION A	OPTION B
<b>Southwest</b> <i>(Arizona, New Mexico, west Texas, west Oklahoma)</i>	Roundup PowerMAX® Herbicide (32 fl oz/acre) + 2,4-D (16 to 32 fl oz/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup>	XtendiMax® herbicide with VaporGrip® Technology (22 fl oz/acre)* (Restricted Use Pesticide (RUP))
<b>East Texas</b> <i>(east of Highway 77)</i>	Roundup PowerMAX Herbicide (32 fl oz/acre) + Warrant® Ultra Herbicide (50 fl oz/acre) <sup>3,4,5</sup> or Valor® SX Herbicide (2 oz/acre)	XtendiMax with VaporGrip Technology (22 fl oz/acre)* (RUP)
<b>East Oklahoma</b> <i>(east of Highway 75)</i>	Roundup PowerMAX Herbicide (32 fl oz/acre) + Warrant Ultra Herbicide (50 fl oz/acre) <sup>3,4,5</sup> or Valor SX Herbicide (2 oz/acre)	XtendiMax with VaporGrip Technology (22 fl oz/acre)* (RUP)
<b>Midsouth</b> <i>(Louisiana, Mississippi, Tennessee)</i>	Roundup PowerMAX® II Herbicide (32 fl oz/acre) + 2,4-D (16 to 32 fl oz/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup> or Valor SX Herbicide (2 oz/acre)	XtendiMax with VaporGrip Technology (22 fl oz/acre)* (RUP) (Except Wilson County in Tennessee)
<b>Southeast</b> <i>(Alabama, Georgia, Florida, North Carolina, South Carolina, Virginia)</i>	Roundup PowerMAX II Herbicide (32 fl oz/acre) + 2,4-D (16 to 32 fl oz/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup> or Valor SX Herbicide (2 oz/acre)	XtendiMax with VaporGrip Technology (22 fl oz/acre)* (RUP)
<b>Missouri “Bootheel”</b>	Roundup PowerMAX II Herbicide (32 fl oz/acre) + 2,4-D (0.75 lb/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup> or Valor SX Herbicide (2 oz/acre)	XtendiMax with VaporGrip Technology (22 fl oz/acre)* (RUP)

<sup>1</sup>Allow a minimum of 30 days between application and cotton planting. <sup>2</sup>Following application of dicamba and a minimum accumulation of 1 inch of rainfall or overhead irrigation, allow a minimum of 21 days between treatment and planting per 8 fl oz/acre or less. <sup>3</sup>When applying other acetochlor-containing herbicides later in the growing season, DO NOT exceed the maximum annual rate of 3 lb/acre per season of acetochlor. Warrant Ultra Herbicide may be applied ONCE per growing season. <sup>4</sup>Warrant Ultra Herbicide may be applied as a preplant surface application to medium or fine-textured soils up to 21 days prior to planting cotton. <sup>5</sup>After a Warrant Ultra Herbicide application, a minimum of 0.5 inches of rainfall or overhead irrigation must occur before planting cotton. Cotton must also be planted to at least 0.75 inches in depth. \*Maximum amount per season regardless of application timing is 88 fl oz/acre (2.0 lb a.e. dicamba per acre); total amount for burndown/early preplant, preplant, at-planting, and preemergence applications per season is 44 fl oz/acre (1.0 lb a.e. dicamba per acre).



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**Table 2. Early Burndown Recommendations for Conventional Cotton**

	OPTION A	OPTION B
<b>Southwest</b> <i>(Arizona, New Mexico, west Texas, west Oklahoma)</i>	Roundup PowerMAX® Herbicide (32 fl oz/acre) + 2,4-D (16 to 32 fl oz/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup>	(East of Rockies) XtendiMax® herbicide with VaporGrip® Technology (11 fl oz/acre)** (Restricted Use Pesticide (RUP))
<b>East Texas</b> <i>(east of Highway 77)</i>	Roundup PowerMAX Herbicide (32 fl oz/acre) + Warrant® Ultra Herbicide (50 fl oz/acre) <sup>3,4,5</sup> or Valor® SX Herbicide (2 oz/acre)	XtendiMax with VaporGrip Technology (11 fl oz/acre)** (RUP)
<b>East Oklahoma</b> <i>(east of Highway 75)</i>	Roundup PowerMAX Herbicide (32 fl oz/acre) + Warrant Ultra Herbicide (50 fl oz/acre) <sup>3,4,5</sup> or Valor SX Herbicide (2 oz/acre)	XtendiMax with VaporGrip Technology (11 fl oz/acre)** (RUP)
<b>Midsouth</b> <i>(Louisiana, Mississippi, Tennessee)</i>	Roundup PowerMAX® II Herbicide (32 fl oz/acre) + 2,4-D (16 to 32 fl oz/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup> or Warrant Ultra Herbicide (50 fl oz/acre) <sup>3,4,5</sup>	XtendiMax with VaporGrip Technology (11 fl oz/acre)** (RUP) (Except Wilson County in Tennessee)
<b>Southeast</b> <i>(Alabama, Georgia, Florida, North Carolina, South Carolina, Virginia)</i>	Roundup PowerMAX II Herbicide (32 fl oz/acre) + 2,4-D (16 to 32 fl oz/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup> or (except Florida) Warrant Ultra Herbicide (50 fl oz/acre) <sup>3,4,5</sup>	XtendiMax with VaporGrip Technology (11 fl oz/acre)** (RUP)
<b>Missouri “Bootheel”</b>	Roundup PowerMAX II Herbicide (32 fl oz/acre) + 2,4-D (0.75 lb/acre) <sup>1</sup> or dicamba (0.25 to 0.5 lb a.e./acre) <sup>2</sup> or Warrant Ultra Herbicide (50 fl oz/acre) <sup>3,4,5</sup>	XtendiMax with VaporGrip Technology (11 fl oz/acre)** (RUP)

<sup>1</sup>Allow a minimum of 30 days between application and cotton planting. <sup>2</sup>Following application of dicamba and a minimum accumulation of 1 inch of rainfall or overhead irrigation, allow a minimum of 21 days between treatment and planting per 8 fl oz/acre or less. <sup>3</sup>When applying other acetochlor-containing herbicides later in the growing season, DO NOT exceed the maximum annual rate of 3 lb/acre per season of acetochlor. Warrant Ultra Herbicide may be applied ONCE per growing season. <sup>4</sup>Warrant Ultra Herbicide may be applied as a preplant surface application to medium or fine-textured soils up to 21 days prior to planting cotton. <sup>5</sup>After a Warrant Ultra Herbicide application, a minimum of 0.5 inches of rainfall or overhead irrigation must occur before planting cotton. Cotton must also be planted to at least 0.75 inches in depth. \*\*Following application of XtendiMax with VaporGrip Technology and a minimum accumulation of 1 inch of rainfall or overhead irrigation, allow a minimum of 21 days between treatment and planting per application of 11 fl oz/acre. This plant-back interval must be observed prior to planting cotton. Do not apply this herbicide to cotton preplant in areas with an average annual rainfall less than 25 inches. If a fall application was made with this herbicide, then the combination of both treatments may not exceed 2 lb a.e./acre.



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## Sources (web sources verified 2/28/19)

<sup>1</sup>Pocock, J. 2011. 5 Tips for corn weed management | Start with a clean field -Then control weeds early as they reach 4 inches. Corn and Soybean Digest. <https://www.farmprogress.com>.

Hartzler, R. 2003. Is your weed management program reducing your economic return? Iowa State University Weed Science. <http://extension.agron.iastate.edu/>.

Hartzler, B., Boerboom, C., Nice, G., and Sikkema, P. 2006. Understanding glyphosate to increase performance. The Glyphosate, Weeds, and Crops Series. GWC-2. <https://www.extension.purdue.edu/>.

Nalewaja, J.D. and Matysiak, R. 1991. Salt antagonism of glyphosate. Weed Science 39: 622-629.

Pesticides are vital to maintain high crop yields. Poster. Crop Life Foundation. <https://croplifefoundation.wordpress.com/>.

## Legal Statements

This document is intended to provide information about this weed and guidelines for control. As a tough-to-control weed, knowledge about the biology and weed control programs will help in their management.

XtendiMax<sup>®</sup> herbicide with VaporGrip<sup>®</sup> Technology is part of the Roundup Ready<sup>®</sup> Xtend Crop System and is a restricted use pesticide. 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<sup>®</sup> herbicide with VaporGrip<sup>®</sup> Technology and products with XtendFlex<sup>®</sup> Technology may not be approved in all states and may be subject to use restrictions in some states. Check with your local product 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](http://XtendiMaxApplicationRequirements.com). 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, glyphosate or glufosinate are approved for in-crop use with cotton with XtendFlex<sup>®</sup> 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 cotton with XtendFlex<sup>®</sup> Technology.

Cotton with XtendFlex<sup>®</sup> 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 dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Monsanto Technology Use Guide for recommended weed control programs.

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.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup PowerMAX<sup>®</sup> II and Warrant<sup>®</sup> 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 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. Bayer, Bayer Cross Design, Roundup PowerMAX<sup>®</sup>, Roundup PowerMAX<sup>®</sup> II, Roundup Ready PLUS<sup>®</sup>, VaporGrip<sup>®</sup>, Warrant<sup>®</sup>, XtendFlex<sup>®</sup> and XtendiMax<sup>®</sup> are registered trademarks of Bayer Group. LibertyLink<sup>®</sup> and the Water Droplet Design<sup>®</sup> is a trademark of BASF Corporation. Valor<sup>®</sup> is a registered trademark of Valent U.S.A. Corporation. All other trademarks are the property of their respective owners. ©2019 Bayer Group. All rights reserved. 2005\_S1

