



# XTENDFLEX® COTTON PRODUCT GUIDE

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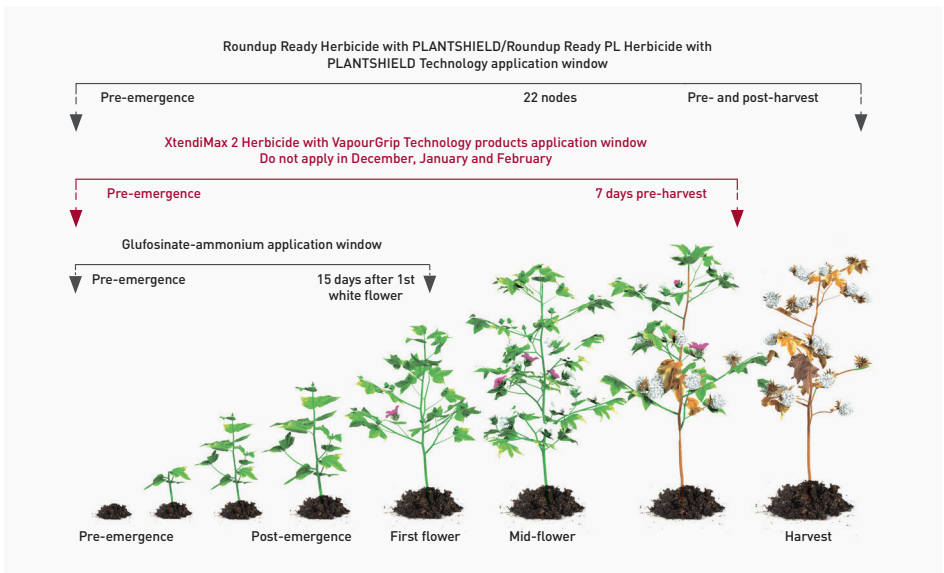


# Introducing XtendFlex<sup>®</sup> cotton



Cotton varieties containing the XtendFlex<sup>®</sup> herbicide tolerance trait (XtendFlex cotton) provide growers with greater flexibility to use additional herbicide modes of action to target glyphosate-resistant weed populations and hard-to-kill weed species. Varieties containing the XtendFlex cotton trait are tolerant to glyphosate, dicamba, and glufosinate-ammonium herbicides.

<p><b>XTENDFLEX COTTON HAS TOLERANCE TO THE FOLLOWING REGISTERED OVER-THE-TOP HERBICIDES</b></p>	<p><b>GLYPHOSATE</b></p> <p><b>ACTIVE CONSTITUENT</b> 540 g/L glyphosate as potassium salt</p>	<p><b>LOW VOLATILITY DICAMBA + VOLATILITY REDUCTION AGENT</b></p> <p><b>ACTIVE CONSTITUENT</b> 480 g/L dicamba as monoethanolamine salt</p>	<p><b>GLUFOSINATE-AMMONIUM</b></p> <p><b>ACTIVE CONSTITUENT</b> 200 g/L glufosinate-ammonium</p>



# Bollgard 3 cotton

Bollgard 3 is a biotechnology trait that reduces the need to spray for *Helicoverpa* species, the main cotton pest for Australian growers.

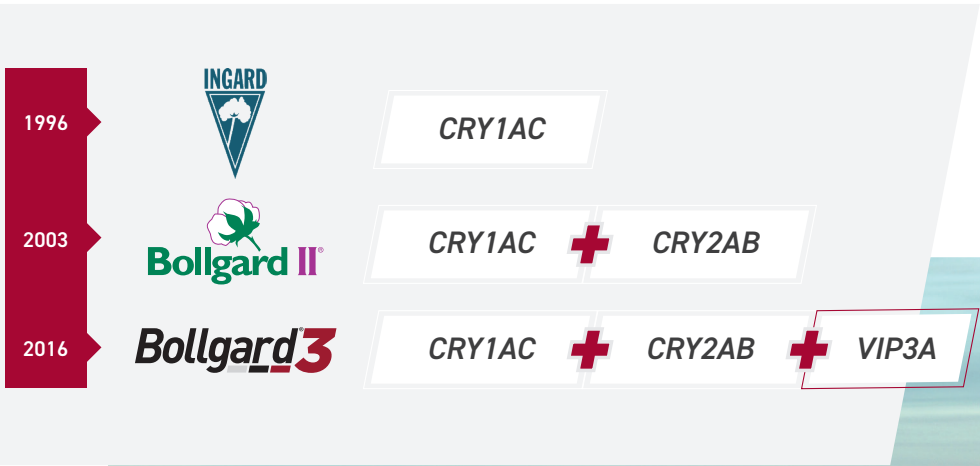
Bollgard 3 contains three proteins, Cry1Ac, Cry2Ab and Vip3A, each 'killing' larvae in a different way.

Having three different active proteins increases the sustainability of the technology as it is difficult for *Helicoverpa* to develop resistance to more than one of the Bt proteins.

Bollgard 3 plays a critical role in protecting the technology, ensuring that it will continue to perform the way that growers need and expect for many years to come.

XtendFlex cotton is available stacked with the Bollgard 3 insect control technology.

Please read and follow the Bollgard 3 Resistance Management Plan (RMP) when planting Bollgard 3 XtendFlex cotton. The Bollgard 3 RMP can be found at [www.bollgard3.com.au](http://www.bollgard3.com.au).



## Overview

**XtendFlex cotton is tolerant to applications of glyphosate, dicamba and glufosinate-ammonium.**



### 1. Glyphosate

Roundup Ready® PL Herbicide with PLANTSHIELD® Technology and Roundup Ready Herbicide with PLANTSHIELD are registered for pre-emergence, in-crop and post-harvest application uses in XtendFlex cotton.



### 2. Glufosinate-ammonium

Biffo® is registered for over-the-top use in XtendFlex cotton and provides additional control options for broadleaf and grass weeds.\*\*



### 3. Dicamba

XtendiMax® 2 Herbicide with VapourGrip® Technology is registered for over-the-top application in XtendFlex cotton. XtendiMax 2 is based on a low volatility form of dicamba, with volatility further reduced by the added VapourGrip Technology. This enables XtendiMax 2 to become significantly less volatile than other commercially available formulations of dicamba. This helps growers to reduce off-target movement when used in accordance with label and stewardship guidelines.



VapourGrip Xtra Agent is required to be added to the XtendiMax 2 spray mix when used in XtendFlex cotton, which provides further dicamba volatility reduction.

## Record-keeping requirements

As a condition of the XtendiMax 2 Herbicide with VapourGrip Technology registration, Bayer is required to collect the following application information from users of XtendiMax 2 Herbicide with VapourGrip Technology in XtendFlex cotton:

- Date of application
- Farm address where spray application occurred
- Rate of application
- Total amount of product applied
- Air temperature at the start and end of application



Scan the QR code to record application information

\*\*Refer to the Biffo product label and safety data sheet located at <https://nufarm.com/au/product/biffo/> on the Nufarm Australia website.

# Weed efficacy

- With the ability to use three herbicide modes of action in XtendFlex cotton, growers have more options to control a broader range of weeds.
- Growers can select herbicide(s) on a paddock-by-paddock basis, incorporating rotation strategies - including double-knock - to target specific weed populations.

## Agronomic services trial results 2019 - 2024

Common name	Scientific name	Single application			Double-knock			
		Roundup Ready PL Herbicide with PLANTSHIELD	Glufosinate-ammonium 200 g/L (Biffo)	XtendiMax 2 with VapourGrip Technology	Roundup Ready PL Herbicide with PLANTSHIELD fb. Glufosinate-ammonium 200 g/L (Biffo)	Glufosinate-ammonium 200 g/L (Biffo) fb. Glufosinate-ammonium 200 g/L (Biffo)	Roundup Ready PL Herbicide with PLANTSHIELD fb. Roundup Ready PL Herbicide with PLANTSHIELD	Roundup Ready PL Herbicide with PLANTSHIELD + XtendiMax with VapourGrip fb. Glufosinate-ammonium 200 g/L (Biffo)
Fleabane	<i>Conyza bonariensis</i>	NR	38.3 (2)	NR	75.0 (1)	91.7 (1)	NR	95.0 (1)
Feathertop Rhodes grass	<i>Chloris virgata</i>	NR	90.0 (1)	NR	95.7 (1)	100.0 (1)	NR	-
Barnyard grass	<i>Echinochloa colona</i>	70.8 (8)	86.6 (2)	NR	94.4 (6)	97.0 (5)	97.2 (6)	98.8 (3)
Peachvine	<i>Ipomoea lonchophylla</i>	NR	46.6 (2)	96.7 (1)	85.0 (2)	100.0 (1)	NR	-
Sowthistle	<i>Sonchus oleraceus</i>	65.8 (2)	80.8 (3)	NR	90.0 (1)	80.0 (1)	67.5 (2)	-
Caltrop	<i>Tribulus terrestris</i>	91.5 (2)	99.6 (2)	100.0 (2)	99.8 (2)	100.0 (1)	98.4 (2)	100.0 (1)

<60% control
60-80% control
80-90 % control
90-100% control

(x) indicates the number of trial results  
 NR = Not registered  
 Note: All treatments across all trials were applied at full label rates.

Trial ID's: QJ02, QJ06, QJ07, QJ12, QJ13, QJ18, QJ21, QJ27, QJ29, NA 32, NA52, NA53, NA55, NC01, NC02, NC03, NC04, NC05, NC06, NC07, NC08, NC10

## Crop safety

- Applications of products containing dicamba have produced some leaf spotting on XtendFlex cotton.
- This spotting has not caused a yield effect in Bayer trials across the US and Australia.
- Trials have demonstrated that the best performance is achieved when weeds are sprayed early at the correct growth stage.
- **XtendFlex cotton is not tolerant to over-the-top applications of 2,4 D herbicides.**



Spotting on XtendFlex cotton leaves after the application of XtendiMax 2 Herbicide with VapourGrip Technology.

## Compatibility

- Ammonium sulfate, ammonium-based additives and ammonium-based products must not be used in applications that include XtendiMax 2 Herbicide with VapourGrip Technology.
- Glufosinate-ammonium and Roundup Ready Herbicide with PLANTSHIELD (granules) cannot be tank-mixed with XtendiMax 2 Herbicide with VapourGrip Technology.
- Bayer has conducted compatibility trials with numerous products. Contact your local Bayer representative for more information.

## XtendFlex over-the-top herbicide summary

- XtendFlex cotton varieties are tolerant to direct application of Xtendimax 2 Herbicide with VapourGrip Technology, Roundup Ready Herbicide with PLANTSHIELD, Roundup Ready PL Herbicide with PLANTSHIELD and 200 g/L Glufosinate-ammonium formulations (Biffo).
- Always refer to the product label prior to spraying.

	<b>XtendiMax 2 Herbicide with VapourGrip Technology</b>	<b>Roundup Ready PL Herbicide with PLANTSHIELD</b>	<b>Roundup Ready Herbicide with PLANTSHIELD</b>	<b>200 g/L glufosinate-ammonium (Biffo***)</b>
<b>Active ingredient</b>	480 g/L dicamba present as monoethanolamine salt	540 g/L glyphosate present as potassium salt	690 g/kg glyphosate present as mono-ammonium salt	200 g/L glufosinate-ammonium
<b>Herbicide mode of action group</b>	Group 4 (I)	Group 9 (M)	Group 9 (M)	Group 10 (N)
<b>Application rates</b>	335 mL/ha to 1.17 L/ha + 1% v/v VapourGrip Xtra Agent	660 mL/ha - 1.9 L/ha - refer to the product label	0.52 kg/ha - 1.5 kg/ha - refer to the product label	3.75 L/ha in a minimum of 100 L water
<b>Crop stage</b>	In crop from pre-emergence of crop Do not apply in December, January and February	In crop from pre-emergence of crop to pre and post-harvest.	In crop from pre-emergence of crop to pre and post-harvest.	From crop emergence to first white flower + 15 days
<b>Weed stage</b>	Peach vine and fleabane (mixed with Roundup ready PL Herbicide with PLANTSHIELD): 2 to 6 leaves Other registered weeds: 3 to 5 leaves. Refer to the label for full list of weeds.	Use the lower rates on young weeds and increase to higher rates where weeds are dense or well developed.	Use the lower rates on young weeds and increase to higher rates where weeds are dense or well-developed.	Broadleaf weeds: 2-6 leaf Grass weeds: Pre-tillering
<b>Minimum water volume</b>	100 L/ha	50-80 L/ha	50-80 L/ha	100 L/ha
<b>Droplet size</b>	Very coarse	Minimum of coarse	Minimum of coarse	Medium or coarse
<b>Withholding period</b>	Harvest: Do not harvest for 7 days after application Grazing: Do not feed cotton fodder, stubble or trash to livestock	Harvest: Not required when used as directed	Harvest: Not required when used as directed	Harvest: not required when used as directed Grazing: Do not graze or cut treated areas for stock food. Do not feed cotton gin trash to livestock
<b>Rainfastness</b>	6 hours	Rain within 2 hours of application, which causes run-off, will require re-treatment.	Rain within 2 hours of application, which causes run-off, will require re-treatment.	6 hours
<b>Plantback</b>	Plant back periods apply, refer to the product label for full details.	No plant back periods apply	No plant back periods apply	Plant back periods apply, refer to the product label for full details.
<b>Buffer zones</b>	Buffer zones apply, refer to the product label for full details.	Not yet assessed for Buffer zones. Do not cause off-target drift.	Not yet assessed for Buffer zones. Do not cause off-target drift.	Not yet assessed for Buffer zones. Do not cause off-target drift.

\*\*\*Information taken from the Biffo label is correct at the time of publication. Always refer to the Nufarm Biffo product label available at <https://nufarm.com/au/product/biffo/> prior to spraying.

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To find out more visit [xtendflex.com.au](http://xtendflex.com.au)

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Always consult the product label for detailed information. The information and recommendations set out in this brochure are based on tests and data believed to be reliable at the time of publication. Results may vary, as the use and application of the products is beyond our control and may be subject to climatic, geographical or biological variables, and/or developed resistance. Any product referred to in this brochure must be used strictly as directed, and in accordance with all instructions appearing on the label for that product and in other applicable reference material. So far as it is lawfully able to do so, Bayer CropScience Pty Ltd accepts no liability or responsibility for loss or damage arising from failure to follow such directions and instructions.



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