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Bollgard 3 is the latest generation technology that reduces the need to spray for Helicoverpa, the main cotton pest in Australia.

THREE MODES OF ACTION
Each of the three proteins in Bollgard 3 – Cry1Ac, Cry2Ab and Vip3A has a different mode of action or ‘kill’ the larvae in a different way, allowing growers to effectively control *H. armigera* and *H. punctigera* for most of the cotton season.

REDUCED NEED FOR BROAD-SPECTRUM PESTICIDE SPRAYS
Bollgard 3 significantly reduces the need for the application of broad-spectrum pesticides, giving other insects, including beneficials, the chance to develop as well as reducing water, soil and air contamination.

GREATER FIRST POSITION FRUIT RETENTION
In comparison with conventional cotton plants, Bollgard 3 plants have significantly higher first position retention on the bottom five fruiting branches. Loss of first position fruit can result in a significant yield penalty.

What is the difference between Bollgard II and Bollgard 3?
There are three key changes between the Bollgard II and Bollgard 3 Resistance Management Plans:

1. Greater planting opportunity.
   - Less restrictive planting windows offer greater opportunity to take advantage of rainfall.
   - Bollgard 3 crops can be planted anytime between August 1 and December 31.

2. Reduced refuge requirements.
   - Decreased refuge area requirements meaning area and resources can potentially be dedicated to profitable crops.
   - Unsprayed cotton refuge now 5% of the Bollgard 3 area.
   - Unsprayed Pigeon Pea – 2.5% of the Bollgard 3 area.
   - Addition of Pigeon Pea as a refuge option for dryland Bollgard 3 (contact your Regional Business Manager).

3. More flexible pupae busting requirements.
   - Growers have greater opportunity to preserve soil moisture for following crops, with reduced pupae busting requirements.
   - Pupae busting is only mandatory for fields where first defoliation occurs after March 31.
   - In select regions including Lachlan, Murrumbidgee, Menindee and Murray valleys pupae busting can occur up to August 31 (deadline is July 31 for all other regions).
   - Pupae busting to a depth of 10cm is only required 30cm either side of the plant line.

HAVE YOU COMPLETED YOUR BOLLGARD 3 ACCREDITATION?
All growers must complete a Bollgard 3 accreditation before taking delivery of seed. To complete your accreditation contact your Technology Service Provider or Monsanto Regional Business Manager.

MATCH YOUR COTTON CHOICES™ WITH YOUR YIELD FOR EACH FIELD
With Cotton Choices™ you can opt for a flat, up-front discount on your technology fee or delay your decision until you can get a better understanding of your expected yields and pay on a per-hectare or per-bale basis. If you select Cotton Choices™ 2: Late Crop Removal or Cotton Choices™ 3: End Point Royalty you have until 17 February 2017 to switch between them.

Bollgard 3/Roundup Ready Flex has been launched this year at a special introductory price – the same as Bollgard II/Roundup Ready Flex.
**FREQUENTLY ASKED QUESTIONS**

Here are some answers to questions we’ve been asked about Bollgard 3. If your question isn’t listed below please get in touch.

**WHAT IS THE REGULATORY STATUS OF BOLLGARD 3?**
Monsanto has received all domestic approvals for Bollgard 3.
- Office of the Gene Technology Regulator (OGTR) approved Bollgard 3 for commercial release
- Food Standards Australia New Zealand (FSANZ) has approved Bollgard 3 for human consumption
- Australian Pesticides & Veterinary Medicines Authority (APVMA) has approved the Bollgard 3 product and proposed Resistance Management Plan.

**WILL GROWERS NEED TO COMPLETE AN ACCREDITATION?**
The accreditation program has formed a strong pillar of Monsanto’s stewardship program over many years and across a number of products, including Bollgard II. With the introduction of Bollgard 3 the accreditation program will be a valuable resource to growers and the wider industry in transitioning to a new Resistance Management Plan (RMP) and to help you get the most from this new technology.

Accreditations commenced in early 2016. Sign up for the latest updates on Bollgard 3 at bollgard3.com.au

**WHAT DOES THE BOLLGARD 3 RESISTANCE MANAGEMENT PLAN INCLUDE?**
The RMP for Bollgard 3 has been approved by the APVMA, by the TIMS committee and is based on robust evidence through years of research.

The key elements include a wider planting opportunity, reduced refuge area requirements, and changes in pupae busting requirements to make pupae busting better fit with farming systems without compromising resistance management.

As part of Monsanto’s accreditation process in 2016 you will have the opportunity to find out more about the new RMP and how the changes will apply to your farm.

**WILL WE STILL EXPERIENCE SURVIVORS WITH BOLLGARD 3?**
Although having very strong performance in the field, Bollgard 3, like Bollgard II, will not be “Helicoverpa proof.”

External stressors on the plant such as moisture or nutrition issues may still affect gene expression.

Regular crop scouting is still recommended. Monsanto’s technical staff are always available to answer any questions you may have about performance in your fields.

**WHEN WILL BOLLGARD II BE PHASED OUT?**
With the additional benefits from the new RMP and varieties from CSD we expect demand for Bollgard 3 to be very strong. Based on grower feedback to date and CSD seed availability we expect the transition to Bollgard 3 will occur quickly.

**DOES BOLLGARD 3 HAVE ACTIVITY AGAINST OTHER PESTS?**
No. Bollgard 3 will provide a more robust resistance management tool for Australia cotton growers.

It has the same Bt proteins contained in Bollgard II – Cry1Ac and Cry2Ab – but will also include a third Bt protein Vip3A, which increases the longevity of the technology. Each of these proteins has a different mode of action or ‘kill’ larvae in a different way.
MANAGING BOLLGARD II AND BOLLGARD 3 ON THE SAME FARM

In the 2016/17 cotton season, growers will have the ability to plant Bollgard II and Bollgard 3 on the same farm unit. In this situation, it is critical to remember that each technology has a specific Resistance Management Plan (RMP) that must be complied with. As a condition of the Technology User Agreement (TUA), growers must read and understand the RMP for the technology that is being planted, be it Bollgard II, Bollgard 3, or both.

Growers with Bollgard II and Bollgard 3 on farm must follow the relevant RMP for each technology.

There are three main areas where the Bollgard II RMP and the Bollgard 3 RMP differ.

1. PLANTING WINDOWS

<table>
<thead>
<tr>
<th>Bollgard II Requirements</th>
<th>Bollgard 3 Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planted into moisture or watered up by 15 November.</td>
<td>Planted into moisture or watered up between August 1 and December 31.</td>
</tr>
</tbody>
</table>

2. REFUGE REQUIREMENTS

If growers have both Bollgard II and Bollgard 3 on farm, two refuges are not necessary. Growers must plant enough refuge to cover the requirements for Bollgard II and Bollgard 3. For further information, consult your TSP or use the refuge calculator at www.bollgard3.com.au

<table>
<thead>
<tr>
<th>Refuge Crop</th>
<th>Conditions</th>
<th>% Bollgard II</th>
<th>% Bollgard 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Irrigated &amp; Dryland</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Sprayed conventional</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Pigeon Pea</td>
<td>Irrigated Only</td>
<td>5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

*Dryland PP can only be planted with prior approval from Monsanto.

3. PUPAE BUSTING

<table>
<thead>
<tr>
<th>Bollgard II</th>
<th>Bollgard 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Bollgard II fields must be pupae busted to a depth of 10cm across the soil surface by July 31.</td>
<td>All Bollgard 3 fields that receive an application of a registered rate of defoliant prior to March 31 do not need to be pupae busted.</td>
</tr>
<tr>
<td>For fields defoliated after March 31, pupae busting must be completed to a depth of 10cm, 30cm on either side of the plant line.</td>
<td>Where required, all pupae busting must be completed by July 31, with the exception of the Lachlan, Murrumbidgee, Menindee and Murray Valleys, where pupae busting must be completed by August 31.</td>
</tr>
</tbody>
</table>
Cotton Choices™
Match your Cotton Choices™
with your yield by field.

Southern Queensland
& New South Wales

Bollgard®3  Bollgard® II
Select the best Cotton Choices™ to maximise your profitability.

_Cotton Choices™ gives you the flexibility to choose how to pay your technology fees based on what’s likely to give you the best return._

Opt for a flat, up-front discount or delay your decision until you can get a better understanding of your expected yields and pay on a per-hectare or per-bale basis. You can even ‘hedge your bets’ and choose different options for different fields based on their expected yields and production risks.

**More time to confirm your decision**

If you select Cotton Choices™ 2: Late Crop Removal and Extended Terms or Cotton Choices™ 3: End Point Royalty you have until 17 February 2017 to switch between them.

If, for example, excellent seasonal conditions mean you’re likely to achieve above-average yields, you can switch from Cotton Choices™ 3: End Point Royalty to Cotton Choices™ 2: Late Crop Removal and potentially reduce your technology fees. On the other hand, if your crop is worth keeping in the ground but looks like it will only produce below average yields, you can switch the other way.

To help make the decision easier, the handy Cotton Choices™ calculator at www.cottonchoices.com.au helps you compare the technology fee and payment dates associated with different Cotton Choices™ scenarios.

Bollgard® 3/Roundup Ready® Flex has been launched this year at a special introductory price – the same as Bollgard II®/Roundup Ready Flex pricing. With Bollgard 3, growers have greater planting opportunity, through the ability to plant anytime between 1 August to 31 December and a more flexible Bollgard 3 Resistance Management Plan.

If you plant Bollgard 3 between 1 and 31 December 2016, you also have longer to nominate your Cotton Choices™ selections.
Making Cotton Choices™ work for you

**AUG 2016**

- **Bollgard II** or **Bollgard II/Roundup Ready Flex**
  - PLANTED between 1 August – 15 November

**NOV 2016**

- **Bollgard 3/Roundup Ready Flex or Roundup Ready Flex**
  - PLANTED between 1 August – 30 November

**DEC 2016**

- **DEADLINE: 6 December**
  - Select Cotton Choices™ for each field and advise your TSP (as part of your Planting Audit)*

**FEB 2017**

- **DEADLINE: 10 January**
  - Select Cotton Choices™ for each field and advise your TSP (as part of your Planting Audit)*

**JAN 2017**

- **DEADLINE: 17 February**
  - Last chance to switch fields between Cotton Choices™ 2: LCR and Cotton Choices™ 3: EPR with your TSP

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*Cotton Choices™ 1: Price discount fields can’t be changed after this date*
Make choices to best suit your needs.

**Cotton Choices™ 1: Price Discount**

You can choose an up-front price discount on the technology fees for your selected fields or refuge crops.

The applicable payment date for Cotton Choices™ 1: Price Discount and technology fees after discount are shown below.

<table>
<thead>
<tr>
<th>Product</th>
<th>Price/hectare</th>
<th>Payment date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bollgard 3/Roundup Ready Flex</td>
<td>$370</td>
<td>FEB 2017</td>
</tr>
<tr>
<td>Bollgard II/Roundup Ready Flex</td>
<td>$370</td>
<td></td>
</tr>
<tr>
<td>Bollgard II</td>
<td>$315</td>
<td></td>
</tr>
<tr>
<td>Roundup Ready Flex</td>
<td>$75</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Price excludes GST. Discount does not apply to Roundup Ready Flex unsprayed cotton refuges over 10% of the Bollgard II area or 5% of the Bollgard 3 area (as per the trait’s RMP requirements), or to sprayed Roundup Ready Flex, as nominated in the planting audit. Late Crop Removal is not available under this offer.
**Cotton Choices™ 2: Late Crop Removal & Extended Terms**

By selecting Late Crop Removal (LCR) and Extended Terms, your technology fee is waived if your crop is removed due to hail, drought or other adverse conditions or events.

You’ll also receive extended payment terms. The applicable payment date for Cotton Choices™ 2: LCR and technology fees are shown below.

<table>
<thead>
<tr>
<th>Product</th>
<th>Price/hectare</th>
<th>Payment date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bollgard 3/Roundup Ready Flex</td>
<td>$401</td>
<td></td>
</tr>
<tr>
<td>Bollgard II/Roundup Ready Flex</td>
<td>$401</td>
<td>JUL 31, 2017</td>
</tr>
<tr>
<td>Bollgard II</td>
<td>$332</td>
<td></td>
</tr>
<tr>
<td>Roundup Ready Flex</td>
<td>$79</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Prices exclude GST. If for any reason your crop fails (hail, flood, sand storm, drought, herbicide drift etc) and is removed on or before **20 April 2017**, Monsanto will waive 100% of the technology fee on the hectares affected. Crop Removal must be reported to Monsanto by no later **21 April 2017**. This offer does not apply to Roundup Ready Flex unsprayed cotton refuges over 10% of the Bollgard II area or 5% of the Bollgard 3 area (as per the trait’s RMP requirements), or to sprayed Roundup Ready Flex, as nominated in the planting audit.

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**Cotton Choices™ 3: End Point Royalty**

You can choose to pay a set End Point Royalty (EPR) per bale after ginning helping you to manage part of your production risks and cash flow.

The applicable payment date for Cotton Choices™ 3: EPR and technology fees are shown below.

<table>
<thead>
<tr>
<th>Product</th>
<th>Price/bale(^{†})</th>
<th>Payment date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bollgard 3/Roundup Ready Flex</td>
<td></td>
<td>30 Days from end of month of invoice(^{∗})</td>
</tr>
<tr>
<td>Bollgard II/Roundup Ready Flex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bollgard II</td>
<td>$50</td>
<td></td>
</tr>
<tr>
<td>Roundup Ready Flex</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Prices exclude GST. \(^{∗}\)Payment date is 30 days after the end of the month of the invoice date (ie. the date on the invoice given to your TSP). \(^{†}\)Standard 227 kg bale of cotton lint. This offer does not apply to Roundup Ready Flex unsprayed cotton refuges over 10% of the Bollgard II area or 5% of the Bollgard 3 area (as per the trait’s RMP requirements), or to sprayed Roundup Ready Flex, as nominated in the planting audit.
Frequently Asked Questions

Am I eligible for Cotton Choices™?
The Cotton Choices™ program applies to:
• Bollgard 3/Roundup Ready Flex
• Bollgard II/Roundup Ready Flex
• Bollgard II
• Associated Roundup Ready Flex unsprayed refuge crops (equal to 5% of the Bollgard 3 or 10% of the Bollgard II area)

What about my refuge crops?
• You can select a Cotton Choices™ option for your Roundup Ready Flex unsprayed refuge crops (equal to 5% of the Bollgard 3 or 10% of the Bollgard II area).
• Fully sprayed Roundup Ready Flex refuges are not eligible for Cotton Choices™ selections, standard technology fees and payment terms apply.
• Roundup Ready Flex crops that are not planted as part of a refuge, or are over 5% of the Bollgard 3 or 10% of the Bollgard II area are also not eligible for Cotton Choices™ selections, standard technology fees and payment terms apply.

What are the standard technology fees?

<table>
<thead>
<tr>
<th>Product</th>
<th>Price/hectare Excluding GST</th>
<th>Payment date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bollgard 3/ Roundup Ready Flex</td>
<td>$401</td>
<td></td>
</tr>
<tr>
<td>Bollgard II/ Roundup Ready Flex</td>
<td>$401</td>
<td>FEB 28 2017</td>
</tr>
<tr>
<td>Bollgard II</td>
<td>$332</td>
<td></td>
</tr>
<tr>
<td>Roundup Ready Flex</td>
<td>$79</td>
<td></td>
</tr>
</tbody>
</table>

Sign your Technology User Agreement online

Your TSP will send you your Annual Technology User Agreements (TUAs) and Planting Audit to access and sign online through DocuSign®.

For more information visit www.cottonchoices.com.au
What are the key dates I need to remember?

**Bollgard II and Bollgard II/Roundup Ready Flex**

- Confirm your Cotton Choices™ selection with your TSP for cotton planted 1 August – 15 November 2016
- Confirm your Cotton Choices™ selection with your TSP for cotton planted 1 August – 30 November 2016
- Confirm your Cotton Choices™ selection with your TSP for cotton planted 1–31 December 2016

- Advise your TSP of any changes to your Cotton Choices™ 2: LCR or Cotton Choices™ 3: EPR selection
- Deadline for defoliating Bollgard 3 crop in order for pupae busting not to be mandatory and notifying your TSP
- Deadline for removing any failed crops under Cotton Choices™ 2: LCR or Cotton Choices™ 3: EPR
- Deadline for reporting any failed crops under Cotton Choices™ 2: LCR or Cotton Choices™ 3: EPR to Monsanto

**Payment dates**

<table>
<thead>
<tr>
<th>Cotton Choices™ 1: Price Discount</th>
<th>Cotton Choices™ 2: LCR</th>
<th>Cotton Choices™ 3: EPR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FEB</strong> 28 2017</td>
<td><strong>JUL</strong> 31 2017</td>
<td><strong>30 Days from end of month of invoice</strong></td>
</tr>
</tbody>
</table>

*Payment date is 30 days after the end of the month of the invoice date (ie. the date on the invoice given to your TSP).*
GENERAL TERMS & CONDITIONS OF THE TECHNOLOGY USER AGREEMENT (TUA) 2016/2017
PART A

1. APPOINTMENT AS A BOLLGARD II AND/OR BOLLGARD 3 AND/OR ROUNDUP READY FLEX TECHNOLOGY USER

1.1 The Grower is not licensed to use BOLLGARD II Cotton Seed, BOLLGARD 3 Cotton Seed or ROUNDUP READY FLEX Cotton Seed other than on the terms of this TUA.

1.2 Subject to Section 3.1, this TUA only permits the Grower to grow one cotton crop using the BOLLGARD II Cotton Seed, BOLLGARD 3 Cotton Seed and/or ROUNDUP READY FLEX Cotton Seed on the Farm Unit and only for the Cotton Growing Season.

2. DEFINITIONS

In these terms and conditions:

2.1 “APVMA” means the Australian Pesticides and Veterinary Medicines Authority;

2.2 “Bale” means 227kg of pressed and bound cotton fibre;

2.3 “BOLLGARD II Cotton“ means cotton produced from BOLLGARD II Cotton Seed;

2.4 “BOLLGARD II Cotton Discontinuation Date“ means the date upon which the rights licensed to Grower by Monsanto regarding the use of BOLLGARD II Technology (including the right to plant BOLLGARD II Cotton Seed) will terminate. Monsanto will determine BOLLGARD II Cotton Discontinuation Date and notify Grower upon at least one (1) year prior notice;

2.5 “BOLLGARD II Resistance Management Plan“ means the resistance management plan set out in Schedule A;

2.6 “BOLLGARD II Stack Cotton“ means cotton containing both BOLLGARD II Technology and ROUNDUP READY FLEX Technology;

2.7 “BOLLGARD 3 Cotton“ means cotton produced from BOLLGARD 3 Cotton Seed;

2.8 “BOLLGARD 3 Field“ means a Field identified on this TUA as to be planted with BOLLGARD 3 Cotton Seed;

2.9 “BOLLGARD 3 Resistance Management Plan“ means the resistance management plan set out in Schedule B;

2.10 “BOLLGARD 3 Stack Cotton“ means cotton containing both BOLLGARD 3 Technology and ROUNDUP READY FLEX Technology;

2.11 “Central Queensland“ means the Central Highlands, Dawson Callide, Belyando-Clermont & Mackenzie valleys located in Central Queensland;

2.12 “Control“ includes:

(a) having control of the composition of the Grower’s board of directors (including in the manner contemplated by section 47 of the Corporations Act 2001 (Cth));

(b) being in a position to cast, or control the casting of, more than one-half of the maximum number of votes that might be cast at a general meeting of the Grower;

(c) holding more than one-half of the issued share capital of the Grower; or

(d) otherwise controlling the Grower within the meaning of section 50AA of the Corporations Act 2001 (Cth);

2.13 “Cotton Choices“ means Monsanto’s “Cotton Choices”™ program, to be offered to Growers who meet the stated minimum requirements, on the terms set out in this TUA and/or otherwise advised by Monsanto;

2.14 “Cotton Growing Season“ means the 2016/17 season for growing cotton (which includes the planning period prior to planting occurring and ending at the conclusion of the activities relevant to the Cotton crop under this TUA and the Nominated TSP agreement with Monsanto);

2.15 “Farm Unit“ means a single property owned, leased or share farmed by the Grower with a group of cotton Fields that are either connected or separated by no more than two kilometres;

2.16 “Field“ means a contiguous area of land planted and managed as one on the Farm Unit and defined by roads, fences, irrigation infrastructure or other delineations (both natural and manmade);

2.17 “GPS“ means Global Positioning System;

2.18 “Green Hectares“ means the planted area of a field, calculated as a percentage of the Field actually planted compared to what would be planted with one metre row spacing. Where the percentage is greater than 100%, 100% will be the calculation used. All cotton is measured as “Green Hectares“.
### Table

<table>
<thead>
<tr>
<th>Row width</th>
<th>Configuration</th>
<th>Planting Configuration Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>40&quot; (1 metre) rows</td>
<td>Solid</td>
<td>100%</td>
</tr>
<tr>
<td>40&quot; (1 metre) rows</td>
<td>Double Skip</td>
<td>50%</td>
</tr>
<tr>
<td>40&quot; (1 metre) rows</td>
<td>Single Skip</td>
<td>66.67%</td>
</tr>
<tr>
<td>60&quot; (1.5 metre) rows</td>
<td>Solid</td>
<td>66.67%</td>
</tr>
<tr>
<td>60&quot; (1.5 metre) rows</td>
<td>Single Skip</td>
<td>44.45%</td>
</tr>
<tr>
<td>2.4 metre rows</td>
<td>Solid</td>
<td>41.67%</td>
</tr>
<tr>
<td>40&quot; (1 metre) rows</td>
<td>Super single (ie. where 1 row of cotton is planted and 2 rows left fallow)</td>
<td>33.33%</td>
</tr>
<tr>
<td>30&quot; or 15&quot; (Ultra Narrow Rows) rows</td>
<td>Solid</td>
<td>100%</td>
</tr>
</tbody>
</table>

#### 2.19 "Intellectual Property Rights" includes any and all intellectual and industrial property rights throughout the world, whether subsisting now or in the future, including rights of any kind in or relating to:

(a) inventions, discoveries and novel designs, whether or not registered or registrable as patents, innovation patents or designs, including developments or improvements of equipment, technology, processes, methods or techniques;
(b) literary works, dramatic works, musical works, artistic works, cinematograph films, television broadcasts, sound broadcasts, published editions of works and any other subject matter in which copyright (including future copyright and rights in the nature of or analogous to copyright) may, or may upon creation of the subject matter, subsist anywhere in the world;
(c) registered and unregistered trade marks and service marks, including goodwill in the business concerned in the relevant goods and/or services; and
(d) confidential information or other proprietary information, technical data, trade secrets and know-how, and includes anything, whether tangible or intangible, which incorporates, embodies or is based on any of the things referred to in any of paragraphs (a) to (d);

#### 2.20 "MTrack" means the Monsanto electronic system used for recording Grower, Farm Unit and Farm Unit audit information and collecting electronic signatures for this TUA and Planting Audit and Cotton Choices™ Selection form or a similar replacement system specified by Monsanto;

#### 2.21 "Monsanto Information" means:

(a) the Technology;
(b) information regarding any product containing Technology or ROUNDUP READY Herbicide;
(c) details of the farming or business operations of other Growers;
(d) any information which is communicated (directly or indirectly) by or on behalf of Monsanto to the Grower pursuant to Section 9.1 or otherwise under this TUA; and
(e) any other information of any nature and in any form concerning the operations, dealings, organisation, personnel, business strategies, customers, Technology, Intellectual Property Rights, trade secrets or know-how of Monsanto, Monsanto Technology LLC and Monsanto Company LLC which is received by, disclosed to or discovered by the Grower before, on or after the date of this TUA under, in connection with or as a result of this TUA or any action taken under this TUA, but does not include information which:
   (i) is or has been legally acquired by the Grower from a third party (other than a TSP) not in breach of any confidentiality obligation to Monsanto; or
   (ii) is or comes into public domain otherwise than by breach of this TUA;

#### 2.22 "Nominated TSP" means the TSP nominated by the Grower, or in the event of notification by Monsanto that the TSP has breached its TSP Agreement with Monsanto, the replacement TSP nominated by the Grower;

#### 2.23 "OGTR" means the Office of the Gene Technology Regulator;

#### 2.24 "Personal Information" has the meaning given to that term in the Privacy Act 1988 (Cth) as updated from time to time.

#### 2.25 "Planting Audit" means a planting audit conducted by the Nominated TSP on the Farm Unit in accordance with Monsanto’s requirements,
2.26 “Planting Audit and Cotton Choices Selection form” means a form completed by the Nominated TSP and signed by the Grower in MTrack detailing the results of the Planting Audit and (if applicable) indicating the Grower’s Cotton Choices selections for each Field on the Farm Unit. The GPS map of the Farm Unit required to be submitted by the Grower pursuant to Section 4.4 as recorded in MTrack shall comprise part of such form;

2.27 “Planting Audit Due Date” means the date by which Grower must have undergone and completed the required Planting Audit on its Farm Unit(s). Planting Audit Due Dates are specified in Section 4.6;

2.28 “Planting Window” means the authorized planting dates of Technology Cotton Seed, as stipulated in the BOLLGARD II Resistance Management Plan and in the Bollgard 3 Resistance Management Plan;

2.29 “Representatives” means the Grower’s consultants, employees, agents and contractors;

2.30 “Resistance Risk Management Plan” or “RRMP” means any supplementary resistance management plan issued by Monsanto for implementation by a Grower to mitigate resistance risk due to non-compliance with BOLLGARD II Resistance Management Plan or BOLLGARD 3 Resistance Management Plan;

2.31 “ROUNDUP READY Herbicide” means a Monsanto brand herbicide which is labelled as suitable for the over the top use on ROUNDUP READY FLEX crops, such as ROUNDUP READY Herbicide with PLANTSHEILD;

2.32 “ROUNDUP READY FLEX Cotton” is cotton produced from ROUNDUP READY FLEX Cotton Seed;

2.33 “ROUNDUP READY FLEX Cotton Weed Resistance Management Plan” means the Weed resistance management plan set out in Schedule C;

2.34 “Section” means any clause of this TUA;

2.35 “Technology” means the BOLLGARD II Technology, the BOLLGARD 3 Technology and the ROUNDUP READY FLEX Technology;

2.36 “Technology Cotton” means BOLLGARD II Cotton, BOLLGARD 3 Cotton and ROUNDUP READY FLEX Cotton;

2.37 “Technology Cotton Seed” means the BOLLGARD II Cotton Seed and/or BOLLGARD 3 Cotton Seed and/or the ROUNDUP READY FLEX Cotton Seed;

2.38 “TSP” means Technology Service Provider;

2.39 “Total Cotton” means all hectares of cotton being grown on a Farm Unit and includes all Technology Cotton, other transgenic cotton, conventional varieties of cotton as well as all sprayed and unsprayed cotton refuges;

2.40 “TUA Number” means the number provided on the front of this TUA.

3. THE GROWER’S OBLIGATIONS

3.1 The Grower must:

(a) before taking possession of a supply of Technology Cotton Seed, complete and sign this TUA;

(b) apply for only one TUA to use the Technology for the Farm Unit;

(c) prior to each purchase of the Technology Cotton Seed for that Farm Unit, provide this TUA Number for that Farm Unit to the TSP supplying the Technology Cotton Seed to the Grower;

(d) strictly comply and ensure that its Representatives strictly comply with all applicable regulatory requirements including those of APVMA and the OGTR relevant to the Technology and ROUNDUP READY Herbicides including only using registered formulations of herbicides by APVMA (for the territory of Australia) for over the top use on ROUNDUP READY FLEX Cotton crops;

(e) allow representatives of APVMA and OGTR to have access to the Farm Unit to perform audits of the Farm Unit in the manner and at the times they discretionarily determine in order to verify compliance with applicable laws and regulatory requirements;

(f) not re-sell or supply and ensure that its Representatives do not re-sell or supply any Technology Cotton Seed or seed produced from Technology Cotton Seed, unless the seed is being sold to a cotton seed company with the prior written approval of Monsanto or, in the case of Technology Cotton Seed, unless the Grower has a bona fide and reasonable belief that the purchaser intends to and will use it only as stock feed or for cotton seed oil production;

(g) not, without Monsanto’s prior written consent, plant any seeds produced from Technology Cotton Seed;

(h) not delint any Technology Cotton;

(i) allow Monsanto and its agents reasonable access to review crop management records maintained by, or on behalf of, the Grower and to inspect the Farm Unit and test the Total Cotton located on the Farm Unit for the purposes of:

(i) assisting the Grower to implement the BOLLGARD II Resistance Management Plan, and/or BOLLGARD 3 Resistance Management Plan and/or the ROUNDUP READY FLEX Cotton Weed Resistance Management Plan;

(ii) ensuring compliance with this TUA; and

(iii) assisting the Grower to implement and comply with any Resistance Risk Management Plans (RRMP) issued by Monsanto in the event that the Grower is in breach of the BOLLGARD II Resistance Management Plan and/or BOLLGARD 3 Resistance Management Plan and/or the ROUNDUP READY FLEX Cotton Weed Resistance Management Plan;
(j) allow the Nominated TSP to conduct audits and surveys of the Farm Unit including to ensure adherence with the Grower’s obligations under this TUA and allow third parties required to conduct audits and surveys to meet regulatory requirements for any approved formulation of glyphosate for use over ROUNDUP READY FLEX Cotton;

(k) obey and comply with all reasonable directions and instructions given by Monsanto in relation to this TUA;

(l) comply with and ensure that its Representatives comply with all Federal, State and local laws, ordinances, rules, regulations, by-laws and policies applicable to the Grower’s performance of its obligations under this TUA and comply with any request made by or on behalf of Monsanto for the purpose of Monsanto complying with any of its obligations in respect of the supply of the Technology under Federal, State and local laws, ordinances, rules, regulations, by-laws and policies;

(m) advise the Nominated TSP of all changes relevant to this TUA including contact details, Field names and farm unit name changes throughout the season so they can be updated in MTrack;

(n) deliver all cotton produced on the Farm Unit under the EPR Program in each Cotton Growing Season to a designated ginning organisation using the same Grower’s name, ABN, Trading Entity, Farm Unit, and Field names as stated in this TUA and Planting Audit and Cotton Choices™ Selection form unless the Grower notifies Monsanto prior to delivery of cotton to the ginning organisation of the changes to the Grower name, ABN, Trading Entity name, Farm Unit name, or Field name will be used. Any change in name will not constitute an assignment of this TUA to that new entity or change the Grower’s obligations under this TUA.

(o) authorise Monsanto to supply the Grower’s name and business details to all designated ginning organisations in order to monitor the Bale quantity of all of the Grower’s cotton production for the 2016/17 growing season; and

(p) authorise all ginning organisations to which the Grower delivers cotton produced on the Farm Unit to submit reports to Monsanto containing details of the Bale quantity of all of the Grower’s cotton production for the 2016/17 growing season.

3.2 The Grower must, in relation to ROUNDUP READY FLEX Cotton Seed alone:

(a) strictly comply with the applicable ROUNDUP READY FLEX Cotton Weed Resistance Management Plan as set out in Schedule C and notify any non-compliance to Monsanto without delay;

(b) strictly comply with any Resistance Risk Management Plans (RRMP) issued by Monsanto in the event that the Grower is in breach of the ROUNDUP READY FLEX Cotton Weed Resistance Management Plan; and

(c) permit Monsanto or its appointee to undertake audits or surveys of the cotton crop planted pursuant to this TUA upon request.

3.3 The Grower must, in relation to BOLLGARD II Cotton Seed only:

(a) not, when determining the percentage of BOLLGARD II Cotton and refuge requirements on a Farm Unit, take account of any Total Cotton or refuge that is referenced on a TUA for another Farm Unit;

(b) strictly comply with the BOLLGARD II Resistance Management Plan as set out in Schedule A;

(c) strictly comply with any Resistance Risk Management Plans (RRMP) issued by Monsanto in the event that the Grower is determined to be in breach of the BOLLGARD II Resistance Management Plan;

(d) if the Grower becomes non-compliant with the BOLLGARD II Resistance Management Plan throughout the season, promptly take all reasonable steps to become compliant. If it is not practical to become compliant, the Grower must immediately contact Monsanto, which will issue the Resistance Risk Management Plan that must be implemented to manage potential resistance risks. Failure to comply with a BOLLGARD II Resistance Risk Management Plan will constitute a material breach of this TUA;

(e) notify Monsanto if any BOLLGARD II Cotton Seed is disposed of (other than by planting) by providing full details of the amount of BOLLGARD II Cotton Seed disposed of and the method of disposal; and

(f) notify Monsanto of any adverse events observed and comply with Monsanto’s incident response procedures that Monsanto may communicate from time to time to the Grower.

(g) permit Monsanto or its appointee from undertaking any audit or survey of the cotton crop planted pursuant to this TUA. The Farm Unit will be audited by Monsanto or the Nominated TSP to verify the planted varieties and planting area for each Field on the Farm Unit covered by this TUA. Additional audits (including a “Mid Season Audit” and a “Resistance Management Audit”) may be conducted at other times throughout the Cotton Growing Season. Monsanto reserves the right to conduct further audits and surveys as it deems necessary; and

(h) upon the BOLLGARD II Discontinuation Date, dispose of any leftover BOLLGARD II Cotton Seed as Monsanto shall discretionarily instruct.

3.4 The Grower must, in relation to BOLLGARD 3 Cotton Seed only:

(a) not, when determining the percentage of BOLLGARD 3 Cotton and refuge requirements on a Farm Unit, take account of any Total Cotton or refuge that is referenced on a TUA for another Farm Unit;

(b) strictly comply with the BOLLGARD 3 Resistance Management Plan as set out in Schedule B;

(c) strictly comply with any Resistance Risk Management Plans (RRMP) issued by Monsanto in the event that the Grower is determined to be in breach of the BOLLGARD 3 Resistance Management Plan;
if the Grower becomes non-compliant with the BOLLGARD 3 Resistance Management Plan throughout the season, promptly take all reasonable steps to become compliant. If it is not practical to become compliant, the Grower must immediately contact Monsanto, which will issue the Resistance Risk Management Plan that must be implemented to manage potential resistance risks. Failure to comply with a BOLLGARD 3 Resistance Risk Management Plan will constitute a breach of this TUA; and

(d) notify Monsanto of any adverse events observed and comply with Monsanto’s incident response procedures that Monsanto may communicate from time to time to the Grower.

(e) notify Monsanto if any BOLLGARD 3 Cotton Seed is disposed of (other than by planting) by providing full details of the amount of BOLLGARD 3 Cotton Seed disposed of and the method of disposal

3.5 The Grower, in relation to BOLLGARD 3 Fields only:

(a) must plant BOLLGARD 3 Cotton Seed only on the BOLLGARD 3 Field(s) identified on this TUA;

(b) by 31 March 2017, notify the Nominated TSP of BOLLGARD 3 Fields that have received an application of a registered rate of defoliant. Grower understands and agrees that if no such declaration is provided within the above timeline, Grower will have to carry out pupae busting in accordance with Monsanto’s instructions; and

(c) must permit Monsanto or its appointee to undertake any audit or survey of the cotton crop planted pursuant to this TUA. The Farm Unit will be audited by Monsanto or the Nominated TSP during the Cotton Growing Season to verify the planted varieties and planting area on the Farm Unit covered by this TUA. Additional audits (including a “Mid Season Audit” or a “Resistance Management Audit”) may be conducted throughout the Audit Period.

3.6 If Grower plants both BOLLGARD II Cotton Seed and BOLLGARD 3 Cotton Seed, Grower must adhere to the both the BOLLGARD II Resistance Management Plan and the BOLLGARD 3 Resistance Management Plan and ensure that Grower’s BOLLGARD II Fields and BOLLGARD 3 Fields have sufficient refuge as per their respective Resistance Management Plan.

3.7 The Grower understands and agrees that:

(a) dealings with Bollgard II Cotton, Roundup Ready Flex Cotton and Bollgard 3 Cotton are governed by licences DIR066 and DIR124 issued by OGTR. Licences are made available at http://www.opengtr.gov.au/internet/ogtr/publishing.nsf/Content/r-1; and

(b) it is not authorized to save and/or plant any Technology Cotton Seed produced from Technology Cotton Seed pursuant to the TUA.

3.8 Grower understands and agrees that the use of PIMA cotton seed that contains Technology is subject to additional regulatory requirements or pending regulatory approvals and the Grower must:

(a) not export any seed, meal, linters, or gin trash derived from any PIMA cotton product containing Technology to Korea unless all applicable import and regulatory approvals have been granted in Korea;

(b) deliver any PIMA cotton product containing Technology to an authorised ginning location, as published by Monsanto from time to time; and

(c) not market any seed, meal, linters, or gin trash derived from any PIMA cotton product containing Technology to a third party who may send such products to countries where those products are not approved by the applicable regulatory authorities.

3.9 If the Grower sells or assigns all or part of the Farm Unit on which Technology Cotton is planted or in use, and wishes to transfer all or part of this TUA to another party, the Grower must ensure the contract of sale or assignment incorporates an agreement by the purchaser to undertake (subject to Monsanto’s prior written approval) the Grower’s obligations under this TUA and to enter into a novation agreement with the Grower and Monsanto on terms reasonably required by Monsanto. Notwithstanding any approval of the transfer from Monsanto, without prejudice to Monsanto’s rights vis-à-vis the transferee, unless otherwise agreed to in writing by Monsanto, all outstanding debts and obligations under this TUA existing at the time of such transfer or arising subsequently during the Cotton Growing Season shall continue to be the primary responsibility of the Grower.

4. PLANTING WINDOW – PLANTING AUDIT

4.1 Grower shall abide by the Planting Windows and Planting Restrictions stipulated in the BOLLGARD II Resistance Management Plan and in the BOLLGARD 3 Resistance Management Plan. Grower understands and agrees that in the event that a Planting Window Variation Notice is issued by Monsanto, growers within the specified valley must comply with such published Planting Window.

4.2 Grower shall notify the Nominated TSP of the quantity and location of any Technology Cotton Seed that was purchased pursuant to this TUA and that remains unplanted at the end of the applicable Planting Window. Monsanto may, at its discretion and subject to Section 3.4 (g), give Grower written permission to plant any leftover Technology Cotton Seed in one or several subsequent season(s), provided Monsanto and Grower enter into a TUA for such subsequent season(s). If no such TUA is entered into, Grower shall dispose of such Technology Cotton Seed as Monsanto may discretionarily instruct.

4.3 Grower shall undergo and complete a Planting Audit for all Farm Units planted with Technology Cotton Seed by the applicable Planting Audit Due Date. The Planting Audit shall be conducted by the Nominated TSP and will record all the areas planted with Technology Cotton Seed (together with varieties, field names and associated refuges on all Farm Units).
4.4 Upon entering this TUA, and by no later than the Planting Audit Due Date, the Grower must provide a GPS map of the Farm Unit to the Nominated TSP showing:

(a) all Fields planted with:
   (i) Technology Cotton Seed (identifying the particular Technology and the cotton variety);
   (ii) and other transgenic varieties of cotton; and
   (iii) conventional varieties.

(b) in relation to any BOLLGARD II Cotton Seed or BOLLGARD 3 Cotton Seed, the type, size and location of the insect refuge required by the applicable Resistance Management Plan.

4.5 By the applicable Planting Audit Due Date, Grower shall sign the Planting Audit and Cotton Choices™ Selection form and submit a completed and signed Planting Audit and Cotton Choices™ Selection form on MTrack, together with the information referred to in Section 4.4. Prior to signing the form, Grower shall check the accuracy and completeness of the information contained therein. Grower understands and agrees that such information shall be used by Monsanto to determine the TUA Fees (as defined in Section 10).

4.6 The applicable Planting Audit Due Dates shall be as follows:

<table>
<thead>
<tr>
<th>Technology Cotton Seed</th>
<th>Areas</th>
<th>Planting Dates</th>
<th>Planting Audit Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bollgard II Cotton</td>
<td>Central Queensland</td>
<td>1 August 2016 – 31 October 2016</td>
<td>8 November 2016</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 November 16 – 15 December 2016</td>
<td>10 January 2017</td>
</tr>
<tr>
<td></td>
<td>Southern Queensland and New South Wales</td>
<td>1 August 2016 – 15 November 2016</td>
<td>6 December 2016</td>
</tr>
<tr>
<td>Bollgard 3 Cotton and Roundup Ready Flex Cotton</td>
<td>Central Queensland</td>
<td>1 August 2016 – 31 October 2016</td>
<td>8 November 2016</td>
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<td></td>
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<td>1 November 16 – 31 December 2016</td>
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<td></td>
<td></td>
<td>1 –31 December 2016</td>
<td>10 January 2017</td>
</tr>
</tbody>
</table>

4.7 Grower shall comply with the planting dates stipulated in the BOLLGARD II and BOLLGARD 3 Resistance Management Plans. Grower understands and agrees that the planting dates set forth in Section 4.6 are for reference only and without prejudice to the planting dates mandated by the relevant Resistance Management Plans.

4.8 If Grower decides to plant Technology Cotton Seed after completion of the Planting Audit in the Cotton Growing Season, Grower shall, within two weeks of planting:

(a) notify Monsanto and the Nominated TSP of the quantity and location of any Technology Cotton Seed planted on prior to the Planting Audit completion date;

(b) notify Monsanto and the Nominated TSP of the quantity and location of any ROUNDUP READY FLEX Cotton Seed not planted on the Planting Audit completion date; and

(c) complete an additional Planting Audit by the applicable Planting Audit Due Date.

4.9 If Grower becomes aware that a Field of Cotton has been missed on the Planting Audit and Cotton Choices™ Selection form, Grower shall notify its nominated TSP immediately and proceed with a supplementary Planting Audit for the unreported Cotton Fields. This Section 4.9 is without prejudice to any remedy available to Monsanto at Law or under this Agreement as a consequence of the non-reporting of any Field of Cotton.
5. REDUCTION IN PERMITTED HECTARES BY REGULATORY AUTHORITY

The Grower acknowledges that, in the event that, following the execution of this TUA, any relevant regulatory authority reduces the number of hectares to which the Technology may be applied, Monsanto retains the right (in its absolute discretion) to terminate or vary this TUA in whole or in part so as to enable it to comply with the directions of the regulatory authority. In this event, Monsanto will, where applicable, provide a pro-rata refund to the Grower (i.e. based on the extent of the reduction in hectares) of moneys paid by the Grower to Monsanto pursuant to this TUA.

6. COTTON CHOICES™

6.1 Cotton Choices™ is available to Growers who have:

(a) any area of BOLLGARD II Cotton on their Farm Unit; and/or
(b) any area of BOLLGARD II Stack Cotton on their Farm Unit; and/or
(c) any area of BOLLGARD 3 Stack Cotton on their Farm Unit; and/or
(d) an area of associated ROUNDUP READY FLEX unsprayed refuge crops on their Farm Unit, equal to 10% of the BOLLGARD II Cotton area or 10% of the BOLLGARD II Stack Cotton area or equal to 5% of the BOLLGARD 3 Stack Cotton area (as nominated on the Planting Audit and Cotton Choices™ Selection form).

All other plantings of ROUNDUP READY FLEX Cotton covered by this TUA are subject to standard pricing and payment terms in accordance with Section 10.3(a) of this TUA.

To participate in Cotton Choices™, a Grower and the Grower’s Nominated TSP must complete, sign and return a Planting Audit and Cotton Choices™ Selection form clearly indicating the Grower’s choice of Cotton Choices™ program (as described below), for each eligible Field on the Farm Unit, before 6:00pm on the applicable Planting Audit Due Date. Forms received by Monsanto after that date will not be valid unless approved by Monsanto. Growers who do not submit a completed and signed Planting Audit and Cotton Choices™ Selection form before 6:00pm AEDT on the applicable Planting Audit Due Date will be enrolled automatically in Cotton Choices™ 2 for all eligible Fields on the Farm Unit. Growers of BOLLGARD II Cotton and/or BOLLGARD II Stack Cotton and/or BOLLGARD 3 Stack Cotton can choose one of the following Cotton Choices™ per Field per Farm Unit.

6.2 Cotton Choices™ 1) (Price Discount)

A Groower who plants BOLLGARD II Cotton and/or BOLLGARD II Stack Cotton and/or BOLLGARD 3 Stack Cotton may choose to receive a discount on their TUA fees for such crops and associated ROUNDUP READY FLEX unsprayed refuge crops, equal to 10% of the BOLLGARD II Cotton area or equal to 5% of the BOLLGARD 3 Stack Cotton area (as nominated on the Planting Audit and Cotton Choices™ Selection form) in accordance with Section 10.3(b) of this TUA. All other plantings of ROUNDUP READY FLEX Cotton covered by this TUA are subject to standard pricing and payment terms in accordance with Section 10.3(a) and are not eligible for this discount.

GROWER UNDERSTANDS AND AGREES THAT, ONCE THE PLANTING AUDIT AND COTTON CHOICES™ SELECTION FORM FOR A PARTICULAR FARM UNIT HAS BEEN SUBMITTED ON MTRACK AND ONCE THE PLANTING AUDIT DUE DATE HAS PASSED, GROWER WILL NOT BE ALLOWED TO CHANGE ITS CHOICE OF COTTON CHOICES™ 1 PROGRAM.

6.3 Cotton Choices™ 2) (Late Crop Removal & Extended Terms (“Late Crop Removal”))

A Grower who plants BOLLGARD II Cotton and/or BOLLGARD II Stack Cotton and/or BOLLGARD 3 Stack Cotton may choose to receive Late Crop Removal protection, whereby if for reasons of natural disasters (such as hail, flood, sandstorm, drought and other such occurrences) or herbicide drift, the Grower’s crop fails and is removed on or before 20 March 2017 for Farm Units in Central Queensland, or 20 April 2017 for Farm Units in other areas. Upon receiving written notice of such occurrence on or before 21 March 2017 for Farm Units in Central Queensland, or 21 April 2017 for Farm Units in other areas, and subject to confirmation of actual loss, Monsanto will waive this TUA Fees for BOLLGARD II Cotton and/or BOLLGARD II Stack Cotton and/or BOLLGARD 3 Stack Cotton and associated unsprayed ROUNDUP READY FLEX Cotton refuge up to 10% of the BOLLGARD II Cotton area or 5% of the BOLLGARD 3 Cotton area for the affected area. All other plantings of ROUNDUP READY FLEX Cotton covered by this TUA are subject to standard pricing and payment terms in accordance with Section 10.3(a) and are not eligible for Late Crop Removal protection.

6.4 Cotton Choices™ 3) (End Point Royalty Program (“EPR Program”))

(a) A Groower who plants BOLLGARD II Cotton and/or BOLLGARD II Stack Cotton and/or BOLLGARD 3 Stack Cotton and associated unsprayed ROUNDUP READY FLEX Cotton refuge up to 10% of the BOLLGARD II Cotton area or 5% of the BOLLGARD 3 Cotton area may choose to place a Field on the Farm Unit under the EPR Program.

(b) Upon harvesting, the Grower shall deliver all seed cotton produced on Fields on the Farm Unit enrolled in the EPR Program to a Monsanto designated ginning organisation for ginning in Australia. Monsanto shall inform the Grower of such designated ginning organisations from time to time. The Grower shall be responsible for making the necessary arrangements with the...
The Grower acknowledges that when growing BOLLGARD II Cotton or BOLLGARD 3 Cotton, the control of Helicoverpa spp. provided by BOLLGARD II Cotton and BOLLGARD 3 Cotton may vary and require supplemental treatment by the Grower in order to avoid economic damage. The Grower also acknowledges that such variation can occur even in circumstances where the Grower has complied with Section 3.1(d).

8. INTELLECTUAL PROPERTY RIGHTS

8.1 Subject to section 8.4, the Grower acknowledges that any and all Intellectual Property Rights in, relating to or otherwise used in connection with any of the Technology or any other subject matter communicated or provided by Monsanto pursuant to this TUA ("Monsanto’s Rights"), are and remain the sole property of Monsanto, Monsanto Technology LLC or Monsanto Company LLC, and the Grower shall not in any way (directly or indirectly) question, challenge or dispute the ownership or validity of any of Monsanto’s Rights.

8.2 If the Grower receives notice or otherwise becomes aware of or suspects any infringement of, misuse of, unauthorised use of, act inconsistent with, challenge to or claim, demand or suit against or related to any of Monsanto’s Rights (an “Infringement”), the Grower must immediately notify Monsanto giving full particulars of the Infringement. Monsanto shall have the sole right to determine what, if any, action should be taken in respect of any Infringement and the Grower agrees that it will co-operate in the conduct of any action brought by Monsanto.

8.3 The Grower must promptly disclose to Monsanto any improvement, modification or development which is developed, discovered or devised by or on behalf of the Grower based on, incorporating or otherwise relating to any of the Technology (an “Improvement”). The Grower acknowledges and agrees that Monsanto will own all right, title and interest (including all Intellectual Property Rights) throughout the world in and to any Improvements (including the right to sub-license Improvements to another party) and all right, title and interest (including all Intellectual Property Rights) throughout the world in and to any Improvements are by this TUA assigned to Monsanto with effect from the date on which they are developed, discovered or devised. The Grower must execute all such documents and do all such other things (and cause its employees, contractors and agents to also do so if required) which
Monsanto reasonably requires from time to time in order to perfect or record the assignment in this sub-Section. All Improvements are deemed to be Monsanto Information for the purposes of Section 9.

8.4 The Grower acknowledges that Monsanto is a licensee of Syngenta Crop Protection AG in Australia for the following Intellectual Property Rights: Australian Patent Nos 727218 and 2003283295.

9. **CONFIDENTIALITY OF MONSANTO INFORMATION**

9.1 Monsanto will provide to the Grower such information as Monsanto in its sole discretion considers is reasonably necessary for the purpose of the Grower’s compliance with government requirements in relation to this TUA.

9.2 The Grower must not:

(a) disclose any Monsanto Information without the prior written consent of Monsanto; or

(b) use any Monsanto Information except for the purposes of this TUA.

9.3 Notwithstanding Section 9.2, the Grower may disclose Monsanto Information:

(a) if the Grower has the written consent of Monsanto to disclose the Monsanto Information;

(b) if it is reasonably necessary for the Grower to disclose the Monsanto Information to its officers, directors and employees to enable those officers, directors and employees to perform their obligations in connection with the exercise of rights conferred by this TUA where those obligations are not inconsistent with the terms of this TUA, provided that the Grower uses all reasonable endeavours to impose undertakings of confidentiality on those officers, directors and employees to whom the Monsanto Information was disclosed;

(c) to any government regulator which requires the Monsanto Information, provided that all reasonable endeavours are used by the Grower to make disclosure under conditions of confidence, and the Grower notifies Monsanto prior to disclosure (if reasonably possible) that such disclosure is required; and

(d) to a law enforcement or regulatory authority as otherwise required by law, provided that prior to such disclosure the Grower notifies Monsanto of the alleged legal requirement, consults with Monsanto as to the reasonable scope of the disclosure and, after taking into account the matters raised by Monsanto during such consultation, the disclosure is no greater than the minimum required by law.

10. **THE GROWER’S TUA FEE**

10.1 In consideration of the grant of this TUA, the Grower hereby agrees to pay the Nominated TSP (as agent for Monsanto) fee(s) on this TUA calculated as set out below (the “TUA Fee(s)”).

10.2 The Grower acknowledges that should the Grower fail to pay this TUA Fee, any and all of Monsanto’s rights to enforce the Grower’s obligations to pay may, at Monsanto’s sole discretion, be enforced by the Nominated TSP as agent for Monsanto.

10.3 In consideration of the grant of this TUA, and subject to sub-Sections 10.3(b) to (g) the Grower hereby agrees to pay to the Nominated TSP:

(a) Fees payable:

(i) a fee of $332.00 (excluding GST) per Green Hectare of land which theGrower has planted with BOLLGARD II Cotton Seed purchased pursuant to this TUA, which shall be payable on 28 February 2017, and/or

(ii) a fee of $79.00 (excluding GST) per Green Hectare of land which the Grower has planted with ROUNDUP READY FLEX Cotton Seed purchased by the Grower pursuant to this TUA, which shall be payable on 28 February 2017, and/or

(iii) a fee of $401.00 (excluding GST) per Green Hectare of land which the Grower has planted with BOLLGARD II Stack Cotton purchased by the Grower pursuant to this TUA, which shall be payable on 28 February 2017, and/or

(iv) a fee of $401.00 (excluding GST) per Green Hectare of land which the Grower has planted with BOLLGARD 3 Stack Cotton purchased by the Grower pursuant to this TUA, which shall be payable on 28 February 2017, and/or

(v) any land which the Grower has planted with BOLLGARD II Technology stacked with traits other than ROUNDUP READY FLEX shall be reported and invoiced in the same way as BOLLGARD II Cotton Seed.

The invoice to the Grower for the aforementioned fees shall be calculated (subject to further audit by Monsanto) based upon information provided by the Grower on the Planting Audit and Cotton Choices Selection form and the GPS map of the Farm Unit provided by the Grower pursuant to Section 4.4.

(b) If Monsanto receives on or before 6.00pm AEDT on the applicable Planting Audit Due Date a completed Planting Audit and Cotton Choices Selection form signed by the Grower and the Grower’s Nominated TSP indicating that the Grower has selected Cotton Choices”1 for a Field on the Farm Unit, this TUA Fee(s) payable by the Grower in relation to the Field for BOLLGARD II Cotton and/or BOLLGARD II Stack Cotton and/or BOLLGARD 3 Stack Cotton and the associated ROUNDUP READY FLEX unsprayed refuge crops, equal to 10% of the BOLLGARD II Cotton and/or BOLLGARD II Stack Cotton or 5% of the BOLLGARD 3 Stack Cotton area (as nominated on the planting audit) referred to in Section 6.1 shall be changed to:
(i) a fee of $315.00 (excluding GST) per Green Hectare of land which the Grower has planted with BOLLGARD II Cotton purchased by the Grower pursuant to this TUA, which shall be due and payable on or before 28 February 2017.

(ii) a fee of $370.00 (excluding GST) per Green Hectare of land which the Grower has planted with BOLLGARD II Stack Cotton purchased by the Grower pursuant to this TUA, which shall be due and payable on or before 28 February 2017, and/or

(iii) a fee of $370 (excluding GST) per Green Hectare of land which the Grower has planted with BOLLGARD 3 Stack Cotton purchased by the Grower pursuant to this TUA, which shall be payable on 28 February 2017, and/or

(iv) a fee of $75.00 (excluding GST) per Green Hectare of land which the Grower has planted with ROUNDPUP READY FLEX Technology purchased by the Grower pursuant to this TUA and used as unsprayed refuge crops on their Farm Unit, equal to 10% of the BOLLGARD II and/or BOLLGARD II Stack Cotton and/or to 5% of the BOLLGARD 3 Stack Cotton area (as nominated in the planting audit), which shall be due and payable on 28 February 2017.

(c) Subject to Section 10.3 (e), if Monsanto receives on or before on the applicable Planting Audit and Cotton Choices™ Selection form signed by the Grower and the Grower’s Nominated TSP indicating that the Grower has selected Cotton Choices™ 2 for a Field on the Farm Unit:

(i) the amount of this TUA Fee(s) payable by the Grower in relation to:

(a) BOLLGARD II Cotton shall remain as set forth in Section 10.3(a)(i);

(b) BOLLGARD II Stack Cotton shall remain as set forth in Section 10.3(a)(iii);

(c) BOLLGARD 3 Stack Cotton shall remain as set forth in Section 10.3(a)(v); and

(d) the associated ROUNDPUP READY FLEX unsprayed refuge crops shall remain as set forth in Section 10.3(a)(ii); and

(ii) this TUA Fee shall be due and payable on 31 July 2017 instead of 28 February 2017. For the avoidance of doubt, the due date for TUA Fee(s) for all other cotton purchased pursuant to this TUA shall remain 28 February 2017.

(d) Subject to Section 10.3 (e), if Monsanto receives on or before on the applicable Planting Audit and Cotton Choices™ Selection form signed by the Grower and the Grower’s Nominated TSP indicating that the Grower has selected Cotton Choices™ 3 (End Point Royalty Program) for a Field on the Farm Unit ("EPR Grower"):

(i) in lieu of this TUA Fee(s) otherwise payable by the Grower in relation to Cotton on the Field on the Farm Unit, the Grower shall be charged and agrees to pay a Yield Based Fee of $50.00 (excluding GST) for each Bale of ginned cotton lint harvested from the Field;

(ii) the quantity of Bales of ginned cotton lint harvested from the Field shall be determined based on report(s) received from the Grower’s designated ginning organisation(s); and

(iii) the Yield Based Fee is due and payable by the Grower 30 days from end of month of receipt of an invoice from Monsanto or the Nominated TSP.

(e) Notwithstanding the foregoing, a Grower who has submitted a completed Planting Audit and Cotton Choices™ Selection form signed by the Grower and the Grower’s Nominated TSP, which is received by Monsanto on or before on the applicable Planting Audit Due Date, indicating that the Grower has selected either Cotton Choices™ 2 or Cotton Choices™ 3 for one or more Fields on the Farm Unit, may change their selection for such Field(s) to either Cotton Choices™ 2 or Cotton Choices™ 3 by submitting an amended Planting Audit and Cotton Choices™ Selection form on or before (i) 20 January 2017 for Farm Units located in Central Queensland; or (ii) 17 February 2017 for Farm Units located in all other areas. The amended selection shall not be valid, and the Grower’s original Cotton Choices™ selection for the Field shall remain unchanged, unless Monsanto receives the amended Planting Audit and Cotton Choices™ Selection form signed by the Grower and the Grower’s Nominated TSP on or before (i) 20 January 2017 for Farm Units located in Central Queensland; or (ii) 17 February 2017 for Farm Units located in all other areas.

(f) If Monsanto receives a Planting Audit and Cotton Choices™ Selection form or an amended Planting Audit and Cotton Choices™ Selection form indicating that the Grower has selected Cotton Choices™ 1, 2, or 3 for a Field on the Farm Unit, but, the Grower’s Cotton Choices™ selection for one or more Fields on the Farm Unit is not clearly indicated (as determined by Monsanto in its sole discretion), Cotton Choices™ 2 as set forth in Section 10.3(c) will be applied as a default and will be applicable to and deemed to have been selected by the Grower for each such Field.

(g) All TUA Fees and Yield Based Fees are to be paid by the Grower to the Grower’s Nominated TSP by the due date indicated above, unless otherwise permitted by Monsanto in writing.

10.4 Invoicing of TUA and Yield Based Fees

(a) Growers selecting Cotton Choices™ 1 (Discount) for a Field on the Farm Unit will be invoiced for the applicable TUA Fee(s) by the Nominated TSP by 31 January 2017 with payment of this TUA Fee(s) to be made by the Grower to the Nominated TSP, subject to Section 10.5 below, unless otherwise permitted by Monsanto in writing.

(b) Growers selecting Cotton Choices™ 2 (Late Crop Removal) for a Field on the Farm Unit will be invoiced for the applicable TUA Fee(s) by the Nominated TSP on or about 15 May 2017 with payment of this TUA Fee(s) to be made by the Grower to the Nominated TSP, subject to Section 10.5 below, unless otherwise permitted by Monsanto in writing.
Growers selecting Cotton Choices™ 3 (EPR Program) for a Field on the Farm Unit will be invoiced the applicable Yield Based Fee(s) by the Nominated TSP periodically after receipt of report(s) received from the Grower’s designated ginning organisation(s) indicating the number of Bales of ginned cotton lint harvested from the Field on the Farm Unit. Monsanto and the Nominated TSP reserve the right to issue partial invoices to Growers.

10.5 Early Crop Removal
If a Grower:
(a) signs a TUA but does not plant a crop covered by this TUA on a Field on the Farm Unit; or
(b) plants a crop covered by this TUA on a Field on the Farm Unit and removes the crop, for whatever reason (e.g. due to hail, poor germination, etc.) on or before:
(i) 6 December 2016 for Bollgard II Cotton Seed planted prior to 15 November 2016 in New South Wales and Southern Queensland;
(ii) 8 November 2016 for Bollgard II Cotton Seed planted prior to 31 October 2016 in Central Queensland;
(iii) 10 January 2017 for Bollgard II Cotton Seed planted between 1 November 2016 and 15 November 2016 in Central Queensland;
(iv) 10 January 2017 for Bollgard 3 Cotton Seed planted between 1 December 2016 and 31 December 2016 in New South Wales and Southern Queensland;
(v) 10 January 2017 for Bollgard 3 Cotton Seed planted between 1 November 2016 and 31 December 2016 in Central Queensland;
(vi) 6 December 2016 for Bollgard 3 Cotton Seed planted prior to 30 November 2016 in New South Wales and Southern Queensland; and
(vii) 8 November 2016 for Bollgard 3 Cotton Seed planted prior to 31 October 2016 in Central Queensland.
then Monsanto will waive the applicable TUA Fees for the affected area, provided, the Grower notifies the Grower’s Nominated TSP, in writing, before 6.00pm on the applicable Planting Audit Due Date that the crop has not been planted or has been removed, and subject to verification of non-planting or removal by Monsanto and the Nominated TSP. Requests for Early Crop Removal after this date is subject to approval by Monsanto.

11. INDEMNITY & LIABILITY

11.1 The Grower agrees to indemnify Monsanto, its directors, officers and employees and hold them harmless from any and all losses, damages, costs, claims, expenses and charges of any nature whatsoever which Monsanto incurs as a result of the breach of the terms of this TUA or negligence by the Grower including any act, neglect or default of its officers or employees.

11.2 Notwithstanding anything to the contrary in this Agreement, to the extent permitted by law, Monsanto will have no liability to the Grower for any losses, damages, costs, claims, expenses and charges of any nature whatsoever to the extent that they arise from an act or failure to act by the Grower in breach of this Agreement.

11.3 MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY COMPANIES OTHER THAN MONSANTO, OR COMPANIES RELATED TO MONSANTO; WHICH ARE AUTHORIZED BY APVMA FOR USE ON ROUNDUP READY FLEX COTTON CROP(S). MONSANTO SPECIFICALLY DISCLAIMS ALL RESPONSIBILITY FOR THE USE OF THESE PRODUCTS ON ROUNDUP READY FLEX COTTON CROP(S). GROWER WILL NOT MAKE ANY CLAIM AGAINST MONSANTO OR ANY COMPANY RELATED TO MONSANTO IN RELATION TO THE USE OF SUCH PRODUCTS AND WILL DIRECT ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF SUCH PRODUCTS TO THE MANUFACTURERS AND/OR MARKETERS THEREOF.

12. TERMINATION

12.1 If either party breaches any of the provisions of this TUA, the other party may give notice to the first party of the intent to terminate this TUA specifying the alleged breach, and if the first party does not rectify that breach within 30 days after the service of that notice, the other party may terminate this TUA forthwith by written notice to the first party.

12.2 Without limiting the generality of this Section, this TUA, and all rights granted pursuant to it, will terminate on written notice from Monsanto to the Grower in the event that:
(a) any approval necessary for the due operation of this TUA should be withdrawn. In this event, Monsanto will refund to the Grower all moneys paid by the Grower to Monsanto pursuant to this TUA;
(b) the Grower:
(i) is or becomes bankrupt;
(ii) is an Externally Administered Body Corporate (as that term is defined in the Corporations Act 2001 (Cth) or equivalent term in equivalent legislation); or
(iii) has a Managing Controller (as that term is defined in the Corporations Act 2001 (Cth) or equivalent term in equivalent legislation) entering into possession or taking control of all or any of the Grower’s assets or undertakings;
(c) there is a change in the Control of the Grower without the prior written consent of Monsanto; or
(d) the Grower, without Monsanto’s prior written consent, sells the Farm Unit or enters into any arrangement that results in any third party having a legal right to possession or control of the land identified as being within the Farm Unit.

13. EXPIRY

This TUA will end at the completion of the Cotton Growing Season.

14. RIGHTS, DUTIES AND LIABILITIES UPON TERMINATION OR EXPIRY

14.1 Subject to Section 14.3, upon the termination or expiry of this TUA, however caused, all rights and privileges of the Grower under this TUA will terminate.

14.2 Termination or expiry of this TUA will have no effect by any means whatsoever upon any rights or liabilities which have accrued to either party prior to termination or expiry, nor upon any liabilities which may arise from damages deriving from a breach of this TUA prior to termination or expiry.

14.3 Sections 3.1(e), (f), (g), (i), (j), (k), (l), (m) and (n), 8, 9, 11, 15, 16, 18, and 20 and this Section 14 survive termination or expiry of this TUA and will remain in full force and effect.

14.4 On the termination of this TUA by Monsanto, the Grower must destroy all BOLLGARD II Cotton, BOLLGARD 3 Cotton and ROUNDPUP READY FLEX Cotton.

14.5 On the termination or expiry of this TUA, Monsanto has a right to inspect the Grower’s crop management records and to inspect and test any Farm Unit for Technology Cotton Seed, other transgenic cotton and conventional cotton on any Farm Unit on which the Grower previously used the Technology for a period of three years after the last year in which the Grower planted Technology Cotton Seed.

15. NON-COMPLIANCE BY THE GROWER

15.1 In addition, or as an alternative, to the rights to terminate contained in Section 12, in the event that the Grower fails to comply with any of the terms of this TUA, Monsanto reserves the right to:

(a) require the Grower to comply with this TUA by immediately removing any BOLLGARD II Cotton, and providing enough supportive evidence of such removal within 7 (seven) days, where there is insufficient or inadequate refuge planted (or able to be planted in order to comply), as required pursuant to the BOLLGARD II Resistance Management Plan;

(b) require the Grower to comply with this TUA by immediately removing any BOLLGARD 3 Cotton, and providing enough supportive evidence of such removal within 7 (seven) days, where there is insufficient or inadequate refuge planted (or able to be planted in order to comply), as required pursuant to the BOLLGARD 3 Resistance Management Plan;

(c) require the Grower to comply with this TUA by immediately removing, and providing enough supportive evidence of such removal within 7 (seven) days, any BOLLGARD II Cotton where it has been planted outside the nominated and approved Planting Window (as set forth in Schedule A);

(d) require the Grower to comply with this TUA by immediately removing, and providing enough supportive evidence of such removal within 7 (seven) days, any BOLLGARD 3 Cotton where it has been planted outside the nominated and approved Planting Window (as set forth in Schedule B);

(e) notify the relevant regulatory authorities of any breach or failure to comply if, in Monsanto’s view, the non-compliance may place Monsanto in breach of its obligations under the Agricultural and Veterinary Chemicals Code Act 1994 (Cth) or the Gene Technology Act 2000 (Cth) or any similar legislation;

(f) require the Grower to plant adequate and sufficient refuge (as defined in the BOLLGARD II Resistance Management Plan and in the BOLLGARD 3 Resistance Management Plan);

(g) issue a Resistance Risk Management Plan (RRMP) to mitigate the risk resulting from a non-compliance;

(h) complete additional on farm audits to ensure compliance with any issued RRMP’s;

(i) institute legal proceedings to recover loss or damage suffered by Monsanto as a result of the Grower’s non-compliance; and

(j) issue the Grower with a non-compliance levy (“Non-Compliance Levy”) and/or undertake additional audits as required in order to monitor compliance. The Grower acknowledges that the Non-Compliance Levy is calculated to reflect a reasonable and genuine pre-estimate of the costs to be incurred by Monsanto in dealing with the non-compliance and in monitoring the Grower’s compliance following any such non-compliance. The Non-Compliance Levy will be charged to the Grower in the Current Growing Season or at Monsanto’s sole discretion, for the following Cotton Growing Season. Notwithstanding any other rights under the Licence, the Grower shall be liable for all of Monsanto’s costs in relation to any of the above conduct following non-compliance by the Grower and the Grower agrees to pay Monsanto the full amount of the Non-Compliance Levy within thirty (30) days of receipt of an invoice from Monsanto.

(k) ensure the Grower repeats the accreditation program prior to the following Cotton Growing Season.
15.2 Upon written request by Monsanto, the Grower will promptly provide Monsanto with a bond in the amount specified by Monsanto. If the Grower strictly complies with the terms of this TUA, the bond will be returned in full to the Grower at the completion of the Cotton Growing Season. If the Grower breaches this TUA, the Non-Compliance Levy will be deducted from the bond and the balance (if any) will be returned to the Grower at the completion of the Cotton Growing Season. The parties acknowledge that Monsanto will only request for such a bond under this Section 15.2 when Monsanto has genuine concerns about the Grower’s ability to comply with the terms of this TUA (whether based on the Grower’s conduct under previous TUAs or otherwise).

16. PERSONAL INFORMATION, FARM UNIT INFORMATION AND PRIVACY

16.1 Any Personal Information which is provided by or on behalf of the Grower to Monsanto or the Nominated TSP, DocuSign or the Monsanto designated ginning organisation (the “Participants”) or information acquired about the Grower’s Farm Unit in connection with this TUA may be used by the Participants to perform and administer this TUA and will be shared by them for this purpose. The Participants may also use that Personal Information or Farm Unit information:

(a) for planning, research, product development, strategic and marketing purposes in relation to Monsanto’s products and services;
(b) to fulfil regulatory requirements;
(c) to ensure compliance by the Grower with this TUA, including compliance with any obligations that survive termination of this TUA;
(d) to assist Cotton Seed Distributors Ltd or any other cotton seed production company nominated by Monsanto from time to time to anticipate Technology Cotton Seed demand;
(e) to enable Monsanto, and the Nominated TSP as Monsanto’s agent, to exercise Monsanto’s rights and perform Monsanto’s obligations under this TUA, including those rights and obligations that survive termination of this TUA;
(f) to enable the Nominated TSP to perform its role as agent for Monsanto in connection with this TUA (including to execute agreements, conduct surveys and other research in relation to Monsanto’s products);
(g) where the Grower has otherwise consented; and
(h) as otherwise required or authorised by or under law.

16.2 Monsanto may also disclose Personal Information provided by the Grower or information acquired about the Grower’s Farm Unit:

(a) to applicable third parties (including seed companies, gins Nominated TSPs, marketers and cotton traders) that Monsanto considers it necessary to disclose such information to for any of the purposes set out in Sections 16.1(a) to 16.1(f) (inclusive);
(b) to regulatory authorities (including the APVMA and the OGTR);
(c) to Monsanto’s third party IT providers including providers who are located outside of Australia (i.e. DocuSign, Salesforce.com, etc.), as the case may be;
(d) to a related entity of Monsanto who is located outside of Australia;
(e) where the Grower has otherwise consented; and
(f) as otherwise required or authorised by or under law (including under the Privacy Act 1988 (Cth), as amended from time to time).

16.3 If the Grower does not provide a Participant with all of the Personal Information about that Grower reasonably requested by a Participant, the Participant may not be able to licence you to use Technology or otherwise fully perform its obligations under this TUA.

16.4 The Grower:

(a) if the Grower is a natural person, consents to the collection, use and disclosure of Personal Information about the Grower by the Participants in accordance with this Section 16 and otherwise in accordance with Monsanto’s Privacy Policy, as updated from time to time (“Privacy Policy”);
(b) whether the Grower is a natural person or otherwise, to the extent that the Grower has or does from time to time provide to any Participant any Personal Information of any individual (who is not the Grower) under or in connection with this TUA, the Grower warrants that the individual has read or will be required to read this Section 16 and the Privacy Policy and has agreed to the collection, use and disclosure of Personal Information about that individual by the Participants in accordance with this Section 16 and the Privacy Policy.

16.5 The Privacy Policy contains information about how an individual may access the Personal Information about that individual that is held by Monsanto and seek the correction of such information, and how that individual may complain about a breach of the Australian Privacy Principles, and how Monsanto will deal with such a complaint. Individuals may obtain a copy of the Privacy Policy posted on our website at www.monsanto.com/global/au/whoweare/Pages/contact-us.aspx.

17. ASSIGNMENT

The Grower may not assign any of its rights and/or liabilities pursuant to this TUA without the prior written consent of Monsanto, which consent shall be entirely within the discretion of Monsanto.
18. **AUDITS**

18.1 The Grower must keep records necessary to demonstrate its compliance with its obligations under this TUA.

18.2 Monsanto may, as frequently as reasonably required and with prior notice (either verbal or written), audit the Grower in relation to any obligations they have under this TUA, including:

(a) to verify the accuracy of any information provided by the Grower; and

(b) to verify that the practices and procedures used by the Grower are consistent with its obligations under this TUA.

18.3 The Grower must provide all reasonable assistance required by any auditor, including allowing the auditor to make copies of any audited material.

18.4 The Grower must also provide assistance as may be reasonably requested by Monsanto in order to enable Monsanto to comply with any regulatory requirement or any regulatory authority.

18.5 Except as required for legal or regulatory compliances nothing in this Section 18 requires or entitles the Grower to breach an obligation of confidence to any third party or to give Monsanto or its auditors access to any information that is not related to this TUA or its performance by the Grower.

19. **MISCELLANEOUS**

19.1 This TUA is governed by the laws in force in, and the parties submit to the non-exclusive jurisdiction of the courts of, the State of Victoria.

19.2 Any provision of this TUA which is invalid or unenforceable in any jurisdiction will be ineffective in that jurisdiction to the extent only of such invalidity or unenforceability and will be severed from and will not invalidate the remaining provisions of this TUA.

19.3 The Grower agrees that no failure or delay by Monsanto in exercising any right, power or privilege under this TUA will operate as a waiver thereof and no single or partial exercise thereof will preclude the exercise by Monsanto of any other right, power or privilege under this TUA.

19.4 This TUA may not be modified, amended or otherwise varied except by a document in writing signed by each of Monsanto and the Grower (or their authorised representatives).

19.5 Subject to any Sections that expressly continue past termination or expiry of any previous Technology User Agreements between the parties, this TUA supersedes all and any previous agreements whether oral or written in respect of the Technology between the Grower and Monsanto.

19.6 (a) Failure to exercise or enforce, or a delay in exercising or enforcing, or the partial exercise or enforcement of, a right, power or remedy provided by law or under this TUA by a party does not preclude, or operate as a waiver of, the exercise or enforcement, or further exercise or enforcement, of that or any other right, power or remedy provided by law or under this TUA.

(b) A waiver or consent given by a party under this TUA is only effective and binding on that party if it is given or confirmed in writing by that party.

(c) No waiver of a breach of a term of this TUA operates as a waiver or another breach of that term or of a breach of any other term of this TUA.

19.7 Each party must promptly do all further acts and execute and deliver all further documents (in form and content reasonably satisfactory to that party) required by law or reasonably requested by another party to give effect to this TUA.

20. **INSURANCE**

20.1 During the Term of this TUA, the Grower shall carry and TSP will ensure that there is in force (providing Monsanto with a copy of the insurance certificate upon Monsanto’s request) adequate Public and Product Liability insurance with a limit of indemnity reasonably appropriate considering the activities and obligations of the Grower, its employees or other representatives, pursuant to this TUA.

20.2 The parties to this TUA may agree upon such further or other insurances to be procured and maintained, by either of them, as may reasonably be required in light of changing circumstances during the period that this TUA is in force.

21. **GST**

(a) In addition to any other consideration, the recipient of a Taxable Supply made under or in connection with this TUA (the “Recipient”) must pay to the party making the Taxable Supply (the “Supplier”) the amount of GST in respect of the Taxable Supply. This sub-Section does not apply if the consideration specified for the Taxable Supply is expressly agreed to be GST inclusive.

(b) If the amount paid by the Recipient to the Supplier in respect of GST (whether because of an Adjustment or otherwise):

(i) is more than the GST on the Taxable Supply, then the Supplier shall refund the excess to the Recipient; or

(ii) is less than the GST on the Taxable Supply, then the Recipient shall pay the deficiency to the Supplier.
The Recipient is not obliged to pay any amount in respect of GST to the Supplier unless and until the Supplier issues a Tax Invoice to the Recipient in respect of the Taxable Supply. If an Adjustment has occurred, the Supplier must issue an Adjustment Note to the Recipient.

The amount of a party’s entitlement under this TUA to recovery or compensation for any of its costs, expenses or liabilities is reduced by the Input Tax Credits to which that party (or the Representative Member of a GST Group of which the party is a member) is entitled in respect of such costs, expenses or liabilities.

In this TUA, amounts which are calculated by reference to revenue or profits are calculated on the GST exclusive component of that revenue or those profits unless expressly provided to the contrary.

For the purposes of this TUA:
(i) “GST” has the meaning as in the A New Tax System (Goods and Services Tax) Act 1999;
(ii) “GST Law” has the same meaning as in the A New Tax System (Goods and Services Tax) Act 1999;
(iii) “Adjustment”, “Adjustment Note”, “GST”, “GST Group”, “Input Tax Credits”, “Representative Member” and “Tax Invoice” have the meanings given to them in the GST Law, and
(iv) “Taxable Supply” has the meaning given to it in the GST Law, excluding section 84-5 of A New Tax System (Goods and Services Tax) Act 1999.

Each of the parties acknowledges that it is registered for GST and will notify the other if it ceases to be registered.

22. AGREEMENT TO ISSUE RECIPIENT CREATED TAX INVOICES

(a) Monsanto and the Grower agree that:
   (i) Monsanto may issue recipient created tax invoices (“RCTI”) for the supply of services to it by the Grower (“the Supply”);
   (ii) The Grower will not issue tax invoices in respect of the supply;
   (iii) The Grower and Monsanto acknowledge that they are registered for the GST at the time of entering into this TUA, and will notify the recipient if it ceases to be registered.

23. INTERPRETATION

In this TUA unless the context indicates a contrary intention:
(a) words importing the singular include the plural and vice versa, and words denoting a given gender include all other genders;
(b) headings are for convenience only and do not affect interpretation;
(c) references to parties, Sections, schedules, exhibits or annexures are references to parties, Sections, schedules, exhibits and annexures to or of this TUA and a reference to this TUA includes any schedule, exhibit and annexure;
(d) references to this TUA, or any other deed, agreement, instrument or document is deemed to include references to this TUA, or such other deed, agreement, instrument or document as amended, novated, supplemented, or replaced from time to time;
(e) a reference to “$” or “dollar” is to Australian currency;
(f) references to any person or to any party to this TUA include that person’s or party’s executors, administrators, successors and permitted assigns;
(g) where any word or phrase is given a defined meaning any other part of speech or grammatical form in respect of such word or phrase has corresponding meaning;
(h) where the day on or by which any sum is payable hereunder or any act, matter or thing is to be done is a day other than a business day (being a day on which trading banks are generally open in Victoria), such sum will be paid and such act, matter or thing will be done on the immediately succeeding business day;
(i) reference to any legislation or to any clause or provision of any legislation includes any statutory modification or re-enactment or any statutory provision substituted for, and all ordinances, by-laws, regulations and other statutory documents issued under, that legislation, Section or provision; and
(j) the word “includes” in any form is not a word of limitation.

NOTE TO THE GROWER:

- You will be bound by the terms of this TUA once your signing of this TUA has been accepted on behalf of Monsanto. Therefore, please make sure that you fully understand these terms before signing this TUA. If you are in any doubt, you should obtain independent legal advice before signing.
- **BOLLGARD II®, BOLLGARD® 3, ROUNDUP READY® FLEX, ROUNDUP READY Herbicide with PLANTSHIELD® by Monsanto** are registered trademarks of Monsanto Technology LLC, and Monsanto Company used under license by Monsanto Australia Limited.
SCHEDULE A:
RESISTANCE MANAGEMENT PLAN FOR
BOLLGARD II COTTON
The resistance management plan is based on three basic principles: (1) minimising the exposure of *Helicoverpa* spp. to the *Bacillus thuringiensis* (Bt) proteins Cry1Ac and Cry2Ab, (2) providing a population of susceptible individuals that can mate with any resistant individuals, hence diluting any potential resistance; and (3) removing resistant individuals at the end of the cotton season. The three principles are supported through the implementation of 5 elements that are the key components of the Resistance Management Plan. These elements are:

1. Refuge crops
2. Planting window
3. Pupae busting/Trap crops
4. Control of volunteers and ratoon cotton and
5. Spray limitations.

Growers of Bollgard II cotton are required to practice preventative resistance management as set out below. Compliance with the Resistance Management Plan is required under the terms of the Bollgard II Technology User Agreement and under the conditions of registration (*Agricultural and Veterinary Chemicals Act 1994*).

Section 1 is applicable to all regions in New South Wales and Queensland that grow cotton while sections 2 and 3 detail specific requirements for New South Wales and Southern Queensland, and Central Queensland respectively.

**SECTION 1: NEW SOUTH WALES, SOUTHERN QUEENSLAND & CENTRAL QUEENSLAND**

**1. Refuges**

Growers planting Bollgard II cotton will also be required to grow a refuge crop that is capable of producing large numbers of *Helicoverpa* spp. moths which have not been exposed to selection with Bt proteins Cry1Ac and Cry2Ab. These unselected moths are expected to dominate matings with any survivors from Bollgard II crops and thus help to maintain resistance to Bt proteins Cry1Ac and Cry2Ab at low levels.

All refuge options are based on the requirement of a 10% unsprayed cotton refuge or its equivalent, as determined by the relative production of *Helicoverpa* spp. from each of the refuge types as described in Tables 1 and 2, for irrigated and dryland production scenarios respectively. Irrespective of the irrigation regime for the Bollgard II cotton, all pigeon pea refuges must be fully irrigated so that they are attractive to *Helicoverpa* spp. during the growing period of the Bollgard II cotton.

For each area of irrigated Bollgard II cotton planted, a grower is required to plant a minimum of one or a combination of the following:

### Table 1. Irrigated Bollgard II cotton refuge options

<table>
<thead>
<tr>
<th>Crop</th>
<th>Conditions</th>
<th>% of Bollgard II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Irrigated, sprayed conventional cotton</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Irrigated, unsprayed conventional cotton</td>
<td>10</td>
</tr>
<tr>
<td>Pigeon pea</td>
<td>Fully irrigated, unsprayed</td>
<td>5</td>
</tr>
</tbody>
</table>

### Table 2. Dryland Bollgard II cotton refuge options

<table>
<thead>
<tr>
<th>Crop</th>
<th>Conditions</th>
<th>% of Bollgard II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Dryland or Irrigated, sprayed conventional cotton</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Dryland or Irrigated, unsprayed conventional cotton</td>
<td>10</td>
</tr>
<tr>
<td>Pigeon pea</td>
<td>Fully irrigated, unsprayed</td>
<td>5</td>
</tr>
</tbody>
</table>

No other refuge options are approved for dryland Bollgard II.
**Note:** Unsprayed means not sprayed with any insecticide that targets any life stage of *Helicoverpa* spp.

Bt products must not be applied to any refuge (including sprayed cotton).

If the viability of an unsprayed refuge is at risk due to early or late season pressure by *Helicoverpa* spp., or any other caterpillar species, contact Monsanto immediately. With prior approval from the Monsanto Compliance and Stewardship Manager, a non-Bt heliocide can be applied.

An unsprayed refuge should not be planted in the same field as any crop sprayed with a rate of insecticide that is registered for *Helicoverpa* spp., with the exception of Bollgard II. Sprayed crops and unsprayed refuges that are planted in adjacent fields must be separated by sufficient distance to *minimise the likelihood of insecticide drift onto the unsprayed refuge.*

For the purposes of this Resistance Management Plan, conventional cotton includes any cotton varieties that do not have Bt proteins in the plant that control *Helicoverpa* spp. larvae.

**General conditions for all refuges:**

a) Refuge crops are to be planted and managed so that they are attractive to *Helicoverpa* spp. during the growing period of the Bollgard II cotton varieties.

   **Irrigated:** It is preferable that all refuge is planted within the 2 week period prior to planting Bollgard II. If this is not possible, refuge planting must be completed within 3 weeks of the first day of sowing of Bollgard II. At this time, sufficient refuge must have been planted to cover all of the Bollgard II cotton proposed to be planted for the season (including Bollgard II already planted and any that remains unplanted). Should additional Bollgard II planting be made after this date, which is not already covered by refuge, additional refuge must be planted as soon as possible and no more than 2 weeks after sowing of the additional Bollgard II.

   **Dryland:** A dryland refuge must be planted within the 2 week period prior to the first day of planting Bollgard II cotton.

b) Pigeon pea refuges should not be planted until the soil temperature reaches 17°C, which is a requirement for germination, and should also be planted into moisture to ensure successful germination. If soil temperatures are not suitable to allow germination of pigeon peas in line with condition (a), an alternative refuge must be planted in its place within the prescribed period (under (a) above).

c) Once Bollgard II cotton begins to flower the corresponding refuge must not be cultivated.

d) Insecticide preparations containing Bt may be used on Bollgard II cotton throughout the season BUT NOT on any refuge crops.

e) All refuges are to be planted within the farm unit growing Bollgard II cotton. Subject to Section (f) below, all reasonable effort should be taken to plant the refuge either on one side of, or next to a Bollgard II cotton Field and all Bollgard II Fields must be no more than 2 km from the nearest associated Bollgard II refuge.

f) To minimise the possibility of refuge attractiveness being affected by herbicide drift, non-herbicide tolerant refuges should be separated from herbicide tolerant Bollgard II cotton crops by a sufficient distance to minimise such drift, but no more than 2 km from the Bollgard II cotton.

g) To account for possible insecticide drift, the options for the width of refuge crops vary according to spray regime. If any sprayed conventional cotton is grown on the same farm unit, Bollgard II refuge crops must be at least 48 metres wide and each refuge area must be a minimum of 2 hectares. If no sprayed conventional cotton is grown on the same farm unit, Bollgard II refuge crops must be at least 24 metres wide and 24 metres long. Different unsprayed refuge options may be planted in the same field as a single unit; however a sprayed conventional cotton refuge must not be planted in a field that is also planted to an unsprayed refuge type unless a sufficient buffer is in place to prevent insecticide drift.

h) In all regions, destruction of refuges should only be carried out after Bollgard II cotton lint removal has been completed.

i) Refuges for dryland Bollgard II cotton crops must be planted in the same row configuration as the Bollgard II crop unless the refuge is irrigated. If an irrigated option is utilised for a dryland Bollgard II crop, then that refuge may be planted in a solid configuration. Dryland cotton is measured as green hectares (calculated as defined in the Technology User Agreement).

2. **Control of volunteer and ratoon cotton**

Volunteer and ratoon cotton may impose additional selection pressure on *Helicoverpa* spp. to develop resistance to the Bt Cry1Ac and Cry2Ab proteins produced by Bollgard II cotton.

Growers must ensure that volunteer and ratoon plants are removed as soon as possible from all fields, including fallow areas, Bollgard II crops, conventional cotton crops and all refuges. **The presence of Bollgard II volunteers/ratoon cotton in any refuge will diminish the value of the refuge and must be removed as soon as possible.**

   **Note:** The refuge should preferably be planted into fallow or rotation fields that have not been planted to cotton in the previous season.

3. **Post-harvest crop destruction**

As soon as practical after harvest, Bollgard II cotton crops must be destroyed by cultivation or herbicide so that they do not continue to act as hosts for *Helicoverpa* spp.
SECTION 2: NEW SOUTH WALES AND SOUTHERN QUEENSLAND ONLY

1. Planting windows
   All Bollgard II crops are to be planted into moisture or watered-up by 15 November, unless otherwise advised by a Bollgard II Planting Window Variation Notice.

2. Pupa destruction
   In Bollgard II cotton fields, each grower will be required to undertake Helicoverpa spp. pupae destruction after harvest according to the following key guidelines:
   - Bollgard II crops should be slashed or mulched and fields cultivated for pupae control within 4 weeks of harvesting. All pupae busting must be completed by July 31.
   - Ensure disturbance of the whole soil surface to a depth of 10cm.
   - All fields that are sown to any winter crop following a Bollgard II crop must be inspected by the Technology Service Provider before sowing commences in order to ensure that pupae busting has occurred.

   In Refuge crops:
   In New South Wales and Southern Queensland, to ensure maximum emergence of late pupae from associated refuges, soil disturbance of refuge crops should not be undertaken until after the pupae busting in Bollgard II cotton crops on the farm unit is complete. All unsprayed refuges, should preferably be left uncultivated until the following October.

3. Failed crops
   Bollgard II crops that will not be grown through to harvest for various reasons and are declared to, and verified by, Monsanto as failed must be destroyed within two weeks after verification, in such a way that prevents regrowth. Crops abandoned before February 28 do not require pupae busting. Crops abandoned on February 28 or later must be pupae busted.

   NB: If any grower encounters problems in complying with the Resistance Management Plan please contact your local Monsanto Regional Business Manager

SECTION 3: CENTRAL QUEENSLAND ONLY

1. Planting Windows
   - Central Highlands: All Bollgard II crops are to be planted into moisture or watered-up in the period between September 15 and October 26, unless advised otherwise by a Bollgard II Planting Window Variation Notice.
   - Dawson Callide Valleys: All Bollgard II crops are to be planted into moisture or watered-up in the period between September 15 and October 26, unless advised otherwise by a Bollgard II Planting Window Variation Notice.
   - Belyando – Clermont: All Bollgard II crops are to be planted into moisture or watered-up in the period between November 4 and December 15, unless advised otherwise by a Bollgard II Planting Window Variation Notice.
   - Mackenzie: All Bollgard II crops are to be planted into moisture or watered-up in the period between November 4 and December 15, unless advised otherwise by a Bollgard II Planting Window Variation Notice.

2. Refuges
   Pigeon Pea refuge should preferably be planted into a fallow or rotation field that has not been planted to cotton in the previous season to avoid volunteer and ratoon cotton.

   In Central Queensland soil disturbance of refuge crops can only occur 2 weeks after final defoliation of the Bollgard II cotton.

3. Late summer pigeon pea trap crop
   A late summer trap crop (pigeon pea) must be planted for all Bollgard II cotton grown in Central Queensland. The planting configuration of the trap crop should be the same as that of the Bollgard II crop. Irrigated Bollgard II must have an irrigated trap crop. Table 3 shows the requirements for the late summer pigeon pea trap crop. Dryland Bollgard II growers who do not have any irrigated cotton on their farm should contact their Monsanto Regional Business Manager for alternative options.

   Refuge and late summer trap crops have different purposes and, if pigeon pea is selected for both, two separate plantings may be required. However, where a pigeon pea refuge is utilised as a trap crop the full 5% pigeon pea refuge area must be managed to become the late summer trap crop and must adhere to the requirements in Table 3 on next page.
Table 3. Late summer pigeon pea trap crop requirements in Central Queensland

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Trap crop*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum area &amp; dimension (Requirement)</td>
<td>A minimum trap crop of 1% of planted Bollgard II cotton crop is required.</td>
</tr>
<tr>
<td></td>
<td>If sprayed conventional cotton is grown on that farm unit: the trap crop must be at least 48m x 48m.</td>
</tr>
<tr>
<td></td>
<td>If no sprayed conventional cotton is grown on that farm unit: the trap crop must be at least 24m x 24m.</td>
</tr>
<tr>
<td>Planting time</td>
<td>The trap crop should preferably be planted between November 1 and November 30 Note: if growers choose to plant their trap crop to coincide with the planting of pigeon pea refuges they must manage the trap crop in such a way that it remains attractive to Helicoverpa spp. 2-4 weeks after final defoliation.</td>
</tr>
<tr>
<td>Planting rate**</td>
<td>35kg/ha (recommended establishment greater than 4 plants per metre).</td>
</tr>
<tr>
<td>Insect control</td>
<td>The trap crop can be sprayed with virus after flowering, while avoiding insecticide spray drift, except where a pigeon pea refuge is converted to a trap crop. In this case the full 5% pigeon pea refuge area managed to become the late summer trap crop can only be sprayed with virus after the first defoliation of Bollgard II cotton.</td>
</tr>
<tr>
<td>Irrigation</td>
<td>The trap crop must be planted into an area where it can receive the additional irrigation required to keep the trap crop attractive to Helicoverpa spp. until after the cotton is defoliated.</td>
</tr>
<tr>
<td>Weed control</td>
<td>The trap crop should be kept free of weeds and particularly volunteer Bollgard II cotton. When using the full 5% pigeon pea trap crop option, weed control must not be carried out by cultivation once flowering of the associated Bollgard II cotton crop has commenced.</td>
</tr>
<tr>
<td>Crop destruction</td>
<td>The trap crop must be destroyed 2-4 weeks (but not before 2 weeks) after final defoliation of the Bollgard II cotton crop, (slash and pupae bust – full soil disturbance to a depth of 10cm across the entire trap crop area). All Bollgard II and associated trap crops must be destroyed by July 31.</td>
</tr>
</tbody>
</table>

* A pigeon pea trap crop is to be planted so that it is attractive (flowering) to Helicoverpa spp. after the cotton crop has cut out, and as any survivors from the Bollgard II crop emerge. Planting pigeon pea too early (e.g. before November) or too late (e.g. mid December) is not adequate for cotton crops planted during September through to October.

** The planting rate is a recommendation based on a minimum of 85% seed germination.

NB: If any grower encounters problems in complying with the Resistance Management Plan, please contact your local Monsanto Regional Business Manager.

For further background information on the various components of this plan see the "Preamble to the Resistance Management Plan for Bollgard II" in the current Cotton Pest Management Guide.
SCHEDULE B:
RESISTANCE MANAGEMENT PLAN FOR BOLLGARD 3 COTTON
The Resistance Management Plan is based on three basic principles: (1) minimising the exposure of Helicoverpa spp. to the Bacillus thuringiensis (Bt) proteins Cry1Ac, Cry2Ab and Vip3A, (2) providing a population of susceptible individuals that can mate with any resistant individuals, hence diluting any potential resistance, and (3) removing resistant individuals at the end of the cotton season. These principles are supported through the implementation of five elements that are the key components of the Resistance Management Plan. These elements are:

1. Planting Restrictions;
2. Refuge crops;
3. Control of volunteers and ratoon cotton;
4. Pupae destruction/trap crops; and
5. Spray limitations

Growers of Bollgard 3 cotton are required to practice preventative resistance management as set out below. Compliance with the Resistance Management Plan is required under the terms of the Bollgard 3 Technology User Agreement and per the Conditions of Registration for Bollgard 3 under the Agricultural and Veterinary Chemicals Act 1994.

1. PLANTING RESTRICTIONS

New South Wales and Southern Queensland
All Bollgard 3 crops and refuges must be planted into moisture or watered-up between August 1 and before December 31 each year, unless otherwise specified in this Resistance Management Plan.

Central Queensland
All Bollgard 3 crops and refuges must be planted into moisture or watered-up between August 1 and before October 31 each year, unless otherwise specified in this Resistance Management Plan.

Any Bollgard 3 crops planted into moisture or watered-up after October 31 and up to December 31 must plant additional refuge as specified in Table 3 and 4.

2. REFUGES

Growers planting Bollgard 3 cotton will be required to grow a refuge crop that is capable of producing large numbers of Helicoverpa spp. moths which have not been exposed to selection with the Bt proteins Cry1Ac, Cry2Ab and Vip3A. These unselected moths are expected to dominate matings with any survivors from Bollgard 3 crops and thus help to maintain resistant alleles to the Bt proteins Cry1Ac, Cry2Ab and Vip3A at low frequencies.

All refuge options are based on the requirement of a 5% unsprayed cotton refuge or its equivalent, as determined by the relative production of Helicoverpa spp. from each of the refuge types as described in Tables 1 and 2 for irrigated and dryland production scenarios, respectively.

For each area of irrigated Bollgard 3 cotton planted, a grower is required to plant one or more of the following:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Conditions</th>
<th>% of Bollgard 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Irrigated, sprayed conventional cotton</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Irrigated, unsprayed conventional cotton</td>
<td>5</td>
</tr>
<tr>
<td>Pigeon pea</td>
<td>Fully irrigated, unsprayed</td>
<td>2.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crop</th>
<th>Conditions</th>
<th>% of Bollgard 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Dryland or irrigated, sprayed conventional cotton</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Dryland or irrigated, unsprayed conventional cotton</td>
<td>5</td>
</tr>
<tr>
<td>Pigeon pea</td>
<td>Dryland or fully irrigated, unsprayed, Dryland pigeon peas can only be planted with an approved plan from Monsanto Australia</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Table 3: Irrigated Bollgard 3 cotton refuge options for Central Queensland planted after October 31

<table>
<thead>
<tr>
<th>Crop</th>
<th>Conditions</th>
<th>% of Bollgard 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Irrigated, sprayed conventional cotton</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Irrigated, unsprayed conventional cotton</td>
<td>10</td>
</tr>
<tr>
<td>Pigeon pea</td>
<td>Fully irrigated, unsprayed</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4: Dryland Bollgard 3 cotton refuge options for Central Queensland planted after October 31

<table>
<thead>
<tr>
<th>Crop</th>
<th>Conditions</th>
<th>% of Bollgard 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Dryland or irrigated, sprayed conventional cotton</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Dryland or irrigated, unsprayed conventional cotton</td>
<td>10</td>
</tr>
<tr>
<td>Pigeon pea</td>
<td>Dryland or fully irrigated, unsprayed. Dryland pigeon peas can only be planted with an approved plan from Monsanto Australia.</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: Unsprayed means not sprayed with any insecticide that targets any life stage of *Helicoverpa* spp.

Bt products must not be applied to any refuge (including sprayed cotton).

If the viability of an unsprayed refuge is at risk due to early or late season pressure by *Helicoverpa* spp., or any other caterpillar species, contact Monsanto Australia immediately. With prior approval from Monsanto Australia, a non-Bt helicide can be applied.

For the purposes of this Resistance Management Plan, conventional cotton includes any cotton varieties that do not have Bt proteins in the plant that control *Helicoverpa* spp. larvae.

General conditions for all refuges:

(a) Refuge crops are to be planted and managed so that they are attractive to *Helicoverpa* spp. during the growing period of the Bollgard 3 cotton varieties.

**Irrigated:** It is preferable that all refuge is planted within the 2 week period prior to planting Bollgard 3. If this is not possible, refuge planting must be completed within 3 weeks of the first day of sowing of Bollgard 3. At this time, sufficient refuge must have been planted to cover all of the Bollgard 3 cotton proposed to be planted for the season (including Bollgard 3 already planted and any that remains unplanted). If additional Bollgard 3 is planted after this date which is not already covered by refuge, additional refuge must be planted as soon as possible and no more than 2 weeks after sowing of the additional Bollgard 3.

**Dryland:** A dryland refuge must be planted within the 2 week period prior to the first day of planting Bollgard 3 cotton.

(b) Pigeon pea refuges should not be planted until the soil temperature reaches 17°C, which is a requirement for germination, and should also be planted into moisture to ensure successful germination. If soil temperatures are not suitable to allow germination of pigeon peas in line with condition (a), an alternative refuge must be planted in its place within the prescribed period (under (a) above).

(c) All refuges should preferably be planted into a fallow or rotation field that has not been planted to Bt cotton in the previous season to avoid volunteer and ratoon cotton. See Refuge Management Guide for all unsprayed refuges.

(d) Once Bollgard 3 cotton begins to flower, the corresponding refuge must not be cultivated.

(e) All refuges are to be planted within the farm unit growing Bollgard 3 cotton no more than 2 km from the associated Bollgard 3 cotton field. For any cases where it may not be possible to plant the refuge within 2 km from the associated Bollgard 3, approval must be sought from Monsanto Australia.

(f) To minimise the possibility of refuge attractiveness being affected by herbicide drift, non-herbicide tolerant refuges should be separated from herbicide tolerant Bollgard 3 cotton crops by a sufficient distance to minimise such drift, but no more than 2 km from the Bollgard 3 cotton.

(g) To account for possible insecticide drift, the options for the width of refuge crops vary according to spray regime. If any sprayed conventional cotton is grown on the same farm unit, Bollgard 3 refuge crops must be at least 48 metres wide and each refuge area must be a minimum of 2 hectares. If sprayed conventional cotton is not grown on the same farm unit,
Bollgard 3 refuge crops must be at least 24 metres wide and each refuge area must be a minimum of 0.5 hectares. Different unsprayed refuge options may be planted in the same field as a single unit; however a sprayed conventional cotton refuge must not be planted in a field that is also planted to an unsprayed refuge type unless a sufficient buffer is in place to prevent insecticide drift.

(h) In all regions, destruction of refuges must only be carried out after Bollgard 3 has been harvested. In Central Queensland, soil disturbance of refuge crops must only occur when the trap crop is being destroyed (refer to section 4 Pupae Destruction).

(i) Refuges for dryland Bollgard 3 cotton crops must be planted in the same row configuration as the Bollgard 3 crop unless the refuge is irrigated. If an irrigated option is utilised for a dryland Bollgard 3 crop, then that refuge may be planted in a solid configuration. Dryland cotton is measured as green hectares (calculated as defined in the

3. CONTROL OF VOLUNTEER AND RATOON COTTON

Volunteer and ratoon cotton may impose additional selection pressure on Helicoverpa spp. to develop resistance to the Bt proteins Cry1Ac, Cry2Ab and Vip3A produced by Bollgard 3 cotton.

As soon as practical after harvest, Bollgard 3 cotton crops must be destroyed by cultivation, root cutting or herbicide so that they do not continue to act as hosts for Helicoverpa spp.

Growers must ensure that volunteer and ratoon plants are removed as soon as possible from all fields, including fallow areas, Bollgard 3 crops, conventional cotton crops and all refuges. The presence of Bollgard 3 volunteers/ratoon cotton in any refuge will diminish the value of the refuge and must be removed as soon as possible.

Note: The refuge should preferably be planted into fallow or rotation fields that have not been planted to cotton in the previous season.

4. PUPAE DESTRUCTION / TRAP CROPS

New South Wales and Southern Queensland

To further mitigate the risk of resistance, each grower of Bollgard 3 must undertake Helicoverpa spp. pupae destruction in fields with a higher probability of carrying over wintering pupae according to the following key guidelines:

- If first defoliation of a Bollgard 3 field occurs on or before March 31, the Bollgard 3 field must be slashed or mulched and controlled to prevent regrowth within 4 weeks of harvesting.
- If first defoliation of a Bollgard 3 field occurs after March 31, the Bollgard 3 field must be slashed or mulched and controlled to prevent regrowth within 4 weeks of harvesting and pupae busting must be complete by July 31 for all valleys except for all regions including the Lachlan, Murrumbidgee, Menindee and Murray Valleys where pupae busting must be complete by August 31.
- Ensure disturbance of the soil surface to a depth of 10 cm to a distance of 30 cm both sides of the plant line.

Central Queensland

Crop destruction

All Bollgard 3 crops must be slashed or mulched and controlled to prevent regrowth within 4 weeks of harvesting.

End of season management of refuges/trap crops

End of season pupae busting practices are not effective in the Central Queensland region as Helicoverpa spp. are less likely to diapause. A late summer trap crop (pigeon pea) must be planted for all Bollgard 3 cotton grown in Central Queensland. The planting configuration of the trap crop should be the same as that of the Bollgard 3 crop. Irrigated Bollgard 3 must have an irrigated trap crop. Table 5 shows the requirements for the late summer pigeon pea trap crop. Dryland Bollgard 3 growers who do not have any irrigated cotton on their farm should contact Monsanto Australia for alternative options.

Refuge and late summer trap crops have different purposes. Where a pigeon pea refuge is utilised, the full pigeon pea refuge area must be managed to become the late summer trap crop. If unsprayed cotton is used as the refuge, an additional area of 1% pigeon pea must be planted as the late summer trap crop. Requirements for late summer trap crops are detailed in Table 5 below.

Refuge and late summer trap crops have different purposes and, if pigeon pea is selected for both, two separate plantings may be required. However, where a pigeon pea refuge is utilised as a trap crop the full 5% pigeon pea refuge area must be managed to
become the late summer trap crop and must adhere to the requirements in Table 3 below.

Table 5: Late summer pigeon pea trap crop requirements in Central Queensland

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Trap crop*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum area &amp; dimension (Requirement)</td>
<td>A minimum trap crop of 1% of planted Bollgard 3 cotton crop is required. If sprayed conventional cotton is grown on that farm unit: the trap crop must be at least 48m x 48m. If no sprayed conventional cotton is grown on that farm unit: the trap crop must be at least 24m x 24m.</td>
</tr>
<tr>
<td>Planting time</td>
<td>The trap crop should preferably be planted 4 weeks after the associated Bollgard 3. Note: if growers choose to plant their trap crop to coincide with the planting of pigeon pea refuges, they must manage the trap crop in such a way that it remains attractive to <em>Helicoverpa</em> spp. 2-4 weeks after final defoliation.</td>
</tr>
<tr>
<td>Planting rate**</td>
<td>35kg/ha (recommended establishment greater than 4 plants per metre)</td>
</tr>
<tr>
<td>Insect control</td>
<td>The trap crop can be sprayed with virus after flowering, while avoiding insecticide spray drift, except where a pigeon pea refuge is converted to a trap crop. In this case the full 5% pigeon pea refuge area managed to become the late summer trap crop can only be sprayed with virus after the first defoliation of Bollgard 3 cotton.</td>
</tr>
<tr>
<td>Irrigation</td>
<td>The refuge/trap crop must be planted into an area where it can receive the additional irrigation required to keep the trap crop attractive to <em>Helicoverpa</em> spp. until after the cotton is defoliated.</td>
</tr>
<tr>
<td>Weed control</td>
<td>The trap crop should be kept free of weeds and particularly volunteer Bollgard 3 cotton. When using the full pigeon pea refuge area as the trap crop, weed control must not be carried out by cultivation once flowering of the associated Bollgard 3 cotton crop has commenced.</td>
</tr>
<tr>
<td>Crop destruction</td>
<td>The trap crop must be destroyed 2-4 weeks (but not before 2 weeks) after final defoliation of the Bollgard 3 cotton crop. (slash and pupae bust – full soil disturbance to a depth of 10 cm across the entire trap crop area). All Bollgard 3 and associated trap crops must be destroyed by July 31.</td>
</tr>
</tbody>
</table>

* A pigeon pea trap crop is to be planted so that it is attractive (flowering) to *Helicoverpa* spp. after the cotton crop has cut out, and as any survivors from the Bollgard 3 crop emerge. Planting pigeon pea too early (e.g. before November) or too late (e.g. mid December) is not adequate for cotton crops planted during September through to October.

** The planting rate is a recommendation based on a minimum of 85% seed germination.

Failed Crops – All Regions

Bollgard 3 crops that will not be grown through to harvest for various reasons and are declared to, and verified by, Monsanto as failed must be destroyed within two weeks after verification, in such a way that prevents regrowth. Crops that are abandoned before February 28 should be slashed and mulched within 4 weeks.

5. SPRAY LIMITATIONS

Insecticide preparations containing Bt may be used on Bollgard 3 cotton throughout the season BUT NOT on any refuge crops.

An unsprayed refuge should not be planted in the same field as any crop sprayed with a rate of insecticide that is registered for *Helicoverpa* spp., with the exception of Bollgard 3. Sprayed crops and unsprayed refuges that are planted in adjacent fields must be separated by sufficient distance to minimise the likelihood of insecticide drift onto the unsprayed refuge.

If the viability of an unsprayed refuge is at risk due to early or late season pressure by *Helicoverpa* spp., or any other caterpillar species, contact Monsanto Australia immediately. With prior approval from Monsanto Australia, a non-Bt heliocide can be applied

**NB:** If any grower encounters problems in complying with the Resistance Management Plan for Bollgard 3 please contact Monsanto Australia.

For further background information on the various components of this plan see the “Preamble to the Resistance Management Plan for Bollgard 3” in the current Cotton Pest Management Guide.
SCHEDULE C: ROUNDUP READY FLEX COTTON
WEED RESISTANCE MANAGEMENT PLAN
1. **Objective**

   The Roundup Ready Flex cotton Weed Resistance Management Plan details strategies that can be implemented to minimise the risk of glyphosate resistance developing in weeds on-farm. It complements the training which growers received before growing Roundup Ready Flex cotton, and the Roundup Ready Flex cotton technical manual. Roundup Ready Flex cotton offers superior and effective weed control to growers, with a wide glyphosate application window, outstanding crop safety, broad spectrum weed control and the ability to control weeds where they appear. The flexibility of an Integrated Weed Management (IWM) strategy including Roundup Ready Flex cotton offers management efficiencies as well as a variety of in-crop weed control options. Prudent management of Roundup Ready Flex technology and mitigation of resistance risks will ensure these options for weed control are available to Australian cotton growers well into the future.

2. **Growing Roundup Ready Flex cotton**

   There are several requirements and audits which form a part of the Technology User Agreement (TUA) for Roundup Ready Flex cotton and the product label for Roundup Ready Herbicide with PLANTSHIELD by Monsanto for growers and chemical users. In summary these are:

   - Attendance at an accreditation course before a grower plants Roundup Ready Flex cotton for the first time, and signs their first TUA
   - Allowing Monsanto staff or representatives to conduct audits on fields planted to Roundup Ready Flex cotton
   - Reporting of any suspected resistance of weeds in a Roundup Ready Flex cotton crop
   - Implementing an IWM strategy

   These requirements are a part of Monsanto’s stewardship program, aimed at protecting the Roundup Ready Flex technology to ensure its effectiveness into the future. It is critical that all growers read and understand the terms and conditions of the TUA and the product label for Roundup Ready Herbicide with PLANTSHIELD prior to using the products.

3. **Protecting an important tool – glyphosate**

   Herbicide resistant weeds have been a reality for decades in Australia – no herbicide is immune, including glyphosate. While the problem is significant, it is also manageable and effective mitigation strategies can reduce the risk and delay its development. In Australia, glyphosate resistant populations of several weed species have been found, including some throughout the cotton growing regions. Glyphosate is a critically important part of any IWM program on cotton farms, and growers want to make sure that the benefits it delivers are preserved and maintained. Where glyphosate resistance has occurred, it can be effectively managed through good agronomic practices. There are actions that every grower can take to prevent or manage glyphosate resistance on their property. By acting now we can ensure the long term sustainable use of glyphosate herbicides in cotton crops, by minimising the risk of glyphosate resistance developing.

   Naturally occurring populations of some weeds may possess biotypes with resistance to glyphosate. Growers should be aware of this prior to using glyphosate and should aim to decrease the development and spread of resistant populations. If you suspect resistant biotypes are present, they should be sampled and tested. Contact the local Monsanto Regional Business Manager for assistance with this process.

   The Weed Resistance Management Plan aims to reduce the likelihood of glyphosate resistance developing, it does not, however, guarantee that there will be no resistance.
4. Understanding your glyphosate resistance risk

Each field planted to Roundup Ready Flex cotton has its own unique risk of glyphosate resistance developing, based on its usage history, the weeds present and their density and other historical rotations and agronomic management strategies employed.

As a part of any sound IWM plan, growers are encouraged to assess their resistance risk prior to planting Roundup Ready Flex cotton, and when making decisions about weed management strategies. Queensland DPI have developed a “Risk Assessment Tool” which can be accessed at https://www.daf.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/weed-management-in-field-crops/herbicide-resistance/glyphosate-resistance-toolkit. This tool can be used to help make decisions about what strategies could be used to reduce the specific risk areas on each farm, and in each field.

5. On farm factors that change resistance risks

The Australian Glyphosate Sustainability Working Group has developed a guide for sustainable use in northern Australian grain and cotton which describes practices that affect the development of resistance.

Factors that decrease resistance risk

- Monitoring and preventing weed control escapes from setting seed
- Planning and implementing an IWM strategy to reduce the weed seed-bank
- Strategic use of alternative knockdown herbicides and tillage in fallows prior to sowing
- Use of alternate herbicide modes of action including residual herbicides in crops and fallows
- Use of a double-knock glyphosate followed by tillage or paraquat (Group L) based products at effective rates
- Applying stewardship plans when growing glyphosate tolerant crops
- Farm hygiene to prevent importing and moving resistant seeds

Factors that increase resistance risk

- Frequent glyphosate-based chemical fallows
- Continuous reliance on glyphosate as a knockdown prior to sowing
- Inter-row use of glyphosate in grain crops (unregistered)
- Lack of tillage
- Lack of use of alternative herbicide modes of action in fallows and crops
- Allowing survivors of glyphosate applications to set seed
- High weed numbers
- Lack of crop competition on weeds
- Over-reliance on glyphosate tolerant crops as a weed control mechanism

6. Resistance management principles for Roundup Ready Flex cotton

As outlined on the Roundup Ready Herbicide with PLANTSHIELD by Monsanto label, there are some guidelines for designing a successful IWM strategy. The implementation of these principals should result in the reduction in the weed population entering the Roundup Ready Flex cotton cropping phase, and maximise the control of weeds that may be resistant to glyphosate. These are,

1. Aim to enter the Roundup Ready Flex cropping phase of your rotation with a low weed burden
2. Integrate as many different weed control options as possible through all phases of the crop rotation
3. Make every herbicide application count – use registered rates at the correct application growth stage and always assess its effectiveness
4. Rotate herbicides with different modes of action throughout the crop rotation
5. Regularly monitor the effectiveness of resistance management practices
6. Test weed populations for herbicide resistance status as a part of ongoing IWM
7. If planting into a paddock with suspected glyphosate resistance growers must have a plan to manage such weeds

The simplest and most effective way to minimise the risk of resistance developing in a Roundup Ready Flex cotton crop is to rotate away from glyphosate immediately following the Roundup Ready Flex cotton crop. Preventing seed set from any weeds surviving glyphosate application is critical to preventing resistance development and spread – never use the same technique twice on the same weed, or weeds growing from seed produced by a surviving weed.

The following table outlines some key principles for weed control at different stages through the cotton season. For more information about any of these recommendations, see the Roundup Ready Flex cotton technical manual.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
</table>
| Pre-plant knockdown            | • Always start clean by planting into a weed-free field using either tillage or an herbicide application.  
  • Know your field history in order to identify whether any volunteer cotton present is Roundup Ready Flex.  
  • Consider using tank mixes with Roundup Ready Herbicide with PLANTSHIELD by Monsanto or other registered products as part of an IWM strategy.                                                                                                                                                |
| Residual herbicides            | • Residual herbicides should be used where appropriate in a Roundup Ready Flex weed control system.  
  • Consider using residual herbicides where weeds not controlled by Roundup Ready Herbicide with PLANTSHIELD by Monsanto are present.  
  • The residual herbicide can be applied as a pre-emergence application (either a pre-plant incorporated application, or at planting application).  
  • Use the recommended labelled rate and timing of the residual herbicide.                                                                                                                                                                                                                           |
| In-crop weed control           | • Only apply Roundup Ready Herbicide with PLANTSHIELD by Monsanto according to the registered application window.  
  • 0–22 nodes – 4 OTT applications (max 1.5 kg/ha per application).  
  • 60% open to harvest – 1 OTT application (max 1.5 kg/ha per application).  
  • Use a maximum of 4 applications and no more than a total of 6.0 kg/ha of Roundup Ready Herbicide with PLANTSHIELD by Monsanto per crop.  
  • Target the first application of Roundup Ready Herbicide with PLANTSHIELD by Monsanto on young cotton with weeds less than 6 cm in size.  
  • Sequential applications of Roundup Ready Herbicide with PLANTSHIELD by Monsanto may be required to control new and subsequent germinations of weeds.  
  • Select the timing of sprays based on the most difficult to control weed species in each field.  
  • Post directed sprays should be used to achieve more thorough coverage on weeds.  
  • Refer to the 'Weeds Controlled' table in the Roundup Ready Herbicide with PLANTSHIELD by Monsanto label for rate recommendations on specific weeds.  
  • Be aware of any potential contamination of spray application equipment (including mixing stations).  
  • Ensure all equipment is thoroughly cleaned and free of residues.  
  • Do not tank mix any product with Roundup Ready Herbicide with PLANTSHIELD by Monsanto.  
  • Ensure all applications are made according to label guidelines on water volume, droplet size and environmental conditions.  
  • Be aware of off-target drift to susceptible crops and fields with both aerial and ground applications.                                                                                                                                                                                           |
| Lay-by applications            | • If you currently use lay-by herbicides, then consider maintaining this program.  
  • A robust lay-by program can provide residual control of weeds not controlled by Roundup Ready Herbicide with PLANTSHIELD by Monsanto.  
  • Use the recommended labelled rate and timing of the residual herbicide.                                                                                                                                                                                                                                                                     |
| Pre-harvest application        | • OTT application of 1.0 kg/ha is available if required before harvest and after cotton reaches 60% open bolls.  
  • This application can be used to control late season weeds and improve harvest efficiency.  
  • Compatible with commonly used defoliants (see Roundup Ready Herbicide with PLANTSHIELD by Monsanto label).  
  • Do not use on crops intended for seed production.                                                                                                                                                                                                                                                                                       |
Monsanto strongly recommends that growers consult an agronomist when designing an IWM strategy for their property. For some more resources and information see [www.glyphosateresistance.org.au](http://www.glyphosateresistance.org.au) and [www.weedsmart.org.au](http://www.weedsmart.org.au).

7. Monitoring herbicide efficacy

All growers or agronomists should inspect fields between 14 and 28 days after spraying with glyphosate to monitor the effectiveness of the herbicide application. During an inspection, any surviving weeds that are normally susceptible to glyphosate should be identified. The outcomes of any inspection and any remedial application used should be recorded. Any case of suspected resistance should be reported immediately to Monsanto for further investigation.

The Post Spray Survey (PSS) is a random audit carried out by Monsanto to monitor the effectiveness of glyphosate in Roundup Ready Flex cotton crops, and each year 10% of growers will be audited to identify which weeds have survived a glyphosate application. It is recommended that these inspections should be carried out regardless of whether an audit takes place or not, as a part of any IWM strategy.

8. What to do if you suspect resistance

If any spray failure of Roundup Ready Herbicide with PLANTSHIELD by Monsanto occurs, it is essential to determine the reason. Possible reasons for spray failures may be:

- Resistant weeds
- Poor spray application
- Emergence after a spray application

Any weeds which are suspected to be resistant to glyphosate should be tested to confirm this. Monsanto will provide support for any Roundup Ready Flex cotton growers with testing suspected resistant weeds in a Roundup Ready Flex cotton field. Contact your Technology Service Provider or Monsanto Regional Business Manager for more information. Their contact details can be found at [www.cottonchoices.com.au](http://www.cottonchoices.com.au).

9. WeedSmart

WeedSmart is an initiative that promotes the long term sustainability of glyphosate and other herbicide use in Australian agriculture. The program centres on providing farmers and agronomists with the latest tools and resources to manage herbicide resistance. Commitment to the WeedSmart initiative has come from research and development organizations, advisors and agronomists, chemical companies, agribusiness and grower representative bodies who share a common goal to safeguard the industry’s future. Central to the initiative is the campaign hub located at [www.weedsmart.org.au](http://www.weedsmart.org.au).

10. Management of resistant or hard to control weeds

In order to maximise the effectiveness of in-crop applications of Roundup Ready Herbicide with PLANTSHIELD by Monsanto, growers should base the timing of these applications on the growth stage of the most difficult to control weed species present in each field. The “Weeds Controlled” table on the Roundup Ready Herbicide with PLANTSHIELD by Monsanto label lists the weeds which glyphosate will control and rate recommendations on specific weeds. Some “hard to control” weeds will not be controlled by glyphosate, and are not listed on the Roundup Ready Herbicide with PLANTSHIELD by Monsanto label. Examples of these are Fleabane (Conyza bonariensis) and Feathertop Rhodes Grass (Chloris virgata Sw.). These weeds, where present should be controlled by other means. For information and guidance on their control see the cotton pest management guide ([http://crdc.com.au/?post_type=publication&p=3175](http://crdc.com.au/?post_type=publication&p=3175)), consult your agronomist or guidelines produced by QDAFF or NSWDPI.

Currently in the Australian cotton growing regions there are several weeds confirmed as glyphosate resistant, and others at high risk of developing resistance. In addition to the “hard to control” weeds, an IWM strategy should take these weeds into account and special care should be taken to control these weeds and prevent them setting seed. Not every population of these weeds will be resistant, but resistance development in another part of the country places them at high risk of resistance development elsewhere.
**Glyphosate resistant grass species**

There are currently seven grass species which have developed glyphosate resistance in Australia. These are:

- Annual ryegrass (*Lolium rigidum*)
- Awnless barnyard grass (*Echinochloa colona*)
- Liverseed grass (*Urochloa panicoides*)
- Windmill grass (*Chloris truncata*)
- Great brome grass (*Bromus diandrus*)
- Sweet summer grass (*Brachiaria eruciformis* (Sm.) Griseb.)
- Feathertop Rhodes grass (*Chloris virgata*)
- and Red brome (*Bromus rubens*)

**Glyphosate resistant broadleaf species**

There are currently four broadleaf species which have developed glyphosate resistance in Australia. These are:

- Fleabane (*Conyza bonariensis*)
- Prickly lettuce (*Lotuca serriola*)
- Sowthistle (*Sonchus oleraceus*)
- and Wild radish (*Raphanus raphanistrum*)

See the Australian Glyphosate Sustainability Working Group website for up to date details of which weeds have been found to be resistant to glyphosate, and where they are located (glyphosateresistance.org.au). If any of these species are present in a Roundup Ready Flex cotton field or in non-cropping areas they should be monitored and controlled using the principles described in this document.
ROUNDUP READY FLEX COTTON WEED MANAGEMENT GUIDE.

Roundup Ready Flex technology gives you superior weed control, excellent crop safety and the ability to maximise your yield potential. However, over reliance on glyphosate before, during and after the cotton crop will increase your chance of resistance developing on your farm.

There are a range of herbicides with different modes of action which can be used in a Roundup Ready Flex cotton crop throughout the season. By adding targeted use of pre-emergent, selective herbicides, cultivations and chipping, you can maintain excellent weed control while reducing the risk of glyphosate resistance developing on your farm, saving you time and money in the future.

We’ve listed clear recommendations for weed control practices in a Roundup Ready Flex cotton crop, as well as for post and pre-harvest weed and volunteer control.

Make sure to contact your consultant regarding your planned weed control program as the following information is a guide only. For more information on herbicide resistance visit www.weedsmart.org.au.

Additional Information

For additional resources on cotton weed management, download the Roundup Ready Flex cotton Weed Resistance Management Plan from monsanto.com.au, check out the Cotton Pest Management Guide or contact your Monsanto Regional Business Manager.

Monsanto has made every effort to ensure the accuracy of the information provided. However, Monsanto makes no express or implied warranties as to the recommendations and assumes no liability for loss, damage, injury or civil action incurred by those who use it. Any reference to products or companies is not an endorsement of or warranty of those products or companies. Copyright ©2016 Monsanto Australia Limited. All Rights Reserved. Roundup and Roundup Ready are registered trademarks of Monsanto Technology LLC. Monsanto Australia Limited licensee. All other marks are the property of their respective owners.
GUIDELINES FOR A SUCCESSFUL IWM STRATEGY TO REDUCE RESISTANCE RISKS:

• Aim to enter the Roundup Ready cropping phase of the rotation with a low weed burden.
• Integrate as many different weed control options (chemical and cultural) as possible through all phases of the crop rotation.
• Make every herbicide application count – use registered rates at the correct application growth stage and assess effectiveness.
• Rotate herbicides with different modes of action throughout the crop rotation.
• Regularly monitor the effectiveness of resistance management practices.
• Test weed populations for herbicide resistance status as part of ongoing integrated weed management.
• If planting into a paddock with suspected glyphosate resistance growers must have a plan to manage such weeds.

For more information on integrated weed management visit www.weedsmart.org.au
WEED MANAGEMENT RECOMMENDATIONS FOR THE ROUNDPUP READY FLEX SYSTEM.

PRE-PLANTING KNOCKDOWN*
- All weeds
  - Spray Seed®
  - Liberty®
- Broadleaf weeds
  - Roundup Ready Herbicide with PLANTSHIELD by Monsanto
- Grass weeds
  - Gramoxone®

PRE-PLANTING OR PRE-EMERGENT RESIDUAL*
- All weeds
  - Colgord® W6
  - Cotoran®
- Broadleaf weeds
  - Diuron 900 WDG
  - Cotoran®
  - Terbyne® Xtreme®
- Grass weeds
  - Dual Gold®
  - Treflam™
  - Rife® 440

EARLY IN-CROP APPLICATION*
- All weeds
  - Roundup Ready Herbicide with PLANTSHIELD by Monsanto
- Grass weeds
  - Verdict™ 520

Cultivation  Chipping  It is important to target all surviving weeds after chemical applications. The timely use of cultivation and chipping targeting surviving weeds can be a key IWM tactic in a cotton system.

VOLUNTEER ROUNDPUP READY FLEX COTTON CONTROL

In fallow weed control*
- Sharpen®
- Spray Seed®
- Gramoxone®

Pre-planting knockdown*
- Valor®
- Elevate® Herbicide

Early in-crop application*
- Sencor®

Post-harvest
- Sharpen®
- Elevate® Herbicide
- Starane™ Advance

*Check label for plantback period and always apply according to label conditions.
†Recommended for weed control in Pigeon Pea refuge crops.
LAY-BY / SHIELDED SPRAY

All weeds
- Gesagard® 500 SC

Broadleaf weeds
- Diuron 900 WDG
- Valor®
- Terbyne® Xtreme®

Grass weeds
- Dual Gold®
- Rifle® 440

PRE-HARVEST

All weeds
- Roundup Ready Herbicide with PLANTSHIELD by Monsanto

Broadleaf weeds
- 2,4-D Amine 625
- Starane™ Advance

POST-HARVEST

All weeds
- Roundup Ready Herbicide with PLANTSHIELD by Monsanto
- Spray Seed®

Broadleaf weeds
- 2,4-D Amine 625
- Starane™ Advance

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<table>
<thead>
<tr>
<th>Product</th>
<th>Group</th>
<th>Active Ingredients</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verdict™ 520</td>
<td>A</td>
<td>520 g/L haloxyfop (present as the haloxyfop-R methyl ester)</td>
<td>Dow</td>
</tr>
<tr>
<td>Cotogard® WG</td>
<td>C</td>
<td>440 g/L flumeturon, 440 g/kg prometryn</td>
<td>Adama</td>
</tr>
<tr>
<td>Cotoran®</td>
<td>C</td>
<td>900 g/kg flumeturon</td>
<td>Adama</td>
</tr>
<tr>
<td>Diuron 900 WDG</td>
<td>C</td>
<td>900 g/kg diuron</td>
<td>Adama</td>
</tr>
<tr>
<td>Gesagard® 500 SC</td>
<td>C</td>
<td>500 g/L prometryn</td>
<td>Syngenta</td>
</tr>
<tr>
<td>Sencor® 750 WG</td>
<td>C</td>
<td>750 g/kg metribuzin</td>
<td>Bayer</td>
</tr>
<tr>
<td>Terbyne® Xtreme®</td>
<td>C</td>
<td>875 g/kg Terbuthylazine</td>
<td>Sipcam</td>
</tr>
<tr>
<td>Rifle® 440</td>
<td>D</td>
<td>440 g/L pendimethalin</td>
<td>Nufarm</td>
</tr>
<tr>
<td>Treflan™</td>
<td>D</td>
<td>480 g/L trifluralin</td>
<td>Dow</td>
</tr>
<tr>
<td>Elevate® Herbicide</td>
<td>G</td>
<td>400 g/L carfentrazone-ethyl</td>
<td>Adama</td>
</tr>
<tr>
<td>Shapen®</td>
<td>G</td>
<td>700 g/kg saflufenacil</td>
<td>Nufarm</td>
</tr>
<tr>
<td>Valor®</td>
<td>G</td>
<td>500 g/kg flumioxazin</td>
<td>Sumitomo</td>
</tr>
<tr>
<td>Liberty®</td>
<td>N</td>
<td>200 g/L glufosinate-ammonium</td>
<td>Bayer</td>
</tr>
</tbody>
</table>

Product Group Active Ingredients Company
---
2,4-D Amine 625 I 625 g/L 2,4-D Adama
Starane™ Advance I 333 g/L fluroxypyr (present as meptyl ester) Dow
Dual Gold* K 960 g/L S-metolachlor Syngenta
Gramoxone® L 250 g/L parquat present as paraquat dichloride Syngenta
Spray Seed® L 135 g/L parquat (present as paraquat dichloride) and 115 g/L diquat (present as diquat dibromide) Syngenta
Roundup Ready Herbicide with PLANTSHIELD by Monsanto M 690 g/kg glyphosate Sinochem
Liberty® N 200 g/L glufosinate-ammonium Bayer
When you grow Bollgard 3, Bollgard II and Roundup Ready Flex cotton, you need to be familiar with the terminology used throughout the industry.

**Accreditation**
Growers need to be accredited to use Bollgard 3, Bollgard II and/or Roundup Ready Flex cotton. Monsanto runs accreditation meetings throughout the year. Your Technology Service Provider (TSP) can give you more information.

**BG3 (Bollgard 3)**
The third generation insect technology that kills *Helicoverpa* spp. pests.

**BGII (Bollgard II)**
Bollgard II cotton contains traits that kill *Helicoverpa* spp. pests.

**Cotton Choices™**
Cotton Choices™ is the name of the program that offers growers different ways to pay for their Monsanto traits. Cotton Choices™ gives growers flexibility in managing cash flow and production risks. You can choose how and when you pay for your Bollgard 3/Roundup Ready Flex, Bollgard II/ Roundup Ready Flex or Bollgard II technology.

**Cry1Ac**
One of three proteins produced in Bollgard 3 cotton plants that is derived from a common soil bacterium and that is toxic to specific insects.

**Cry2Ab**
One of three proteins produced in Bollgard 3 cotton plants that is derived from a common soil bacterium and that is toxic to specific insects.

**EPR (End Point Royalty)**
The Cotton Choices™ program includes Cotton Choices™ 3: End Point Royalty (EPR). You are able to make the choice to pay your cotton technology fees as your cotton is ginned, via a set EPR per bale. Visit the website for full terms and conditions.

**LCR (Late Crop Removal)**
One of the Cotton Choices™ is Cotton Choices™ 2: Late Crop Removal (LCR) with Extended Terms. It entitles you to receive a full refund on your technology fee if your crop is removed due to hail, drought or for any other reason. Visit the website for full terms and conditions.

**RMP (Resistance Management Plan)**
Growers of Bollgard 3 and Bollgard II are required to practice preventative resistance management as set out in the Resistance Management Plan (RMP).

Compliance with the RMP is required under the grower terms and conditions of the Technology User Agreement and under the conditions of registration of the technology.

**RRMP (Resistance Risk Management Plan)**
A Resistance Risk Management Plan (RRMP) is part of Monsanto’s stewardship protocol for reporting compliance with its Bollgard 3 and Bollgard II product registration to the Australian Pesticides and Veterinary Medicines Authority (APVMA). An RRMP is a mitigation plan that must be in place for every incidence of grower non-compliance with the Resistance Management Plan (RMP). Designed to protect the longevity of the technology for the entire industry, RRMPs are aimed at mitigating resistance development risk resulting from a non-compliance with the RMP.

**RRF (Roundup Ready Flex)**
Roundup Ready Flex is the cotton that is tolerant to Over the Top applications of registered glyphosate formulations such as Roundup Ready Herbicide with PLANTSHIELD by Monsanto.

**TSP (Technology Service Provider)**
TSP’s provide technology support, Technology User Agreements (TUA), Roundup Ready Herbicide with PLANTSHIELD by Monsanto and cotton seed. You’ll find a TSP at your local supplier of agricultural products, although not all suppliers are TSP’s so check the website for a full list.

**TUA (Technology User Agreement)**
When you grow Bollgard 3, Bollgard II or Roundup Ready Flex cotton, you must have a TUA. It is an agreement you have with Monsanto to grow cotton using their genetic technology.

**Vip3A**
One of three proteins produced in Bollgard 3 cotton plants that is derived from a common soil bacterium and that is toxic to specific insects.
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Please refer to the 2016/17 Bollgard 3, Bollgard II and Roundup Ready Flex Technology User Agreement General Terms and Conditions before you plant for full details on the Cotton Choices™ program and on growing Monsanto’s cotton traits in the 2016/17 season. Cotton Choices™ only applies to farms located south of the 22° parallel.

The term ‘price’ refers to the TUA Fee(s) as defined in the Technology User Agreement General Terms and Conditions document.

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Front cover photograph: Robert Reardon, 2015 Monsanto cotton grower of the year, Worral Creek, Talwood, Queensland (pictured right), Tristram Hertslet, Farm Manager (pictured left).