

ORGANISE YOUR CONTRACTORS, INPUTS AND SUPPLIERS EARLY

- ✓ The **First Golden Rule** of growing cotton is to plan and prepare in advance.

You will need to source farm inputs such as seed, fertiliser, herbicides, insecticides, growth regulators and defoliant. You are required to sign a Cotton Seed Distributors (CSD) Grower Agreement to purchase seed and if you plan to grow cotton containing Bayer GM technologies you will also need a Bayer Technology User Agreement (TUA), which is a regulatory requirement. There are a number CSD Agents and Bayer Technology Service Providers in Northern Australia.

Most cotton growers engage assistance to help manage

their crop. This can include a crop consultant (agronomist) to assist with decision making throughout the season, and contractors for time sensitive farm operations (e.g. planting, picking and spraying).

Similarly, it is important to have suitable contractors engaged and ready to work when you need them. It is common for planting, spraying and picking of crops to be handled by contractors. In Northern Australia particularly, it is important to have suitable transport options secured early in the season to transport cotton rounds to the gin.

- i Contact **Crop Consultants Australia** to find a consultant in your area.

THE PAPERWORK - CSD PLANTING SEED AGREEMENT (GROWER AGREEMENT) AND BAYER TECHNOLOGY USER AGREEMENT (TUA)

Growers must have a Grower Agreement in place before seed can be dispatched from your local agent or reseller. The Grower Agreement is an annual agreement that sets out the rights and responsibilities of CSD, the CSD agent and the grower, with respect to the supply and stewardship of cotton planting seed.

Growers must also sign a TUA. A TUA is a legal agreement between Monsanto Australia Pty Ltd (Bayer Crop Science is trading as Monsanto Australia Pty Ltd) and a grower, that

gives the grower a limited license to use the respective Bayer GM technologies contained in the seeds, and describes stewardship guidelines and obligations for the Bayer traits. A TUA can be completed with your Technology Service Provider (TSP).

- i For more details download the **2022 CSD Grower Information Guide** and the **Growing Cotton in Northern Australia Guide**.

CONSIDER THE COSTS

In terms of budgeting and gross margins for growing cotton, there are a number of things to consider. Although the majority of costs come in-crop and at the back end of the season for a cotton crop, there are still costs related to ground preparation, fertiliser, seed etc. which come before planting. Currently, there are general industry gross margins available for both dryland and irrigated crops via the CottonInfo website.

Gross margins have recently been updated and now include both rain grown and irrigated GM's for Northern Australia. If you are considering growing cotton for the first time, the best course of action is to speak to your chosen agronomist/consultant to develop a gross margin for your individual operation.

- i View the suite of **Australian cotton industry gross margin budgets** for the 2021-22 season.

CONSIDER YOUR GINNING AND MARKETING OPTIONS

It's also important to investigate cotton ginning and marketing, prior to planting. Remember that you will produce two commodities with each cotton crop - the lint and the seed - both of which can provide lucrative returns if marketed wisely.

- i For a list of Australian merchants, please visit **www.austcottonshippers.com.au**.

KEY DATES FOR BOLLGARD® 3 AND ROUNDUP READY FLEX® IN NORTHERN AUSTRALIA

Technology	Planting Dates	Planting Audit due date	Mid-Season Survey due date	End of Season Survey due date
Bollgard 3/Roundup Ready Flex	8-week window between 1 December and 30 May	To be confirmed by Bayer once planting window commenced	To be confirmed by Bayer during season	To be confirmed by Bayer during season

- All audits are conducted by your nominated Technology Service Provider (TSP) who will record all the areas planted with cotton seed containing Bayer technologies (together with varieties, field names and associated refuges on all farm units).
- Bayer will advise growers of audit dates once the planting window has been finalised for the region.
- Each valley has a unique planting window.

THE BOLLGARD 3 RESISTANCE MANAGEMENT PLAN (RMP)

Insect resistance poses a serious threat to transgenic cotton, as the insecticide toxins it contains are expressed all season long. This persistent exposure to the helicoverpa population offers the potential for even stronger selection for resistance than would come from insecticide sprays targeting the same pest.


The cotton industry has taken a proactive approach to resistance management to ensure the longevity of the technology. As a regulatory requirement of the Australian Pesticides and Veterinary Medicines Authority (APVMA) registration of Bollgard 3, all growers are required to

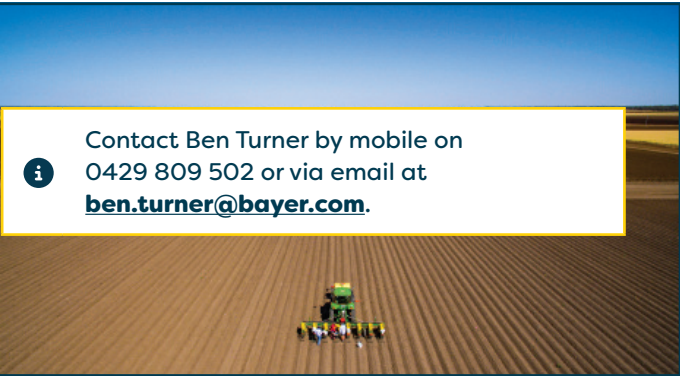
implement a Resistance Management Plan (RMP). Taking into account the unique environment in Northern Australia, Bayer, in conjunction with the cotton industry has developed a Bollgard 3 Northern Australia RMP. The RMP outlines key management strategies that growers must put in place, in order to grow cotton containing the Bollgard 3 technology. Further details on implementing the RMP is provided in the accreditation program.

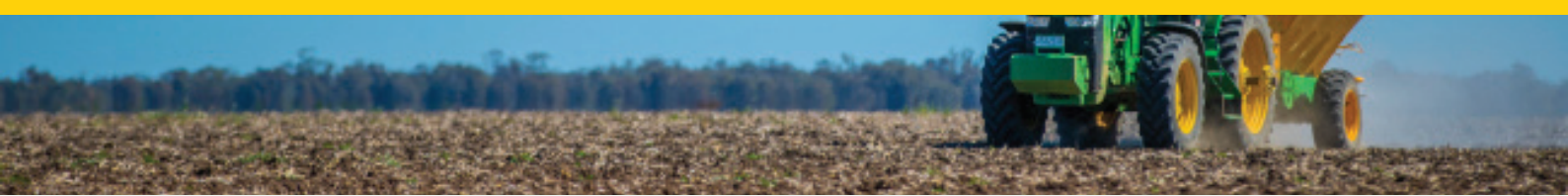
 For more details check out [Bollgard 3 Northern Australia Resistance Management Plan](#).

ACCREDITATION

Prior to planting any of Bayer’s technologies, including Bollgard 3, growers must complete an accreditation course. The accreditation course provides information on the process required to grow the technology and outlines the key strategies within the RMP. Growers only need to complete an accreditation once for each cotton technology, prior to planting.

 Contact Ben Turner by mobile on 0429 809 502 or via email at ben.turner@bayer.com.





PREPARING TO PLANT YOUR CROP

IS YOUR CURRENT MACHINERY SUITABLE TO GROW COTTON?

If not, you will need to engage the services of a contractor to assist.

Some field operations - particularly planting - are time sensitive, so there is tangible value in having machinery serviced early. Having machinery ready to go when planting conditions are right and having the capacity

to cover the ground quickly will minimise the chance of missing the opportunity when it arises.

SEED BED PREPARATION

Ground cover, stubble retention and erosion are all important factors to consider. Planting into groundcover in some regions of Northern Australia is essential to protect the seed from excessive soil temperatures, which can effectively 'cook' the seed or burn seedlings on emergence.

Other benefits of planting into mulch or a cover crop is more water infiltration into the soil profile and a potential increase in water holding capacity of the soil. Mulch cover also reduces the risk of crusting of the soil surface, which may prevent the seedling from establishing. Ensure that crops are checked for insects, particularly if planting into a live or recently sprayed out cover crop or pasture

scenario. There are often a range of insects (grasshoppers, caterpillars etc.) that will shift onto emerging cotton, as the cover crop dies (post-herbicide application) and these can damage young cotton. Consider using an insecticide if insects are present at the time of herbicide application.

The ability to use Roundup Ready® Herbicides* over the top of cotton crops that contain Roundup Ready tolerance technology will help to control grasses and reduce competition, post establishment.

The use of equipment such as a strip till machine may also be beneficial when planting cotton into existing groundcover. These machines only cultivate a small section of soil where the seed will be placed. Strip tillage where stubble or mulch cover is removed from soil either side of the seed row is not recommended for sandy or loamy soils planted to dryland cotton in the top end of the NT (or similar climates). Soil in the cultivated strip where mulch is removed can be too hot and may be subject to crusting, making poor establishment likely.

8 GOLDEN RULES OF DRYLAND COTTON



Rule 4: Plant into standing stubble and plan refuges.

NUTRITION INFORMATION

By Steve Yeates, CSIRO.

The soils, climate and rotation crops / pastures grown within the tropical north are too diverse for general recommendation of fertiliser requirement for irrigated or rain-grown cotton. However, northern soils are more likely to be deficient in N and P with lower organic carbon than southern soils.

Things to consider

A soil test for major nutrients N, P, K, and organic carbon combined with any experience with fertilising a nitrogen requiring crop such as maize will help where cotton has not been grown before. Established critical soil values for nutrients other than N provide an acceptable estimate of requirement without local trial data provided soils are not strongly acidic.



For more details download [NutriPAK](#).

Nitrogen is highly likely to be required in the greatest amount and be the most challenging to manage due to the risk of loss during the wet season (leaching, volatilisation, denitrification).

Research to date has shown for best yield with earliest maturity and most efficient use of N fertiliser:

- In the absence of other stresses about 1 bale/ha of

cotton is produced for each 18 kg N/ha taken up by the plant until about 200 kg of N is taken up (10 to 11 bales / ha). A rain grown crop yielding 5 b/ha needs to take up 90 kg N/ha.

- N can be provided to cotton from soil, the mineralisation of previous crop / pasture /cover crop residues and fertiliser.
- High losses of fertiliser N can occur in first 30 days after planting, due to high rainfall and a low requirement by cotton for N.
- 80% of N must be available for the crop 30 (1st square) to 90 (last flower) days after planting to synchronise with crop uptake. As N uptake is rapid (3 to 4 kg N / day) during this period.
- So up to about 2/3 of fertiliser N should be applied about 25 to 50 days after planting in one or multiple applications. Starter N is desirable when planting into grass mulches or stubbles (corn, sorghum) to avoid poor seedling vigour due to N tie-up.
- In well drained soils roots are deep enough in most seasons after 30 days to catch most leached N before cut-out.
- Delayed mineralisation fertilisers applied up to 1 month prior to planting on clay soils increase N uptake efficiency by 30 to 100%.
- Placing N fertiliser below the soil surface is more efficient than spreading. Urea is less efficient than other N forms.
- Contribution from previous crop very important – sugar very low.



WHAT IS A COTTON PLANTING WINDOW?

Cotton planting windows are a resistance management technique that restricts the period in which planting can occur, with the aim of restricting the number of generations of *Helicoverpa* spp. exposed to the proteins in Bollgard 3 cotton each season.



For more details please refer to the **Cotton planting windows and key RMP timings for Northern Australia Guide**.

VARIETY SELECTION

8 GOLDEN RULES OF DRYLAND COTTON



Rule 6: **Choose an appropriate variety, Cotton Choices™ and row configuration.**

10 POINT PLAN FOR IRRIGATED COTTON

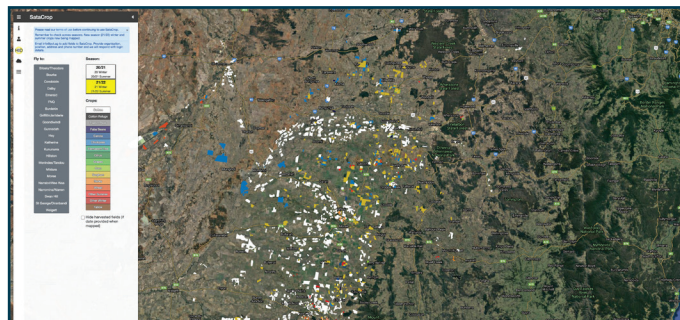


Rule 3: **Select the right variety and seed treatment.**

Selecting a cotton variety that has the right regional and production fit is a very important decision. CSD has a range of varieties available, which should be selected based on yield, quality and disease resistance characteristics. Other traits such as determinacy, leaf shape and season length may also be important.



Check out CSD's **variety guide** and consult the **Australian Cotton Production Manual** - Chapter 7: Selecting the seed, page 37.



SATACROP

SataCrop is a free online mapping tool designed to mitigate the risk of spray drift by allowing operators to understand where sensitive crops are located.



To register visit **www.satacrop.com.au**.

THE myBMP PROGRAM

The Australian cotton industry is dedicated to sustainable production and practices. myBMP is a program which ensures that best management practices are put in place to cover safety, environment, efficiency, management and sustainability on farm, among a number of other important factors.



For further information on the myBMP Program, visit: **www.mybmp.com.au**.

NEIGHBOURHOOD RELATIONSHIPS

It is your responsibility to ensure chemical drift is minimised on your farm and does not occur outside your property boundaries.

Cotton is highly susceptible to phenoxy herbicides such as 2,4-D. The core best management practice for safe and responsible pesticide use is to develop a pesticide application management plan (PAMP). Letting your neighbours, local resellers, spray contractors and aerial operators know that you have cotton can help minimise risk, particularly in new or isolated areas.



Check out this **handy flyer** for preventing off-target herbicide application.



INDUSTRY PROGRAMS

CSD INDUSTRY SUPPORT PROGRAM

CSD offers dryland cotton growers the opportunity to reduce their production risk via the Industry Support Program. Eligible crops which are registered and have an approved claim will be eligible for 90% of the value purchased in 2022 towards the following season's seed, if the dryland cotton crop is unable to be picked (excluding crops which are destroyed through hail damage). Terms and conditions apply.

i Further information, visit: www.csd.net.au/isp.

Please be aware that registrations for Northern Australian growers will be subject to the conditions on the Northern RMP. Registrations for the CSD Industry Support Program must be received by CSD via email within the eight-week Northern Australia planting window for each region.

ROUNDUP READY PLUS® PROGRAM

The Roundup Ready PLUS program is designed to reward cotton growers who plant cotton containing Roundup Ready tolerance technology and who use herbicides sustainably and help slow or prevent development of glyphosate resistance in key weed species. The program encourages growers to use a range of weed control practices through product recommendations, education and stewardship campaign and financial rebates. Terms and conditions apply.

i Further information on the Roundup Ready Plus program visit: www.roundupreadyplus.com.au.

INDUSTRY CONTACTS

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*Roundup Ready herbicides refers to Roundup Ready® Herbicide with PLANTSHIELD® and Roundup Ready PL Herbicide with PLANTSHIELD Technology. Always refer to and follow product labels.