NORTHERN NEWSLETTER FAR NORTH QLD EDITION

OCTOBER 2023 EDITION: PRE-SEASON

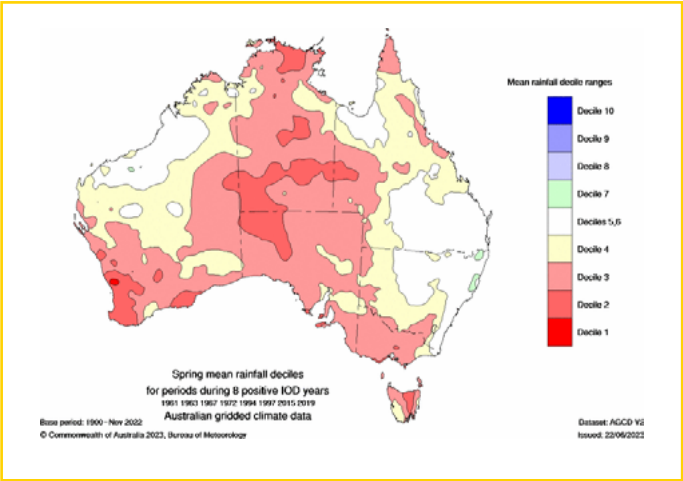
www.acresofopportunity.com.au

Welcome to the latest issue of the Northern Newsletter, brought to you by Acres of Opportunity, a collaboration between Cotton Seed Distributors (CSD) and Bayer Crop Science, with contributions from Cotton Australia, the Cotton Research & Development Corporation (CRDC), the Department of Agriculture & Fisheries, Queensland (DAF) and AgEcon.

WEATHER UPDATE

By Jon Welsh, AgEcon

A later-than-usual northern rainfall onset for the 2023–24 season is likely for most of northern Australia. The Indian Ocean Dipole is currently in dry phase, which is forecast to decay in November. The historical rainfall impact is shown in Figure 1 below. Areas along the coast and ranges can expect drier-than-normal conditions for the coming spring. For more information regarding the evolution of the Indian Ocean Dipole and its impacts on rainfall and temperature, click **here**.



CRDC has recently funded climate risk analysts at Ag Econ to investigate key climate drivers impacting northern cotton regions. These results will be published in a tailored cotton northern Moisture Manager e-news service commencing in 2024.

Any questions or queries, please contact Jon Welsh on email **jon@agecon.com.au** or visit **www.agecon.com.au**.

PRE-SEASON INSECT, WEEDS & DISEASE MANAGEMENT

The management of insects, weeds and diseases needs to be front of mind all year, not just while the crop is in the ground.

BEST PRACTICE

- Ensure complete crop destruction.
- Manage crop residues to minimise disease risk.
- Manage weeds and cotton volunteers/ ratoons to prevent green bridges and reduce resistance risks.

Successful crop destruction is the first step in preparing a field for the next crop as well as fulfilling a core requirement of the Bollgard 3 Resistance Management Plan (RMP).

Mulching and root cutting is generally the industry's preferred method. This 'mulch and root cut' system can improve the amount and quality of soil and organic matter and avoid implement blockages in future cultivation/ planting operations if crop residues can be sufficiently buried in the hill or bed.

Cotton that has regrown from leftover root stock from a previous season (ratoon) and volunteer cotton plants, can extend the amount of time *Helicoverpa* spp. are exposed to Bt proteins outside the growing season, imposing additional resistance risks.

Ratoon cotton also enables a green bridge between seasons for Cotton Bunchy Top Disease and its vector cotton aphids. This disease has become prevalent in some NQ fields during the 2023 season and will continue to become worse without a clean production break. This viral disease can only survive between seasons within infected living host plants. Therefore, it is critical that crop destruction is 100% to prevent disease from passing straight into next seasons cotton crop. The build-up of Cotton Bunchy Top Disease can become a serious problem and early season infection causes significant yield loss. For more information on the management of Cotton Bunchy Top Disease see **here**.

Effective weed management coupled with the removal of cotton volunteers and ratoons from fields and adjacent farm areas is a highly effective defense against pests and disease carry-over.

Insects

The cotton industry has reduced its use of synthetic insecticides by 97% since 1992 thanks to Integrated Pest Management (IPM) techniques.

The biggest risk to effective IPM is resistance to synthetic insecticides, or to the proteins contained in genetically modified cotton.

Integrated pest management (IPM) is a year-round approach to managing pests, as cropping decisions made in the autumn and winter can influence pest management during the summer.

Weeds

Crop rotations and fallow can be an important part of an integrated weed management system, providing the opportunity to use different groups of herbicides, as well as incorporating other measures such as strategic cultivation and crop competition.

For example: Some weed species, such as flaxleaf fleabane, are only able to germinate from or near the soil surface (top 20 mm) and burying the seed using strategic cultivation will prevent its germination.

Diseases

Leaf spots were abundant in parts of the North this season. these leaf diseases can be caused by Alternaria, Corynespora, Cercospora, and Stemphylium species. The pathogens can be carried over on infected cotton residues from the previous season and are spread by air-borne spores.

The pathogens can survive on undecomposed cotton residues and spread via air-borne spores which may be also dispersed by splashing onto healthy tissue. The production of conidia within leaf spots as well as the infection of healthy tissue is favoured by either repeated heavy dews or wet weather and temperatures of about 25ºC.

Minimising the disease

- Destroy residues from previous crops. To minimise leaf spot problems, carryover of Alternaria may be reduced by the incorporation and breakdown of cotton residues between consecutive cotton crops. Reducing the area of back-to-back cotton will reduce problems.
- Avoidance of plant stress, especially potassium deficiency, can delay primary infections and reduce leaf spot severity.

For more information refer to the **2023-24 Cotton Pest Management Guide**.

NUTRITION

The soils, climate and rotation crops grown within the tropical north are diverse. However, Northern soils are more likely to be deficient in N and P with lower organic carbon than southern soils.

Fertilise fields on their own merit, based on realistic yield expectation and native soil fertility.

Things to consider....

Cotton requires a good supply of both macro and micronutrients to produce high yields. Most soils require the application of nitrogen (N), phosphorus (P) and potassium (K), and other micronutrients.

Determine soil nutrient status using pre-season soil sampling. Soil testing for major nutrients N, P, K, and organic carbon. Calculate expected crop nutrient requirement taking into consideration expected yield. Cotton crops can also be monitored through petiole (early season) and leaf analysis (flowering to defoliation) to determine if nutrient levels are sufficient or inadequate.

Nitrogen can be the most challenging to manage due to the risk of loss during the wet season (leaching, volatilisation, denitrification). Therefore, the key to maximising the return from N inputs is in applying the right fertiliser, at the right rate, at the right time, in the right place.

To achieve the most efficient use of N fertiliser, research has shown:

- Be realistic about your potential yield. Trust your soil tests and apply your nitrogen (N) accordingly.
- Placing N fertiliser below the soil surface is more efficient than spreading. N is highly mobile; therefore, placement should aim to minimise the risk of losses through heavy rainfall.
- Starter N is desirable when planting into grass mulches or stubbles (corn, sorghum) to avoid poor seedling vigour due to N tie-up.
- High losses (>65%) of N can occur in the first 30 days after planting due to leaching and volatilisation if large rainfall events occur before the crop root system has established.
- Approximately 2/3 of fertiliser N should be applied about 25 to 50 days after planting in one or multiple applications. However, the timing of the split application is critical, and rain (wet soil) may impact the ability to apply fertiliser in-crop on time, increasing the risk of crops being nutrient deficient during high demand periods (e.g., flowering)
- N uptake is rapid (3 to 4 kg N / day) during 30 to 90 days after planting (1st square to last flower). 80% of N must be available for the crop to synchronise with crop uptake during this period.
- Applying N too late can favour diseases such as boll rots, may delay maturity, and affect defoliation. Unless the crop is severely deficient, avoid applying N after mid flowering.

For more details download **NutriPAK** .

PREPARING TO PLANT YOUR CROP

It's important to complete ground and field preparation early, including cultivations and fertiliser applications to ensure a smooth transition into the planting operation, and allow the maximum amount of time to accumulate moisture into the soil profile.

SEED BED PREPARATION

Achieving even establishment is critical to get a cotton crop off to a good start, as it can influence how the crop is to be managed. If the crop has a strong start, obtaining yield potential is much easier.

Ground cover, stubble retention and erosion are all important factors to consider.

Benefits of planting into mulch or a cover crop is more water infiltration into the soil profile and reduced evaporation from the soil. Mulch cover also reduces the risk of crusting of the soil surface, which may prevent the seedling from establishing. It can also reduce soil surface temperatures and aid early crop establishment.

> 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.

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.

VARIETY SELECTION

"Yield of Australian cotton is on average three times higher than the rest of the world. Over the last 30 years Australian cotton varieties have improved yield by 1.8% per year on average."

A new season begins with the harvest of the previous crop and it's worth speaking to your local Agent to organise your seed orders early.

CSD offers an early order program to guarantee growers their preferred choice of variety and seed treatment, which includes a price incentive. This offer will close at COB on the **25 October 2023 for despatch of seed between 1 December and 15 December 2023**.

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. **The 2023 CSD Grower Information Guide is also a valuable resource to use**.

Seed stored on-farm

Carry-over seed originally purchased in previous seasons may have different seed quality from when it was purchased and should be re-tested. Growers are encouraged to use CSD's free carry-over seed testing to ensure seed viability. For more information, or to organise a seed sample submission, please contact your preferred agent.

Planting rate

The cotton planting rate calculator **tools.csd.net.au/planting-ratecalculator** (membership may be required) can assist in determining the planting rate required to achieve a desired plant stand.

There are several factors that need to be considered:

- Variety;
- Field conditions;
- Disease levels of planting region and individual fields;
- Establishment method;
- Seed germination percentage;
- Soil temperature at planting; and,
- The seven-day forecast.

THE PAPERWORK

CSD PLANTING SEED AGREEMENT (GROWER AGREEMENT)

*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.

*BAYER TECHNOLOGY USER AGREEMENT (TUA)

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).

For more details download the 2023 CSD Grower Information Guide and the Growing Cotton in Northern Australia Guide.

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, refer to the **Cotton planting windows and key RMP timings for Northern Australia Guide**.

CRCNA PROJECT UPDATE

NORTH QUEENSLAND COTTON-GRAINS-CATTLE FARMING SYSTEMS

This project aims to initially address the agronomic challenges facing leading farmers then co-develop new farm diversification strategies to grow the industry needed to attract investment. This brings together a team of leaders in applied crop, cattle and whole farm systems research to work with agri-business, crop and livestock producers to co-develop and adopt appropriate diversification strategies through the six integrated research themes.

1. Cotton Protection
2. Cropping Systems i.e., rotation crops and soils
3. Forage production, feeding systems and cattle production.
4. NRM Stewardship - Sustainability manual
5. Participatory research approaches linked with whole farm scenario simulation analyses.
6. Whole farm Economic analysis of different crop-forage systems in north Queensland.

For further information
www.crcna.com.au/resources/publications/webinar-north-queensland-cotton-grains-and-cattle-farming-systems

THEME 1. COTTON PROTECTION

Update by Samuel Kreketer (DAF-Mareeba)

The focus of cotton research being undertaken is to develop management tactics for key pests, disease and canopy architecture to better balance crop protection and climate constraints with crop yield in humid regions. This will involve local validation of canopy management practices, characterisation and potential management of disease pathogens, and development of economic control thresholds for key sucking pests.

Activities during 2023-24 includes:

- Exploration and testing of control measures for management of leaf and boll rot disease.
- Diagnostics and biosecurity surveillance and characterise pathogenic organisms for cotton diseases in humid environments.
- Experiments conducted to develop pest control measures for sucking bugs that consider the potential impact of secondary boll rot disease after insect attack in humid production climates (Research Station & On Farm).
- Demonstration of recently developed canopy management practices demonstrated on farm for extension purposes in the 2024 season.
- Pest issues in commercial cotton and grains seasonally recorded to inform crop protection considerations

Samuel Kreketer (DAF - Mareeba), Joe Eyre (QAAFI - Gatton) and Sarah Stevens (Gulf Savannah NRM - Mareeba)

Samuel Kreketer (DAF - Mareeba)

Project Partners Include:
UQ, DAF, CQU, Gulf Savannah NRM, Radicle Seeds, Agrimix, CRDC, GRDC & CSD

Funding acknowledgement:
This research is supported by the Cooperative Research Centre for Developing Northern Australia, Grains Research and Development Corporation, Cotton Research and Development Corporation under the projects 'North Queensland cotton-grains-cattle farming systems' (A.2.2122030), and 'Enhancing extension capacity to sustain growth of North Queensland Cropping Systems' (A.2.2122031).

STAY UP TO DATE WITH ALL THINGS COTTON

A wealth of cotton industry information is just a few clicks away, covering everything including varieties, technology, agronomy, policy, advocacy, and much more. We encourage all growers to subscribe to industry updates and publications to help you stay in the loop with the latest information and opportunities within our industry.

COTTON SEED DISTRIBUTORS LTD (CSD)

CSD is a major investor in cotton breeding, research and development, having developed a long and successful partnership with the CSIRO cotton breeding program. CSD's objective is to deliver elite varieties that are bred and adapted to suit local growing conditions by delivering yield and quality outcomes. CSD Members have access to a wide range of updates and technical information.

To learn more and apply for CSD membership visit **CSD's website**.

COTTON AUSTRALIA

Cotton Australia is the peak representative body for the Australian cotton growing industry. It determines and drives the industry's strategic direction, with a strong focus on R&D, promoting the value of the industry, reporting on environmental credibility and implementing policy objectives in consultation with stakeholders.

You can learn more and subscribe to updates by visiting the **contact page** of the Cotton Australia website.

CRDC

The Cotton Research and Development Corporation (CRDC) delivers outcomes in cotton research, development and extension for the industry. A partnership between the Commonwealth Government and the Australian cotton industry, CRDC exists to enhance the performance of the industry through investment in, and delivery of, RD&E: helping to increase the productivity and profitability of growers. CRDC publishes a quarterly magazine called Spotlight and co-publishes major publications such as the Pest Management Guide and Cotton Production Manual.

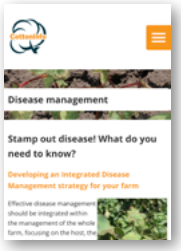
Subscribe to any or all of the CRDC and CottonInfo publications **here**.

COTTONINFO

CottonInfo is the Australian cotton industry's joint extension program and is a joint venture from CRDC, Cotton Australia, and CSD. CottonInfo connects growers with research, bringing you the latest news, information, events and research, and helping you achieve best practice. You can subscribe to CottonInfo's weekly emails and weather monitoring service, as well as ensuring you receive publications such as the Pest Guide and Production Manual.

You can also access northern specific information such as analysis of gross margin **budget scenarios**.

RESOURCES

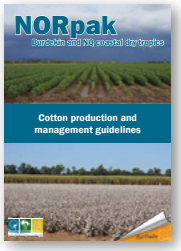


Stamp out disease! What do you need to know?

Access disease management information and resources via the CottonInfo website **here**.

COTTON PEST MANAGEMENT GUIDE 2023-24

Access this publication **here**.



NORPAK: Cotton Production and Management Guidelines for the Burdekin

Access this publication **here**.

AUSTRALIAN COTTON PRODUCTION MANUAL 2023: CRDC

Access this publication **here**.

TROPICAL COTTON PRODUCTION: Considerations for Northern Growers

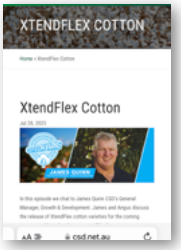
Access this publication **here**.

COTTONINFO: Rotational Tool

Access this tool **here**.

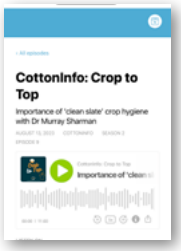
GROWING COTTON IN NORTHERN AUSTRALIA: Grower Guide

Access this publication **here**.



CSD COTTON YARNS: XtendFlex Cotton Varieties

Access this podcast **here**.



IMPORTANCE OF 'CLEAN SLATE' CROP HYGIENE: with Dr Murray Sharman

Access this podcast **here**.

CSD COTTON YARNS: Ground Preparation with the 2023 FastStart Winners

Access this podcast **here**.

TOOLS

Cotton Seed Distributors (CSD) Tools

Access the tools **here**.

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Access the tools **here**.

Cotton Field Weather Network *NEW Dimbulah, Qld Site*

Access the tools **here**.

Cotton Planting Rate Calculator

Access the tools **here**.

Green Light for Planting

Access the tools **here**.

FastStart Soil Temperature Network *NEW Dimbulah Site*

Access the tools **here**.

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