



# the cotton thread

Border Rivers, St George and Dirranbandi

## August 2020



Spray drift girl, Mary O'Brien presenting to growers at a Spray workshop in Dirranbandi recently. The workshop was organised by SOS Balonne with support from Nutrien Ag Solutions and Adama. More pictures and videos can be found on the SOS Balonne Facebook site [here](#).

## Weather Outlook Promising

The most recent edition of the [CottonInfo Moisture Monitor](#) continues to indicate a positive outlook for rain in the cotton production areas over the coming months. All the presented models are indicating an “above normal” precipitation outlook for the Sep/Oct/Nov period which is likely to be associated with cooler conditions – this might have implications for intended planting dates

and ideal soil temperatures for planting. You can follow soil temperatures in most production areas on the [CSD website](#).

Dams supplying the MacIntyre region have risen several percent since last month's newsletter but remain low at around the 15% mark.



Source	Temp Forecast	Precipitation outlook				
		Emerald	Sth Q'ld	N-NSW	C-NSW	S-NSW
<a href="#">ACCESS-S</a> 	Cooler	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov
<a href="#">UK Met</a> 	Normal	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov
<a href="#">IRI NMME</a> 	Cooler	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov
<a href="#">ECMWF</a> 	Cooler	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov
<a href="#">APCC Korea</a> 	Normal	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov
<a href="#">JMA</a> 	Cooler	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov	Above normal Sep/Oct/Nov



## Soil Health Coming Out of Long Fallow

Recently some growers have expressed concerns about Long Fallow Disorder and impacts on this season's cotton. Dr Oliver Knox is a Soil Scientist at the University of New England and he is also CottonInfo's Soil Health Tech Lead. He has written a great article in the latest [Spotlight Magazine](#) (Winter 2020, pp 21-22). It's also available as a [CottonInfo Blog](#). His key points are as follows:

- **30 years of cotton research de-bunks the theory that during long fallows the arbuscular mycorrhizal (AM) fungi decrease over time causing Long Fallow Disorder (LFD).**
- The lack of AM colonisation is a **symptom of LFD and not a cause.**
- AM will survive in soil, so long as there are no wetting and drying cycles.
- During the drought you would not have had these cycles, so AM is still there.
- Latest research suggests LFD is due to all organisms that make up the soil biology competing for organic matter and nutrients after extended dry periods.
- Some soil biology (bacteria, fungi, nematodes and other invertebrates) can enter a survival stage during dry times and 'sleep' until it becomes wet again.
- Some soil biology will die, but will not decay until its wet again.
- Once the drought breaks, the dead biology decays releasing nutrients that feeds the surviving soil biology. This biology increases rapidly competing (more effectively) with plants for the available nutrients. However, this does not continue forever.

- Biology **will** return to a more balanced system
- How quickly it returns depends on initial levels of soil biology, moisture, temperature, soil nutrition etc.
- So, "Why did one grower get the best start to his crop in a corner of a field where the weeds had previously gotten away?" The weeds were basically acting like a cover crop and providing extra organic matter into the system, so there was a faster recovery of the soil biology after the drought broke. The soil biology came back into balance quicker than the rest of the field which had no cover.
- While we don't encourage weeds, it's an example of how beneficial plant cover can be.

### What can you do to overcome the effects of LFD?

Unfortunately, it is inevitable that some fields will experience signs of LFD after this prolonged drought given no cover was possible for so long. However, it is driven by the rapid expansion of the soil biology and not because of a reduced population of AM.

- Keep improving your soil health.  
*"A healthy soil is the lifeblood of your farm. Good soil structure and nutrition levels are essential"* (Oliver Knox).

Cotton Industry Soil Health Best Practices include:

- Establish measures to prevent or minimise erosion in susceptible areas, including a monitoring plan to keep an eye on progress
- Monitor your soils for structural issues like compaction, hard setting, salinity and sodicity and adopt infield



practices to minimise potential problems

- Use soil tests and field history information to determine nutrient input requirements
- Employ the most appropriate and efficient nutrient application methods and timing

These management practices will help build your soil health.

Please find Oliver's full blog - Understanding the real nature of long fallow disorder [here](#).



*Wheat crop planted in long fallow irrigation field on 1.5m beds with centre gap left for future cotton plant. Options being considered include: 1. Early Spray out after ~8 weeks for 2020/21 crop 2. Late Spray out after ~12-14 weeks for 2020/21 crop 3. Harvest and retain a standing crop residue to plant into for 2021/22 cotton crop.*

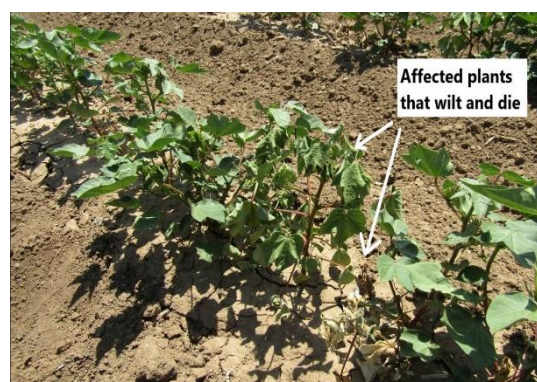
## Reoccurring wilt: Possible new cotton disease

QLD DAF pathologists are currently investigating a likely new pathogen as the potential cause of dying plants reported in Central QLD, Gwydir and Namoi cotton fields.

Over the past couple of seasons, this pathogen has presented on multiple farms in the Central

QLD region with reoccurring patches of dying plants leading to a report. The same pathogen under investigation was isolated in NSW from dead plants sampled from the Namoi and Gwydir valleys.

Known endemic diseases have been ruled out. Symptoms have similarities to the high priority exotic disease Texas Root Rot, and this has been ruled out as the causal pathogen, along with other industry high priority exotic diseases.



While a formal identification is pending, indicators suggest it has potential to be an important disease. Further work is ongoing to link whether this pathogen in Central QLD, the Gwydir and the Namoi is the cause of dying plants in each valley.



Further information and details from the investigation will be provided to industry as it becomes available.

Have you seen fields with the following symptoms?

- The odd plant or patches of plants that wilted and suddenly died with dead leaves usually remaining on the plant.
- Reoccurring patches of dying plants getting larger over past seasons with no explanation for plant death i.e. seasonal conditions.
- Dying plants can be amongst healthy plants.
- Bronzing of leaves and petioles.
- Reddening of the roots and root decay i.e. if plants are pulled out of the soil, the taproot snaps due to root decay.
- May see reddening of the vascular tissue.
- Stem canker/lesions may be present.

*Keep an eye out for these symptoms this coming season. If you have concerns or plants expressing symptoms, contact your state pathologist:*

**QLD DAF: Dr Linda Smith 0457 547 617**

**NSW DPI: Dr Duy Le 0439 941 542 or**

**Dr Karen Kirkby 0428 944 500**

**A webinar on this topic is organised for Thursday August 27<sup>th</sup>.**

To join the meeting:

<https://cottonseed.webex.com/meet/jmontgomerly> or join by phone +61-29037-0069

Australia Toll (access code: 574 173 710) at the noted meeting time.

## Spray Workshops in St George and Dirranbandi attract Good numbers

SOS Balonne with support from Nutrien Ag Solutions and Adama, hosted spray workshops in St George and Dirranbandi recently. Spray Drift Girl, Mary O'Brien presented to growers covering topics including:

- Labels & record keeping
- Weather Conditions
- Nozzles
- Coverage & efficacy
- Travel speeds & deposition
- Water Quality
- Adjuvants



*Spray Workshops in St George (top) and Dirranbandi (bottom) recently*

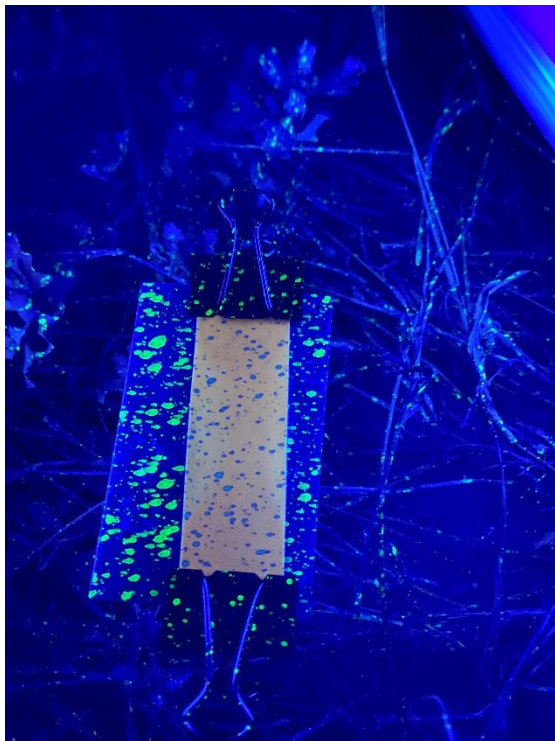
She stressed the importance of spraying under appropriate weather conditions, with suitable



nozzles at suitable speeds. In her experience, inappropriate high speed whilst spraying is major factor in poor spray outcomes.

She related an example of a grower who upgraded their spray rig to a wider boom so that they could travel slower but cover similar areas. The agronomist was astounded by the improved spray results achieved from this.

Demonstration sprays from local aerial and ground contractors were arranged using UV dye with water onto water sensitive paper. The results were inspected by attendees using UV lights.



*Spray coverage demonstrated on water sensitive paper using UV dye and UV lights*

## Cotton Management “Virtual” Tours (CMT)

For those who may not have caught up on the Cotton Management Tour series of vidcasts, these can be viewed on the CSD website or accessed [here](#).

Vidcasts cover information and updates on:

- Variety trials
- Review of weather during season
- CSD commercial information
- Seedling vigour research
- Verticillium update
- Cotton Breeding
- Disease surveys
- Insect resistance monitoring
- SLW resistance

## MVFDC Cotton Golf Day Postponed



In a meeting last week, the decision was made to “postpone until further notice” the MacIntyre Valley Cotton golf day.

The committee will evaluate the potential for holding the event later in the year along with the Christmas party and awards presentations.

For further information contact: Cameron Derbridge at Total Ag, Mob: 0407 299 056

## Farewell to Jane Hill, Cotton Australia Regional Manager



Jane Hill, Cotton Australia Regional manager for St George, Dirranbandi and Mungindi is leaving after 8 years in the role.

She will finish up at the end of August to focus on her family and her involvement in the family farming operations. We wish her the best and will no doubt see her “around the traps”.

## CottonInfo Blog

[Plant health top tips - August](#): Time to start pre-season planning: Consider your IPM strategies for managing pests and beneficials. With the 2020-21 season approaching, now's the time to be undertaking preseason planning to reflect and consider strategies on how to manage pests and beneficials.

Integrated pest management (IPM) uses knowledge of pest biology, behaviour and ecology to implement a range of integrated tactics to suppress and reduce pest outbreaks and reliance on insecticides for their management. IPM supports the long-term management of pests, maintains profitability, reduces the risk of insecticide resistance and

minimises risks to human health and the environment.

Follow the link at the top of this section for more detail.

## Meet Your Cotton Researcher, Bruna Batista, Postdoctoral Research Fellow, UWS Hawkesbury



**Research area:** Microbiomes of plant pathology

**Current Research Project:** Bio-based products for improved cotton production under Principal Researcher Brajesh Singh.

**Funding:** CRDC

### What is the Research?

We have been working to explore the biotechnological potential of cotton-associated microorganisms (or microbiomes).

These microbiomes have a direct impact on plant-growth and development and can promote crop resistance against soil-borne pathogens, such as *Verticillium* and *Fusarium*, the cotton wilt-causing pathogens.

The main expected outcomes of the project are the development of microbial biocontrol products that are economically viable and



environmentally friendly for the effective management of cotton wilt diseases and the supply of effective approaches to manage wilt disease.

#### **How will it benefit the grower?**

It is expected that growers will have access to microbial products to control cotton wilt diseases. These products are usually cheap and environmentally friendly. In addition, we are developing bio-based approaches according to Australia's needs so the growers can have customized solutions for their needs. Finally, growers will be able to implement practices to reduce the impact of *Verticillium* and *Fusarium* wilt and develop a farming system that suppresses cotton diseases.

#### **How will it benefit the industry?**

The project is expected to increase the portfolio of solutions available for cotton growers, directly benefiting the cotton industry. Furthermore, it will likely fulfil the industry's increasing demand for sustainable solutions.

#### **Key Findings**

So far, we identified some microbial groups that are more abundant in "healthy" cotton fields. We are now testing several approaches to promote the enrichment of these groups in cotton soils with the aim of suppressing wilt diseases. These approaches include, among others: i) the application of inoculants formulated with representatives of these groups to cotton and assessment of wilt control and plant growth; ii) the manipulation of the cotton microbiome by the application of compounds that are known to favour the development of these groups; iii) the identification of key management practices that favour the development of these groups.

#### **Where are you from?**

I'm from Brazil. I am a biotechnologist and have a PhD in microbial genetics from The University of São Paulo. I have experience working in industry (at BASF), screening biological products for the control of pests and diseases in agriculture. I was a visiting postdoc at The University of Queensland and I'm currently working at the HIE developing bio-based products for the control of cotton wilt diseases.

#### **How have you ended up in cotton research?**

Most of my researcher career was spent screening biological products, aiming to reduce the environmental impacts of chemical application in agriculture. During my PhD I worked with a bacterium that promotes corn and soybean growth and reduces the need for nitrogen application in fields. After this, I worked with research and development of biological products to control pathogenic fungi and nematodes affecting soybean fields in Brazil. At The University of Queensland I screened herbicide-degrading microbes to be used in the Great Barrier Reef and phosphate-solubilizing bacteria to be used in wheat.

I used to feel very frustrated that universities and companies don't work together in Brazil. While at UQ I realised that Australian universities work closely with companies, so there is a larger chance that your research will be applied to the real world. With that in mind, I started looking for a job in my area and was lucky enough to find one at the HIE.

This is the first time I have worked with biological products applied to cotton; however, the development of bio-based products involves microbiology and molecular biology skills. The tools and knowledge used for the development of microbial products can

be applied to and benefit a range of different crops, including cotton.

### **What excites you about working in the cotton industry?**

Cotton is part of our daily lives and it has hundreds of uses. It is almost impossible to imagine our lives without cotton. What excites me about working with the Australian cotton industry is the hard work both researchers and farmers are putting forth to make cotton production more successful and sustainable. The Australian cotton industry is setting several sustainability targets and the development of bio-based products will certainly contribute to achieving them

### **What do you like to do when you aren't researching?**

When I am not researching, I like doing handicrafts such as painting, crochet and macramé. Interestingly, in all of these activities the use of cotton is fundamental. From the canvas used for painting to the yarns and cords used for crochet and macramé, cotton is present everywhere. I also like cooking, binge-watching TV shows, listening to podcasts, and going bushwalking on weekends.

Further details on the above research project were presented in the [Winter 2020 edition of Spotlight Magazine](#), page 18.

For more information on the project, contact Brajesh Singh on:

[B.singh@westernsydney.edu.au](mailto:B.singh@westernsydney.edu.au)

### **Market Update Video Released**

The Australian Cotton Shippers Association have produced a market update video to keep growers informed while current conditions

restrict the ability of merchants to get out on farms.

The link to the video can be found [here](#).

### **CRDC news**

#### **Science and Innovation Awards open**

The 2021 ABARES Science and Innovation Awards for Young People in Agriculture - supported by CRDC - are now open.

CRDC is encouraging young researchers aged 18-35 to apply for a grant valued at up to \$22,000 to fund an innovative research project that will benefit Australia's cotton industry.

For more details click [here](#).

#### **Is it possible to revolutionise agricultural spray application?**

The Australian Government's Business Research and Innovation Initiative (BRII) is providing \$12 million funding for small and medium sized enterprises to solve five important environmental challenges.

One of these challenges, submitted and now managed by CRDC is 'Is it possible to revolutionise agricultural spray application?'

Australian startups and small and medium businesses can submit proposals for ideas that address the challenges. Successful applicants will receive grants of up to \$100,000 to further develop ideas and test feasibility over three months. The most successful of these ideas may then be eligible for a grant of up to \$1 million to develop a prototype or proof of concept over a maximum of 18 months.



Relevant government agencies will have the option to purchase these solutions at the end of the proof of concept stage.

Applications close September 10, 2020.

For more details and links to the application process, click [here](#).

## COTTON AUSTRALIA CORNER

Cotton Matters – key points

- CQ planting commences
- CA releases video for National Science week
- CA Regional Manager Role open for applications
- Cotton Gap program for year 12 leavers
- World Cotton Day photo competition
- La Nina alert issued by BOM
- Rabobank Cotton outlook report positive
- Refresh your workplace knowledge on COVID 19
- Backpacker tax appeal upheld
- “Look Up and Live” app released by Ergon – Qld customers
- For further information click [here](#).

## What's On:

### 27<sup>th</sup> August:

- 12 noon Reoccurring Wilt disease webinar

### 31<sup>st</sup> August

- 1pm Qld Gasfields commission webinar “[Navigating Land Access](#)”. Click on webinar name to register.

### 3<sup>rd</sup> September

- 10.30am CCA regional workshop Goondiwindi

### Andrew McKay

Regional Extension Officer - Border Rivers, St George & Dirranbandi | CottonInfo

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