

CottonInfo: Connecting growers with research

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Highlights: cotton research conference

Last week, 200 of the industry's researchers and scientists got together in Toowoomba for the Australian Cotton Research Conference (proudly supported by CottonInfo partners CRDC and CSD). Over 130+ research presentations covered the fields of plant, soil and systems; cotton breeding; weeds; entomology; energy; carbon and climate; nutrition; NRM; pathology; irrigation; fibre and processing; and social science.

In today's e-news, we're bringing you some of the (many) highlights. You can read the abstracts from all 130+ presenters in the [Conference booklet](#).

The yield potential of cotton.

Drs Michael Bange and Greg Constable of CSIRO presented on cotton's yield potential - yields that could be achieved with current systems under ideal conditions (in the absence of poor weather, disease, soil or nutritional constraints and with management and genetics optimised). They reviewed yield potential in cotton and identified factors that impact yield, such as climate, soil health, nutrition, water, weeds, pests and diseases. They conclude that the theoretical yield is about 5000kg/ha. To achieve this, a long season is required, possibly with slower initial fruit set so canopy size is not restricted by high fruit load. Achieving these yields would be more challenged by nutrient uptake than the need for more water. [Read the full abstract here](#).



Weed species shift on cotton farms.

Dr Meredith Conaty of Monsanto presented on 15 years of Roundup Ready® cotton and the resulting shift in the weed control practices on Australian cotton farms. Monsanto's annual audit shows a significant shift in the types of weeds present across all growing areas, with a reduction in the prevalence of previously dominant weed species, and a rise in weeds harder to control by glyphosate. The most significant shift has been the increase of Fleabane, which was found in only 2% of fields in 2003, and is now found surviving a Roundup application on over 15% of fields surveyed - which has implications for the risk management of glyphosate resistance. [Read the full abstract here.](#)



Using remote aerial sensing for pest management.

Unmanned aerial vehicles (UAVs or drones) are emerging as a cost-effective solution to a number of precision ag challenges - including pest detection - as they provide a non-invasive platform to accurately monitor crops. Research engineer Eduard Puig of QUT presented on a recent study on insect damage in sorghum to demonstrate the effectiveness of the UAV system. A UAV platform equipped with a high resolution camera was deployed to autonomously perform a flight pattern over the target area. An image analysis tool developed to minimise human input requirements accurately classified the field into crop health levels. There is potential for future research towards automated crop protection assessments in cotton, particularly around detecting and monitoring mealybugs, mites and aphids. [Read the full abstract here.](#)



Estimating soil N mineralisation through Solvita test kit.

Research has shown that up to 60% of a cotton crops N uptake may originate from soil mineralised N, as opposed to fertiliser derived N. As this cheap and more reliable source of N may represent up to 50% of a crops N requirement, it is important that we are able to estimate this contribution accurately. Based on research over the past 30 years, Dalewood Laboratories in the US have developed the Solvita test kit methodology where mineral N contributions can reliably be estimated within 24 hours, requiring only basic lab facilities. Dr Francois Visser of UQ is currently validating and benchmarking the methodology and algorithms for Australian conditions. He intends to use the kits to benchmark the mineralisation parameters for the nitrogen optimisation model the UQ team are currently developing. Growers interested in trialling the Solvita test kit can [contact their local CottonInfo RDO](#) to get a soil sample tested. [Read the full abstract here.](#)



Soil compaction and the JD7760.

In a CRDC-funded project, Dr John Bennett of NCEA has been researching the impact of the JD7760 picker on a range of cotton soils (highlighting the relationship between soil moisture and compaction in fine textured soils). He has been conducting a side by side comparison of a standard JD7760 operating on a 2m track width and dual wheeled front axle, and a controlled traffic farming (CTF) JD7760 operating on a 3m track width and inline single wheel front and rear axle. Soil bulk density, soil strength, yield and gross margin were monitored for two back to back seasons, and the results suggest that the CTF system is superior in terms of soil and the bottom line. [Read the full abstract here.](#)



The effect of moisture on fibre quality during harvest.

It is generally accepted that harvesting and storing seed cotton above a moisture content of 12% prior to ginning will compromise fibre quality. This stems from research conducted with the conventional basket picker and module builder system - but does it also hold true for the new JD7760 system? CottonInfo fibre quality technical specialist, Dr Rene van der Sluijs of CSIRO, examined the fibre quality of upland cotton harvested from one field using a JD7760 at two different moisture levels (<12% and >12%) and storing the modules for 12 weeks prior to ginning. There was a significant difference in fibre colour and trash (with the cotton harvested at >12% resulting in fibre that was yellower, with lower reflectance and more trash than that harvested at <12%). There was no significant difference in fibre length and strength, but micronaire was higher for the higher moisture content. [Read the full abstract here.](#)



In other news: New CottonInfo RDO for the Darling Downs

CottonInfo are pleased to announce that Annabel Twine will be joining the team in early November as the new Regional Development Officer (RDO) for the Darling Downs. Annabel brings extensive experience to the CottonInfo team, including six years with Queensland Cotton and 13 years with Bayer CropScience covering the Downs and the McIntyre and Balonne Valleys.

Annabel will provide the latest research outcomes and findings direct to cotton growers, consultants and the wider cotton industry in the Darling Downs.

[Read more about Annabel and her appointment here.](#)



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