

COTTON RESEARCH & DEVELOPMENT CORPORATION



Spotlight

AUTUMN 2012

on Cotton R&D

ENVIRONMENTAL REVIEW 2012

End of season decisions to maintain fibre quality

myBMP update



Best Practice



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Industry D&D Team NRM Lead Jane Trindall and Auscott Narrabri Manager Martin Mead. Auscott Narrabri was visited by the 2012 Cotton Industry Environmental Assessment steering committee earlier this year. Image Melanie Jenson

IN THE SPOTLIGHT



Team are endeavouring to provide useful crop management information to assist across a range of crop damage scenarios.

Elsewhere, harvest is upon us and our attention turns to managing the crop in the best possible way to preserve fibre quality. In conjunction with Mike Bange and the team at CSIRO we have not only provided information on how to preserve fibre quality, but also why we need to do this.

Achieving high yield remains paramount for growers, but increasingly quality issues are coming to the fore as the industry aims to hold on to its competitive advantage in producing the best quality cotton in the world. Poor fibre quality not only equates to lower quality fabric, it also causes slow-downs in mills and spinning facilities which cost our customers' time and money – something no-one wants less of.

The research knowledge shared by Mike and Rob Long can be practically applied by growers and consultants to minimise the risk of quality losses, in turn countering customer concerns for quality that directly affect the price growers receive for Australian cotton. These concerns are outlined separately in a report on the most recent mill survey. We hope you find the connections between on-farm management and the end market for your product of strong interest. This is an area where innovative industry research is driving the potential for significant advances in ginning and textile processing that can further differentiate the value of Australian cotton in the market.

Australian researchers are leading the way in instrumentation to predict fibre quality through unique software development and fibre measurement technologies. Cottonspec is a yarn quality prediction software program developed by CSIRO with support from the Cotton CRC, CRDC and Chinese partner mills. In recent validation trials with four spinners the software gave immediate feedback on

the fibre they use in terms of yarn quality. This type of technology can also been used to demonstrate the value of cotton grown from newly developed high quality Australian varieties.

Likewise, Siroduct is a technology being developed by CSIRO with the help of the Cotton CRC, CRDC and Australian gin partners. It is a new non-invasive moisture meter for gins. The meter can measure the moisture content of seed cotton or lint. Accurate measurement of moisture at this point can be then used to meter moisture onto cotton to preserve fibre properties before the lint cleaning stage. Both these developments demonstrate the commitment of our research to the post farm gate sector and the importance of producing a quality fibre product.

In this edition of *Spotlight* we also focus on progress being made with *myBMP* and share an inspiring article on the Dawson Valley growers and their commitment to best management even in the most trying times. We also bring you a general update and introduce the new faces who will be there to support growers as they make use of this invaluable business tool. Some growers may have reservations about becoming part of the new system. We have set out to "bust" some of the "myths" around the new system and allay any reservations through the information provided in the articles on *myBMP*.

Separately we report on the initiation of the industry's latest environmental review. This assessment will identify what has been achieved since the previous audit in 2003 (the Second Cotton Industry Environmental Audit) and will inform future priorities for action and strategies both on the ground and through research and development.

In a world of increasing scrutiny the importance of testing, understanding and building the strength of our "social licence" is vital to the industry's future. The notion of a social licence to farm, and what it means for growers and the industry as a whole, is examined in our back page article. The connections between how well we practise best management and the social license to farm are apparent.

Wishing you all a safe and prosperous harvest.



Bruce Finney



Australian Government
Cotton Research and Development Corporation

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Our vision: A globally competitive and responsible cotton industry

Our mission: Invest and provide leadership in research, innovation, knowledge creation and transfer.

Our outcome: Adoption of innovation that leads to increased productivity, competitiveness and environmental sustainability through investment in research and development that benefits the Australian cotton industry and the wider community.

Corporate background: CRDC was established in 1990 under the Primary Industries and Energy Research and Development Act 1989 (PIERD Act.) which outlines its accountability to the Australian Government and to the cotton industry through the Cotton Australia. CRDC is responsible to the Australian Government through the Minister for Agriculture, Fisheries and Forestry, Joe Ludwig. CRDC is committed to fulfil its legislated charter to: Invest in and manage an extensive portfolio of research, development and extension projects to enhance the ecological, social and

economic values associated with cotton production systems and to benefit cotton industry participants, regional communities and the Australian community.

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AN INDUSTRY NOT READY TO REST ON ITS LAURELS

REPORTING ON ENVIRONMENTAL PERFORMANCE IS TAKING RESPONSIBILITY FOR OUR FUTURE AND IS THE AIM OF THE THIRD INDUSTRY-WIDE ASSESSMENT.

Continuing its commitment to monitoring and improving industry environmental performance the CRDC has initiated a new environmental assessment of the Australian cotton industry.

Demonstrating good environmental performance and a commitment to continuous improvement are key industry objectives according to CRDC General Manager for R&D Investment Bruce Pyke.

"The Australian cotton industry has a strong history of taking ownership of areas where it is having environmental impacts and minimising them through the implementation of improved management based on sound R&D," Bruce said.

"Despite past achievements, the long term success of the industry continues to depend on how its practices, products and reputation are perceived by customers and the wider community and consequently this means it cannot rest on its laurels.

"CRDC is pleased to be in a position where it can support what is now the third independent assessment of our industry's environmental performance.

"This is something we can all look forward to because, despite the drought, the cotton industry has maintained its focus on continuous improvement in environmental management for over two decades."

An industry steering committee is guiding the assessment and subsequent delivery of the final report to industry. The steering committee

"IT WILL IDENTIFY WHAT HAS BEEN ACHIEVED SINCE THE AUDIT IN 2003 AND INFORM FUTURE ACTION".



The first meeting to initiate the Cotton Industry Strategic Environmental Review 2012 with Ken Flower, Jane Trindall, Angela Bradbury, Guy Roth, John Watson, Inovact consultants Brian Ramsey and Ken Moore (standing at right), Bruce Pyke and Rachel Holloway.

members are Bruce Pyke (CRDC), project co-ordinator Rachel Holloway, Angela Bradburn (Cotton Australia), grower representatives Nigel Corish and John Watson, Ken Flower (*myBMP*), Guy Roth (industry consultant) and Jane Trindall (Cotton CRC).

Assessing achievements

Conducted by independent consulting group Inovact Consulting, work began in January and will be complete in July this year.

Bruce Pyke said it will identify what has been achieved since the audit in 2003 (the Second Cotton Industry Environmental Audit) and will inform future priorities for action and strategies both on the ground and through research and development.

The first step for the assessment is collecting data to demonstrate environmental performance and identify environmental issues and priorities through: a comprehensive literature review; a representative valley by valley grower survey with follow-up farm visits and/or more in depth grower interviews as required and interviews of key stakeholders including state, federal government agencies, community and non-government organisations and key industry representatives from all sectors.

The second step will be for the independent consultants to analyse

the data collected and the final step to report back to the industry via CRDC and Cotton Australia.

All stakeholders, especially growers, will be asked their views of current and emerging environmental issues, priorities, opportunities and barriers.

Angela Bradburn from Cotton Australia said "We are looking forward to growers being a part of this process because a key result will be a public report which can be used to demonstrate to government, the broader Australian community and our customers that our growers are committed to proactively improving both farm productivity and environmental stewardship.

"The reporting from this assessment will also be used strategically by Cotton Australia and CRDC to ensure future initiatives for on ground action and R&D are aimed at addressing areas where further improvement is required."

A history of environmental stewardship

In 1989, 230,000 hectares of cotton was planted in Australia and production exceeded one million bales.

At this time the industry became aware it needed to identify areas where it could and should improve its environmental performance. Criticism of industry practices came from the public, media and environmentalists for perceived poor environmental perfor-

mance. Main concerns were use of pesticides, water use and soil degradation.

In 1991 the Australian cotton industry became the first major agricultural industry to seek a comprehensive external assessment of its environmental performance. Commissioned by The Australian Cotton Foundation (now Cotton Australia) it marked an industry-wide commitment to continuous improvement in environmental management on cotton farms.

Initial audit recommendations

This initial audit provided an overview of the entire value chain, identified key issues and concerns associated with its practices and assessed its overall performance. On the basis of the results, the report made 69 recommendations to which the industry responded with research, development and extension. For example, a major joint research and development initiative, *Pesticides in the Riverine Environment*, was co-funded by Land and Water Rural Research and Development Corporation, CRDC and Murray Darling Basin Commission between 1993 and 1998. This research spawned the Australian Cotton Industry Best Management Practice Program (BMP) in 1997.

In 2003 CRDC commissioned the second environmental audit to assess industry's response to the 1991 audit. It identified current environmental issues and recommended strategies and priorities to further improve environmental management practices.

This audit found BMP to be a major driver for improved environmental management on farms. It also found that of the 69 audit recommendations from 1991, every one had been implemented. Key recommendations from 2003 audit covered BMP, water use and management, pesticides and non-pesticide chemicals, waste and vegetation management.

In 2005 industry released the public document, *Taking Responsibility for our Future – The cotton industry action response to the Second Australian Cotton Industry Environmental Audit 2003*. It detailed industry's response to each 2003 recommendation and gave a public commitment to the next stage in the process of continuous improvement in environmental management within our industry.

The Australian Cotton Industry Environmental Audit, 1991 and the Second Australian Cotton Industry Environmental Audit 2003 are available on the CRDC website www.crdc.com.au

see our website



PREDICTING FIBRE QUALITY NOW A REALITY

CSIRO RESEARCHERS ARE LEADING THE WORLD IN CREATING TOOLS TO TEST AND PREDICT FIBRE QUALITY.

Cottonspec is a yarn quality prediction software program developed by CSIRO with support from the Cotton CRC, CRDC and Chinese partner mills.

Cottonspec has recently undergone validation trials with four mills and has proven a useful management tool, giving spinners immediate feedback on the fibre they use in terms of yarn quality. The program gives excellent predictions of yarn tenacity and evenness from HVI properties. Cottonspec has also been used to demonstrate the value of new varieties of long staple cotton produced by Australian growers.

The impacts of Cottonspec on mill performance are demonstrated by the example of a key partner mill in the project.

Established in 2005 this mill is one of the most modern mills in China. Through collaboration with the Cottonspec project the quality of yarn produced by this mill has lifted dramatically. All of the yarn this mill produces is exported to Europe and Japan.



ABOVE: CRC Project Leader Dr Shouren Yang in China during Cottonspec validation trials.

TOP: Spinning high quality fine count yarn in China using 100 percent Australian long staple Sicala 340BRF.

Moreover, before the project this mill had never used Australian cotton. In 2010-2011 Australian cotton made up 10 percent of its lay-downs and its management has made plans to increase this proportion in the next few years.

Cottonspec will be presented in China later this year at a technical seminar to be held jointly by CSIRO, ACSA and the China Cotton Textile Association (CCTA).

IMPROVING GIN EFFICIENCY

A NON-INVASIVE MOISTURE MEASURING INSTRUMENT FOR GIN DUCTS WILL IMPROVE COTTON FIBRE QUALITY AND GIN PERFORMANCE. CSIRO'S DRS ANDRZEJ KRAJEWSKI AND STUART GORDON EXPLAIN.

The management of moisture in cotton during ginning remains one of the most important factors in determining the final quality of baled fibre and gin performance.

CSIRO with the help of the Cotton Catchment Communities CRC, CRDC and Australian gin partners has been developing a new non-invasive moisture meter for gins. The meter can measure the moisture content of seed-cotton or lint as it is moved quickly by air (up to 20 m/sec) through transport ducts between gin machines.

Accurate measurement of moisture at this point can be used to then meter moisture onto cotton to preserve fibre properties before the lint cleaning stage and to manage gas use in drying and humidifying the cotton.

The active elements in the device for sensing moisture and mass are a large capacitance sensor, and light emitters and detectors. (See Figure 1)

During trials the device proved to be highly sensitive, the correlation between the device and off-line moisture measurements for cotton processed through a commercial gin is close to 80 percent.

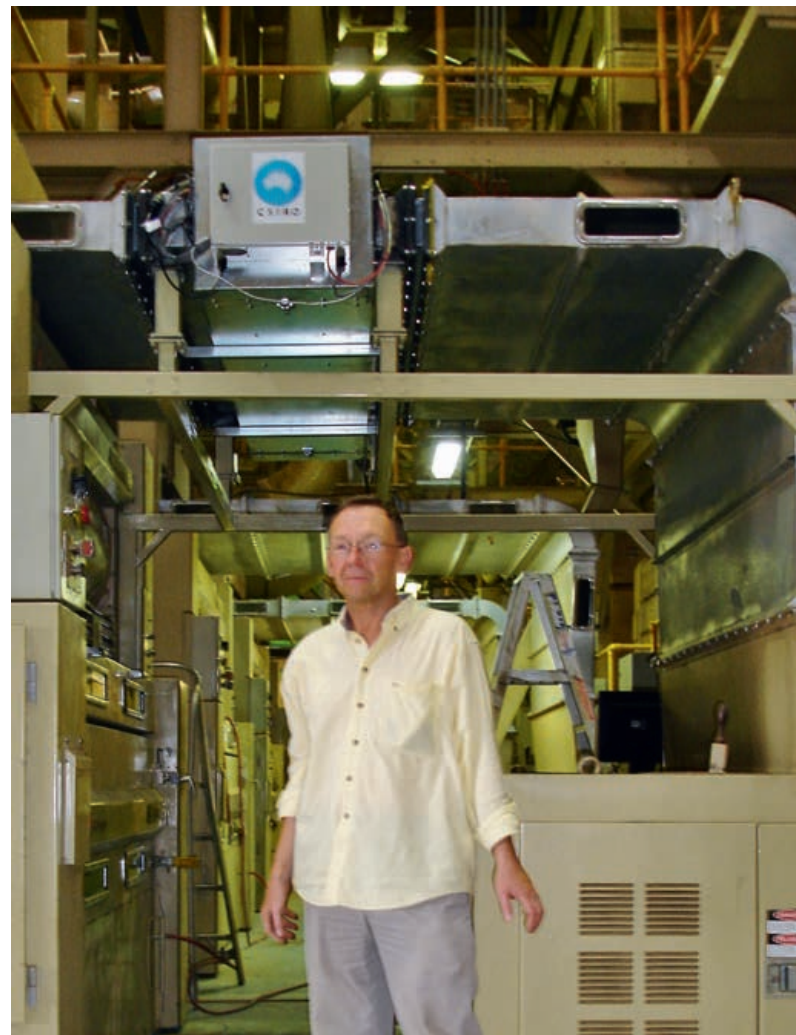
This is an order more accurate than current in-line meters.

Improving quality outcomes

Industrial trials conducted last season showed the meter could be used as a means for optimising the baled cotton quality and gas consumption. It was found that by keeping the moisture of ginned lint before the first lint cleaner between six and 6.5 percent, by adding up to one percent extra moisture to fibre via gin humidifying hoppers, the length parameters of 1.125 inch cotton were improved; length (upper half-mean length) increased by 0.25 mm, fibre uniformity increased by one percent and SFI decreased by 0.5 percent. No deterioration in colour or leaf grade was observed.

Reducing energy costs

Furthermore, the excellent response of the device to changes in cotton moisture allowed savings in gas use. The traditional manual adjustment of gas burner temperatures in response to 'measured' moisture is ad hoc at best, largely because there are no ac-



curate meters to provide constant and accurate feedback on the moisture in cotton. This lack of feedback, and a ginner's requirement to keep gin production high, means that gas dryers are typically kept on. This has detrimental effects on cotton fibre as it is typically dried too much and it is also an unnecessary waste of gas consumption.

While the addition of moisture added between 39.5 to 44.5 cents per bale in energy in gas and electricity costs, these additional costs were offset by the increased premium for the fibre by avoiding the discount for not achieving base length and the significant reduction in drying (gas) costs.

The excellent response of the CSIRO moisture instrument to moisture changes suggests that it can be used for providing feedback through the system to appropriately control the humidifiers and dryers.

Dr Andrzej Krajewski in one of the partner gins with Siroduct installed. The device is placed between the gin stand and the first lint cleaner.

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The CSIRO meter continuously measures the amount of water of all the cotton travelling through a transport duct in the gin. The meter's CPU collects the data and calculates the required cotton moisture changes. A simple mathematical feedback control system is then used to control the amount of humidifying or drying air required.

The meter's results from industrial trials during 2011 were used to simulate the effect on energy costs. The simulation showed gas savings, from being able to confidently turn dryers off during a normal 12-week season, could be as much as \$40,000/season. Premiums to growers for maintaining base length grades are an additional benefit, particularly to growers with cotton of marginal length around 1.09 – 1.13 inches. The magnitude of these savings would be expected to increase in the future with increasing energy costs and pressures on fibre quality premiums.

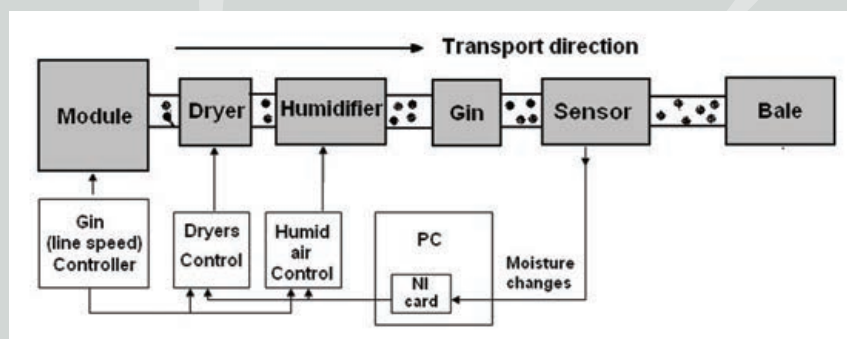


FIGURE 1. Elements of this system and a trace by the CSIRO meter.

The future of industry research and development is governed by CRDC's Strategic Plans, with work on the 2013-2018 plan now underway.



PLANNING FOR THE FUTURE

GROWERS, RESEARCHERS, INDUSTRY PARTICIPANTS AND THE AUSTRALIAN GOVERNMENT ARE BEING INVITED TO CONTRIBUTE TO THE FUTURE DIRECTION OF RESEARCH IN THE COTTON INDUSTRY. THE CRDC HAS STARTED DEVELOPMENT OF ITS NEXT FIVE-YEAR STRATEGIC PLAN TO ESTABLISH CRDC'S GOALS AND PRIORITIES FOR COTTON R&D FROM JULY 2013.

The first steps in determining the direction of the new strategic plan began with a review of CRDC's current strategic plan. Scanning of the industry's ever-changing operating environment is now underway to identify trends, emerging issues and key drivers which will influence the future of the Australian cotton industry.

The results of this will identify focus areas which will require research and development, to meet needs not just in the five-year term of the plan, but well beyond that, as CRDC Executive Director Bruce Finney explains.

"The history of cotton industry shows there are challenges and opportunities where R&D enables the industry to respond quickly as well as those where we know the results may not be available or important to use for

another 10 to 20 years," he said.

"Having developed a long term vision, Vision 2029, the industry is well positioned to think of future directions in what are often complementary time horizons."

Representatives of CRDC, Grain RDC, Department of Agriculture Fisheries and Forestry, Cotton Australia board and grower panels met in Canberra in February to review progress against the current strategic plan. Discussions were held as to the successful implementation of the plan as well as what has changed in the landscape as far as research needs are concerned.

Cotton Australia Chair Andrew Watson, "Brigadoon" Boggabri, said major issues discussed were increasing flexibility in development and delivery of research, future research needs and investment opportunities given improved budgets.

He said the landscape the industry works in is undergoing some major changes.

"Genetically modified crops, competition for resources from mining and coal seam gas and the large number of new growers and actual area are big factors," Andrew said.

"The world biotechnology scene is always evolving and Australia has to keep up with world trends, which may be difficult in the face of reduced gov-

ernment funding for rural research.

"The end of the Cotton CRC also presents challenges as CRDC and the industry makes plans to take over vital CRC roles in responding to grower needs in research, development and delivery."

The review was the first step in an analysis of the industry operating environment and identification of research focus areas, which will be complete by June. The second step is drafting a proposed strategic direction. By August this year the industry will be called on to provide feedback on a draft Strategic Plan 2013-18.

Once the feedback has been considered the CRDC will consult with Cotton Australia before a plan is finalised in January 2013 and then submitted to the Minister for Agriculture, Fisheries and Forestry for approval.

"The opportunity to reset the direction for R&D is significant given the changes underway across the industry at farm, regional, national and international scales," Bruce Finney says.

"The industry's capacity to sustain investment in world leading research has been renewed. Equally we have both the chance and responsibility to think boldly about R&D that might solve the current big issues and reposition the industry closer to its vision into the longer term."

KNOW WHAT'S WRONG WITH YOUR CROP

MAKING THE MOST OF THIS INVALUABLE RESOURCE CAN SAVE YOUR CROP, TIME AND MONEY.

The cotton industry is set to benefit from a great new reference guide with the release of *Cotton Symptoms Guide*, which is being published this month.

This guide builds on the original *Symptoms of Diseases and Disorders of Cotton in Australia* by NSW DPI Senior Plant Pathologist David Nehl and CSD Senior Plant Pathologist Stephen Allen, published nearly a decade ago. Stephen has co-edited the new guide with Cotton Industry Development and Delivery Team members Susan Maas and Duncan Weir. It includes updates for the disease sections as well as expanded sections in biosecurity, nutrition, herbicide damage, insect and other problems.

Susan is the D&D Team's Biosecurity and Disease Specialist and had recognised the need for this publication, to "bring the vast wealth of industry experience I call on when diagnosing problems in a cotton crop right to your field and farm".

"Every year I work with consultants and growers to diagnose problems in cotton crops, so understand full well the difficulties people encounter in correct identification of issues," Susan said.

"This symptoms guide isn't aimed at providing solutions to problems: it is merely the guidepost so users can begin to know where to look for the solutions to the question 'what's wrong with my crop?'"

Correct diagnosis vital

This guide has a number of elements to help growers and consultants make the correct diagnosis of a problem, and Susan encourages growers to look at more than the photo.

"Many symptoms look very similar and a correct diagnosis can be difficult," she said.

"While a picture speaks a thousand words, don't forget to read the symptom description and environmental factors as well as the 'Looks

Like' section. There is also a form to include when sending samples for diagnosis/confirmation, as well as tips on best practice for conducting field surveys.

"Many individuals kindly donated images and provided technical guidance on text. This is another great example where a huge number of industry researchers and agribusiness across a range of disciplines have contributed to ensure the Australian cotton industry has the knowledge and resources to undertake best practice."

Improving stand establishment

"This guide helps growers to determine the cause of plant stand establishment problems, which is really the first step in treating them," Stephen Allen says.

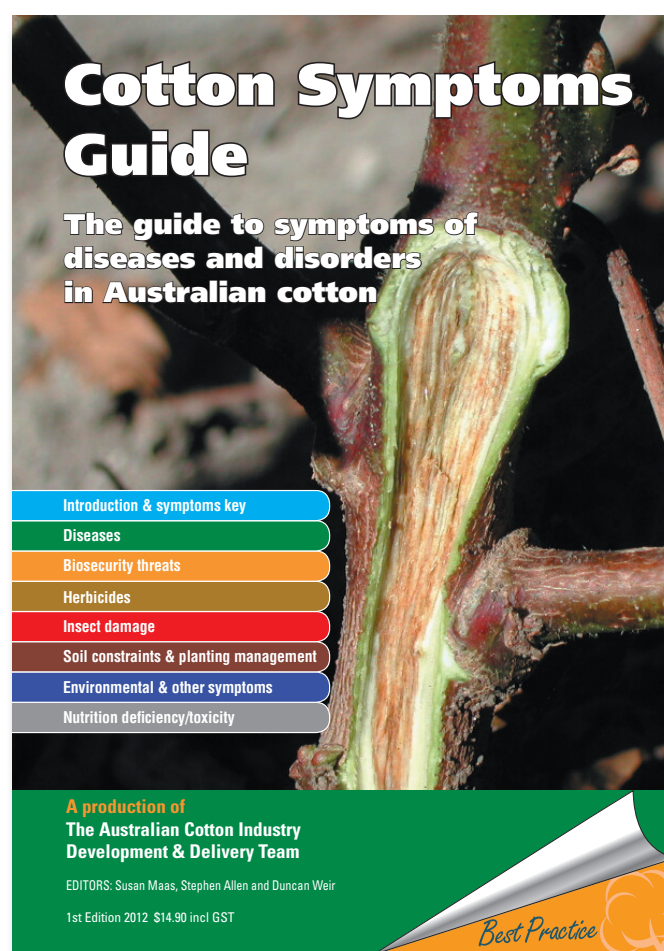
"It also provides descriptions of those diseases identified as 'priority pests' or 'biosecurity threats' in the industry's *Farm Biosecurity Manual*. These are diseases we don't have and don't want in Australia!

"Quarantine is vital. It is very important that farmers, consultants, agronomists, tractor drivers and anyone else that enters the crop should keep their eyes open to the unusual and keep asking the question – 'What is wrong with my crop?'"

This new guide has been produced with the help from the Cruiser R&D Fund which is supported by Cotton Seed Distributors and Syngenta, where-by seven cents from every kilogram of seed sold with a Cruiser seed treatment is made available to fund research projects which relate directly to problems with stand establishment.

"CSD and Syngenta established the Cruiser R&D Fund about five years ago to provide a complementary source of research funding for the cotton industry with a clear focus on improving plant establishment," said CSD General Manager Steve Ainsworth.

"The fund continues to invest in R&D in this area but it is very impor-



tant that tools such as this guide are supported as good information empowers growers and agronomists with knowledge to make informed management decisions."

In producing this publication industry has continued its strong relationship with agribusiness, with Cotton Grower Services, Landmark, Elders, B&W Rural, and the IHD Group (MIA Rural Services, McGregor Gourlay, Purchasehouse Rural and Ag'nVet). These industry supporters have contributed to production costs and will be providing this publication to their customers. This guide will also be available through the Development and Delivery Team.

For additional copies go to:
<http://www.crdc.com.au>



GROWING BETTER ALL THE TIME

A WORLD LEADING EXPERT IN HERBICIDE RESISTANCE WILL SPEAK AT THE COTTON CONFERENCE. **BROOKE SUMMERS** SPOKE TO THE PROFESSOR WHO WARNED VIGILANCE IS NEEDED HERE.

Internationally renowned authority on herbicide resistance and one of the world's most highly cited plant scientists, Professor Stephen Powles will be a keynote speaker at the Australian Cotton Conference in August, which will carry the theme "Growing Better All the Time".

And he has a strong message for the Australian cotton industry.

While Professor Powles has not directly worked on cotton in Australia, he is closely involved in helping to manage what has become a massive problem of glyphosate resistance in the US.

Uptake of biotechnology including Roundup Ready varieties has grown exponentially in the US, particularly in soy, corn and cotton crops in the south. According to Professor Powles, "glyphosates have been totally overused in the last 15 years and now there's an epidemic of glypho-resistant weeds, especially in the cotton belt".

He says that the Australian cotton industry can "thank its lucky stars" that we don't have the Palmer Amaranth weed (or 'pig weed'). This weed dominates the problem, grows to over two metres tall and can devastate crop yields, including those in cotton.

"I regularly visit the US, providing advice on glyphosate resistance issues, and frequently it is the cotton growing regions of the US and Brazil that have the biggest issues," he said.

"US farmers, researchers and the agricultural industry are doing everything they can to manage this resistance problem, including hand weeding teams, a practice not seen for 100 years."

Having witnessed this problem develop in cotton and other crops since the US introduced Roundup Ready technology in 1996, the message to the Australian cotton industry at this year's conference will be very clear.

"There is a real risk that similar problems could occur in Australia, particularly with the cotton industry's huge uptake of Roundup Ready technology. I will talk about the massive over-reliance on Roundup Ready crops in the US and the subsequent problems of Roundup Ready weeds and encourage Australian cotton growers to do all they can to avoid this," Professor Powles said.

"My presentation will contrast the US situation with that here in Australia and while I'm confident that we can avoid the problems faced on such a massive scale there, it will require a major and concerted effort.

"Following the Cotton Conference, cotton growers and researchers alike will better understand the potential risks and the vital importance of keeping glyphosate working on their farm."

Commenting on agriculture's place in the world during 2012 Australian



ABOVE: Palmer Amaranth or 'pig weed' dominates the resistance problem in the US, and can devastate cotton and other crop yields.

RIGHT: Professor Powles regularly visits the US giving advice on glyphosate resistance and says it is cotton-growing regions there and in Brazil which frequently have the biggest issues.



Year of the Farmer, Professor Powles acknowledged the vital importance of farming for world food production.

"The world's population will be at nine billion before we can blink, and it's only farmers in a few parts of the world who have the capacity to feed the rest. The future of the planet relies on US, Brazil, Argentina, Canada and Australia, so what we do on our farms now is vitally important," the professor said.

Professor Powles leads a large research team at the University of Western Australia who work at all levels from understanding the molecular genetics of resistance through to practical on-farm management. He is also the Director of the Australian Herbicide Resistance Initiative.

"I own my own 600 hectare cropping farm in the WA wheat belt and so am very familiar with the issues at the farm level and work closely in practical on-farm management," he said.

Professor Powles will be one of many leading experts and global authorities speaking at the Australian Cotton Conference. Program and speaker details will be made available via the Conference website as they come to hand at

www.australiancottonconference.com.au



**AUGUST 14-16,
GOLD COAST, QUEENSLAND**

FOR DETAILS AND REGISTRATION GO TO
www.australiancottonconference.com.au





SHOWING REAL RESTRAINT

PETE JOHNSON OUTLINES HOW LOAD RESTRAINT TESTING HAS GIVEN REAL ANSWERS TO OLD QUESTIONS

Development of Best Management Practice guidelines for storage and handling continued through late 2011, with key developments including an initial audit of the draft *BMP Handbook* (Version 1) and performance-based testing of load restraint systems for the haulage of cotton bales.

The load restraint testing was co-ordinated by Cotton Australia and CRDC with support from Australian Cotton Shippers Association.

The testing involved the placement of various load configurations under stress using a crane to tip trailers in order to simulate the forces a load of cotton bales would be under during extreme braking and turning (see images). Module restraint systems were tested at the same time.

Importantly, the testing showed a marked increase in stability when bales were loaded three wide as opposed to the practice where centre or side bales in the bottom tier were turned in order to keep the load within 2.5 metre width exemptions. NSW Transport has recently granted width exemptions for cotton bale loads in order to allow bales to be loaded three wide, and part of the requirement for the exemptions was to undertake this performance-based testing.

David and Allan Woods, from TFS Woods Transport in Moree provided the prime movers and trailers used in the testing, while Brighann Gin at Moree provided bales, modules and facilities.

A final engineer's report is still being compiled from the testing, and will be used to update the existing *Cotton Bale Restraint Guide*. This will also be used as evidence for NSW RTA, as well as Vic Roads and Qld Transport, when width exemptions are applied for in other states.

The ability to load three wide will not only improve load stability, but will also assist in efficiency of transport and efficiency and safety of loading and unloading trailers.

This was one of the key issues raised during audits conducted by CSIRO's René van der Sluijs of cotton storage facilities to assess Version 1 of the *Storage and Handling Best Management Practice Guidelines*.

Load configurations were put under stress using a crane to simulate the forces a load of bales would be under during extreme braking and turning.



Module restraint systems got a real work out to see what works best at Brighann Gin near Moree.



René said other key issues raised included the difficulties at the unloading point when bales were loaded out of sequence and/or in multiple bale ranges at the gin.

"This is creating sorting and efficiency issues at the receiving warehouse and can increase the margin for error across the post farm gate supply chain," René said.

He indicated that this was an issue that should be taken up in the next version of the Ginning BMP, highlighting that it was impossible to view these documents in isolation.

"In addition, a number of warehouse operators commented that they faced difficulties at times when physical bales arrived at the warehouse ahead of grading information – which leads to double handling and poor space utilisation while warehousemen

waited for the information required to sort and stack bales effectively," René said.

"This may be a result of sample despatch issues at the gin, backlogs at the classing room, or poor data flow from the merchant.

"Whatever the case, it is another issue where a problem at one stage of the chain affects stakeholders further down the line."

René said the audits undertaken for the *Storage and Handling BMP* had assisted in highlighting areas for review in the *Classing and Ginning BMP*.

These reviews, as well as a review of the draft *Storage and Handling BMP* and the *Cotton Bale Restraint Guide* were currently underway, with revised documents expected to be completed prior to the start of the 2012 ginning season.



A SURVEY OF OUR SPINNING MILL CUSTOMERS REVEALS NEPS AND SHORT FIBRE ARE STILL AN ISSUE FOR AUSTRALIAN COTTON.

QUALITY CONSISTENT BUT SOME ISSUES REMAIN

If you want to know what someone is thinking, it's probably best to ask them directly.

With this in mind, during 2009-10 CRDC funded a survey of spinning mills via person-to-person interviews with people from companies around the world who purchase Australian cotton to ascertain what they really think of our product.

Undertaken by René van der Sluijs from CSIRO's Centre for Materials Science and Engineering (CMSE) and Pete Johnson from Leftfield Solutions, spinning companies from Japan, Korea, Thailand, Hong Kong/China, India and Indonesia were surveyed as well as the last remaining cotton spinning company in Australia.

The survey consisted of a series of background questions about each company's production, raw fibre use and spinning facilities followed by a series of more open-ended questions about the quality of Australian cotton fibre. Information gathered during the interviews was enhanced by objective measurement of fibre samples gathered from bale lay-downs in mills of more than half the spinning companies.

"Despite the range of spinning systems and yarns produced in the spinning mills surveyed, the average impression of Australian cotton fibre properties was quite consistent," René said.

"All countries rated neps and short fibre content as properties that needed improvement. As expected cotton that is handpicked has lower nep content than cottons that are machine picked, with Australian cotton having a similar nep content to some cotton from the US and Brazil.

"The low level of contamination and stickiness, colour grade, spinning ability and staple length of Australian cotton created the best impressions."

While it is difficult to be accurate about the exact proportion of Australian cotton that meets preferred specifications, from the 2009/10 bale lay-down test results it can be said that in general less than 50 percent of Australian cotton bales met spinners' preferences in regard to short fibre content and less than a third of Australian cotton bales met spinners' preferences in regard to nep values. Australian cotton was better in regard to micronaire, strength, length and uniformity.

"As expected the 30-39 Ne yarn count range was the most important for the spinners surveyed, accounting for 42 percent of their production, followed by the <30 Ne yarn count, accounting for 39 percent of the production and the 40-59 Ne yarn count, accounting for 15 percent of the production, with four percent in the >60 Ne yarn count range," René said.

"Australian cotton made up 32 percent of the blend in the 40-59 Ne range, 19 percent in the 30-39 Ne range and five percent in the <30 Ne range.

"There was negligible use of Australian cotton in yarn counts >60 Ne, with this market dominated by US Pima and Egyptian cotton."

Potential for Australian Long Staple

However, René says, with the price and shrinking of Extra Long Staple (ELS) cotton there is a potential for Long Staple Upland cottons to be used in greater quantities in the 50-70 Ne count range providing they meet certain specifications.

"This is an area where the Australian Long Staple Upland (ALS) fibre could be used; supported by the fact that the surveys demonstrated significant usage of the premium Upland



As one of the world's foremost authorities on cotton fibre, René van der Sluijs (foreground) has worked both domestically and abroad for the betterment of Australian cotton's fibre quality.

San Joaquin Valley (SVJ) Ultima fibre in the 60-80 Ne market," he said.

"This is indeed an area that the Premium Cotton Initiative is focussing on.

"The survey found that as far as contracted specifications are concerned, US Upland cotton from SVJ was still superior to competitive growths particularly in terms of strength and micronaire, with micronaire values typically lower and occurring in a narrower band of values."

Australian cotton was ranked second after SVJ with staple length and grade similar to SVJ. Encouragingly, Australian cotton scored particularly well for key non-contracted specifications; particularly contamination, trash content and spinning ability where it was considered vastly superior to competing growths.

The message from this survey is that spinning companies acknowledge that Australian cotton is superior in a

number of fibre properties to competitive growths but issues such as nep and short fibre content still need to be addressed.

Spotlight has an extensive feature in this issue on, in particular, end of season management for maintaining fibre quality (pp 18-23) and many other information sources are available to growers to address nep and short fibre length, in particular the industry publication FIBREpak, which is recommended reading for all involved in the industry, from growers to shippers. 

Further information

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myBMP BUILDS ON SUCCESS

THE *myBMP* SYSTEM IS GOING FROM STRENGTH TO STRENGTH, WITH GROWING POPULARITY AND APPOINTMENT OF NEW STAFF TO ASSIST GROWERS AND RUN OTHER ASPECTS OF THE SYSTEM.

An initial survey of *myBMP* has received positive feedback and there are now 469 individual users of the system which includes 222 growers. To assist growers get on board, 29 certified advisors are available to help, and Cotton Australia Regional Managers Marie-Louise Offner and Julie Wise are also now part of the *myBMP* team on a part-time basis. Guy Roth of Roth Rural and Regional has been appointed to run the audit office to ensure consistency among audit procedures.

While participation rather than accreditation is a key aim, eight businesses have so far ticked all Level 1 practices (in addition to three audited) and many other growers have indicated they are close to (voluntary) audit stage. Three businesses with a total of seven farms are now fully audited.

myBMP Business Manager Jim Wark said *myBMP* is moving forward on a number of fronts.

"The website undergoes continual improvement of resources, and now includes electronic versions of the *Cotton Pest Management Guide*, *Pests & Beneficials in Australian Cotton Landscapes*, *Australian Cotton Production Manual* and *Spotlight* magazine," he said.

Looking further ahead, Global Information Systems (GIS) will underpin the system and link growers to assessment-related information specific to their location and a permanent property maps to manage on-farm practices.

"Maps that were previously physically produced soon will be able to be created on a computer and an integrated GIS system will allow information to be updated by growers to give up to 15 years of data, thereby maintaining farming history and changes over time," Jim explained.

"This could include information such as production capability and economic analysis on each paddock yield year by year.



CRDC's Rohan Boehm and *myBMP* Business Manager Jim Wark congratulating Auscott Narrabri's Manager Martin Mead and agronomist Bill Back on their accreditation into the new system in 2011.

"This technology will also underpin predictive reports for specific farm locations and the patching of weather information for example. Because it is a web based system, mobile communication applications will draw on resources of *myBMP*."

Monthly *myBMP* updates are now sent out to all registered *myBMP* users to highlight new information and resources or any significant changes.

"We are also really pleased with the support from industry of the certified advisor training and these advisors are making in-roads into helping growers overcome any reservations about joining the new system and then helping them navigate it," Jim said.

"From all reports people are finding the system very user-friendly and useful, especially in terms of the depth of information available covering all areas of crop management.

"We've had what can only be described as a tremendous response from the growers in the Dawson Valley, who have stayed committed to their *myBMP* journey, even after the worst flooding there in memory, when the attitude could well have been very different.

"But given the history of BMP uptake there, it isn't surprising, added to that the support given by Liz Alexander of Bluedog Consulting and the Dawson Valley CGA.

"Also available to support growers are the 79 researchers registered on the *myBMP* system.

"These researchers are on hand to support the *myBMP* program by reviewing the extensive information tools and resources to ensure that they

continue to represent industry standards while the technical help function directly links users to the industry staff best equipped to answer any questions they might have."

myBMP also extends far past the farm gate, with 27 gins and five classing facilities now certified, which brings the industry very close to "full BMP coverage".

"This is going to be so important in the future," says Ken Flower, who is the General Manager of Best Practice and Research Implementation.

"This is something we can be extremely proud of as we are an industry with a united front when it comes to best management in terms of not just environmental outcomes, but also from a quality assurance aspect.

"Our fibre is managed in the best possible way from the way the ground is prepared and the seed planted to the time it is loaded onto a ship to be sent to our customers in foreign countries.

"This gives assurance to our fellow Australians that as an industry we are committed to doing the right things in terms of our licence to farm and also demonstrates our commitment to our customers to provide them with a world class cotton product.

"This is the bigger picture of *myBMP*."

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myBMP – A CLOSER LOOK

'BUSTING' THE MYTHS WILL HELP ALL GROWERS EXTRACT THE FULL VALUE OF myBMP.



While myBMP Business Manager Jim Wark is pleased with the uptake and feedback from myBMP participants, he said there are still some 'myths' and concerns surrounding the new system which may unnecessarily discourage growers from using it.

He said some of the common concerns were that "it's too expensive", "what happens if I fail an audit", "why do I have to become certified?" and "myBMP is only relevant to corporate farmers".

"I'd really like to allay any concerns and dispel any myths about the new system," Jim said.

"There is no pressure on growers to become accredited and the site and its information base is available to growers should they sign on to the accreditation process or not – we just want growers to have the best information available so they can grow the best crops possible.

"Fortunately for myBMP and growers, we can show through research that best practice also gives the best results."

COMMON myBMP MYTHS

MYTH 1

It is compulsory to become certified

BUSTED

One of the common myBMP myths is that once a property is registered on myBMP it then must undergo certification.

This is not the case. The myBMP program is designed around three different levels of involvement and once registered, allows each user to determine how they wish to participate.

These levels are:

- 1 General Access – allows users to view all of the practices, resources, and information and latest research results.
- 2 Self-Assessment – allows users to view all of the practices, resources, information, and latest research and create a farm self-assessment but choose not to participate in the certification process.
- 3 Certification – The myBMP certification program is voluntary and becomes available once a farm self-assessment including documented supporting evidence has been completed and an audit requested by the grower.

It is entirely up to each user to determine how they choose to use the myBMP system.

The myBMP program is free to all growers and getting access is as simple as registering at www.mybmp.com.au or for more information call the myBMP administration office toll free on 1800 268 866.

MYTH 2

It costs a lot to participate in myBMP

BUSTED

This is not the case as registration and participation in the myBMP program is free to all Australian cotton producers. Once registered all growers can access all of the practices, resources, tools and research information at no charge. The only costs for growers associated with the myBMP program includes their time to work through the website, any cost associated with implementing changes required to comply with specific practices and in the situation where a grower chooses to become certified, the cost of the external auditor.

The myBMP program is free to all growers and getting access is as simple as registering at www.mybmp.com.au or for more information call the myBMP administration office toll free on 1800 268 866.

MYTH 3

If I fail an audit there may be adverse consequences

BUSTED

Participation in the myBMP program is completely voluntary and each user is free to determine how far they progress. If a grower believes that their property meets all of the level 1 & 2 practices and would like to become myBMP certified then they can request an audit. A myBMP audit aims to confirm whether the property complies with the standards and if not then the auditor identifies what needs to be changed to achieve the standard. Ultimately it is the grower's decision how far to progress with the myBMP program and only to become certified if they choose to.

MYTH 4

All evidence must be supplied electronically

BUSTED

One of the significant changes introduced with the launch of the myBMP program is the capability of electronically storing information as part of farm self-assessment.

The key benefit of this capability is that information is retained in a secure electronic 'filing cabinet' (only accessible to them) and can be used as evidence if a grower wants to become certified.

It is not compulsory to supply evidence electronically for an audit however this function is available and if used can significantly reduce the time and cost involved in an audit. It is important to understand that evidence for meeting best practice standards can be supplied in many different formats if certification is the aim. The key is being able to demonstrate to the auditor that the farm complies with each Level 1 & 2 practice. Electronic evidence can be supplied for the five core modules alone.

MYTH 5

myBMP is only relevant for corporate cotton growers

BUSTED

myBMP was designed with the specific focus of making it flexible enough so that all cotton producers can easily use and find value in using the program, access all the tools and resources and determine how far they choose to progress. The choice exists to use myBMP solely to access the extensive resources available as links, templates and documents; conduct a self-assessment which can help to identify improvement opportunities, or to progress through to certification. The decision is entirely with the grower regardless of the size of their farming operation.



Damage to cotton fields at “Koorowatha” Theodore after the December 2010 flooding.
Image courtesy Chris Austin.

ALL FOR ONE – ONE FOR ALL

DAWSON VALLEY COTTON GROWERS HAVE ALWAYS BEEN VERY PROACTIVE REGARDING BMP AND ARE CONTINUING THEIR COMMITMENT, WITH NEARLY ALL GROWERS NOW REGISTERED AND USING THE SYSTEM.

The first “official” bale of Australian BMP cotton was produced in the Dawson by the Austin family in 2001, and nearly all growers were part of the old BMP program when the system was replaced by myBMP.

With the help of consultant Liz Alexander, the Dawson Valley Cotton Growers Association (DVCGA) is aiming for even higher participation over the next year.

“The DVCGA is aiming for the valley to produce and process cotton which could be marketed as a ‘100 percent Australian BMP,’” Liz said.

“They hope to make the most of any potential market opportunities, are proud of their product and have a good story to sell. Some of the grow-

ers had been discussing it informally prior the floods, given some of the work done by the CRDC Premium Cotton Initiative and the Dri Glo BMP towels produced by Glenn Rogan and Glen Smith.

“However, if you ask all the growers they all have different reasons for wanting to undertake myBMP.”

Given the growers’ less than brilliant outcome from last season’s floods, Liz says reaching 100 percent accreditation is a big call; however she says the Dawsonites are a very committed, motivated group.

“They’ll certainly have a go – I’m sure they can do it without further serious setbacks,” Liz said.

“Fitzroy Basin Association (FBA) is supporting them with my time until

June 2013, and industry staff are also there; so we’ll work through it in bite size chunks, as and when the growers are ready.

“Even if the CGA doesn’t reach the 100 percent accreditation mark, I think already their commitment to their community, The (Great Barrier) Reef and the rest of the industry is pretty impressive and they are participating, rebuilding and improving.”

What is perhaps most impressive about the commitment to improve by the Dawson Valley growers was to put time aside to attend the first myBMP workshop immediately after the worst flooding in memory. The first workshop scheduled for December 2010 was run in June 2011, with nearly all farms in the valley represented.

Significant flooding in March of 2010 followed by worse in the Dawson River in December that year caused more than \$36 million in losses to 22 of the irrigated farms, equating to an average of more than \$1.5 million per enterprise. Of the 22, 14 had more than 50 percent loss including seven

RIGHT: Growers had the chance to look at soil structure and fertility issues post-flooding with this DEEDI soil pit as part of the myBMP Soil Health and Natural Assets workshops in June 2011.

enterprises who suffered 100 percent crop loss.

"Given how terrible and wide-spread the flood damage was, I was amazed at the response," says Liz, "Twenty-seven growers and two agronomists turned up from Banana, Baralaba, Duaringa, Moura and Theodore – and we had three apologies – this represented all irrigated and dryland cotton growing enterprises in the Dawson Valley region bar one."

"With the help of the DEEDI/FBA Grains BMP program, we had 24 laptops all connected to the myBMP and Cottassist websites. The workshop covered the myBMP Natural Assets and Soil Health sections.

"Both DERM and DEEDI provided guest speakers linking relevant cotton agronomic and environmental/legislative extension to the BMP modules. In conjunction with its post-flood agronomy, DEEDI ran a soil pit on the day."

Liz said given the valley's previously high level of BMP participation it was interesting to note that with generational change and a number of brand new growers in the industry, one third had received their first introduction to BMP online through myBMP at the workshop.

"Given that there were so many new people, and one third described their computing skills as awful or introductory, the fact everyone completed or nearly completed the two modules by the end of the day shows that the system is easy to use and works," she said.



WHAT HAS MADE THE JOURNEY SUCCESSFUL?

- Working together – it takes time, but working in partnership with all businesses and organisations who service the valley's growers gives the growers a much better experience, and helps everyone out by avoiding duplication of meetings.
- Understanding growers' operations and the issues that make participating in BMP (or any other activity) difficult and doing your best to remove or help address them.
- Understanding why BMP is important both now and historically for this community and the industry – and respecting the DVCGA's previous work (in 2002, 95 percent of all DVCGA properties had undertaken, at minimum, an initial compliance audit.)
- FBA and Dawson Catchment Co-ordinating Association have been very responsive, tailoring its mapping products to match BMP requirements. Following the flood the NRM group immediately used what flexibility they could in their existing grants packages to assist flood-affected landholders as well as sourcing additional Flood Recovery funds.
- The growers, consultants, and the DVCGA executive have used myBMP as way of looking forward and focusing on some positive goals after the worst flood in history.
- Listening and asking. We ask the growers when, with what and how they want to receive help, and then just do it. We also ask how we can do better each time.

"The group was generally pleasantly surprised. For the growers who were familiar with the old system, the change from environmental compli-

ance to an equal focus on delivering cotton research and extension is a big one. I think it's important to remember that growers undertake BMP for

LIZ ALEXANDER

Liz Alexander is a Cotton Australia board member and accredited myBMP adviser who runs a consultancy based from Emerald primarily working with cotton, grain, community development and environmental clients on the east coast. Liz started working with the Dawson Valley growers in 2001 so has

had a long friendship with many of them. This recent role is funded by the regional Natural Resource Management group Fitzroy Basin Association and has run from November 2010 across Central Queensland, ending June 2013.

In this role Liz is supporting individual growers to develop funding projects that

support reef water quality outcomes through myBMP on-farm assessments, under the Australian Government's Caring for Our Country initiative. In partnership with DEEDI, CRC, CRDC, Cotton Australia and the local service industry she offers research, extension and support for all Central Queensland growers interested in participating in myBMP

"This involves linking growers with tools to assist with their BMP – for example all the growers participating have received excellent farm maps which meet all their myBMP requirements based on a SPOT 5 Colour satellite image, contributed at no cost from FBA," Liz said. "I'm also building capacity across all members of industry to sustain myBMP participation in the future and if in the process I can assist the DVCGA growers to gain a price premium in recognition of their environmental credentials that would be fantastic."

Liz Alexander with Dawson Valley grower Dennis Moore "Lagoona" in front of his myBMP-compliant chemical shed, which along with his storages was basically the only infrastructure remaining after the floods. The Moores have since rebuilt their entire irrigation system.





different reasons and all of those are equally valid.

“The new way in which *myBMP* links growers with current industry research is something they are still getting to grips with.

“Who the target audience is for different sections of BMP can also be tricky when doing group workshops – in the Dawson, only 20 percent of male owners currently do the BMP entry; 40 percent of BMP use is by female owners; 20 percent each by sons/son-in-laws and daughters/daughter-in-laws.

“Personally I think that when it comes down to it, most growers would rather be spending time with their family and friends or farming than spending time in front of a computer full stop.

“Hopefully they see that the online system is something they can use easily at any time that suits, provides the industry’s social licence to farm, allows them to pinpoint agronomic information they need quickly, and causes the least disruption to what they really want to be doing.”

Liz said that, like other cotton areas, there are many distinct and different sub-communities and regions within Central Queensland with different needs and levels of participation aimed for.

“They are all having a go though which is great. For each group of growers, we’re focussing on specific agronomic or environmental extension areas that they’ve specifically chosen as being a priority,” she said.

“Together FBA and the local Catchment Co-ordinating Association, Cotton Australia, DEEDI and CRDC will support growers in Biloela, Mackenzie Big Bend, Comet River and Emerald regions in the next year and a half.”

CALL FOR HELP WITH RAINFALL DATA

Would you like to receive a historical analysis of your on-farm rainfall and a seasonal rainfall forecast? University of Sydney PhD student Derek Yates is asking growers who keep rainfall data for their help to build a rainfall database which can become a resource for the entire continent. The data is kept securely and no direct mention of location with data that is made visible to the public. Growers who contribute data will receive the analysis and forecast from Derek as thanks for their input. See the project outline at <http://youtu.be/vVw50Ldd4L8> or http://sydney.edu.au/agriculture/pal/GGA_FSTE_project/index.shtml



IN THEIR WORDS: PETER AND DIANA FRENCH

PETER AND DIANA FRENCH OF “NANDINA” THEODORE ARE NO STRANGERS TO THE INDUSTRY.

The family has owned the original farm block since 1963 and grown cotton since that time – a total of 57 years on the original block and 23 years on later acquired country. These days they annually grow around 350ha of irrigated cotton.

What was your involvement with the first BMP system?

We went through our Initial Compliance Audit in 2000 and gained our Certification to BMP in 2001. We were audited again in 2006 and 2008, by which time we had gained certification for all seven modules in the first BMP system. We weren’t under any obligation to gain BMP certification, however we did it because we felt it was good for the industry. It made us look at our farming practices and we made significant changes for the better.

How have you found converting to the new *myBMP* – positives and negatives?

Converting to *myBMP* hasn’t been difficult, once I learnt my way around. It is very user friendly and I see that as a real positive. Growers wouldn’t be as likely to give it a go if the site was difficult to use. I like that we have all the resources we need at our finger tips and that we can upload documents onto the site. The auditor can actually complete a lot of the audit process before he/she even comes out to the farm.

The only negative for us has been the fact that we were fully certified for the old BMP system and now we have to go through the process again, with new modules. It’s not all bad though, as the system is keeping up with modern farming practices and industry and government regulations, which is vital for the cotton industry.

What value does the new system hold for you?

The value that the new system holds for

me is simply the satisfaction that we’re doing it and knowing that our farming operation is up to speed. We believe our practices to be up to the mark anyway, but having the certification just affirms that for us.

Having said that, I look forward to the day we see a tangible reward for being BMP certified. During the last 10 or so years, we’ve spent a lot of time and energy on BMP and it would be gratifying to receive some sort of recognition for that, in a financial sense.

How will it help you in your day to day operations?

When we first started on the BMP path 12 years ago, we began making changes in our day to day operations and over the years that trend has continued. Water use efficiency, chemical handling, spray management, soil and plant nutrition, farm hygiene and record keeping are some areas we have improved on and we certainly make changes to practices whenever we see the need.

What gives you as Dawson Valley CGA members such drive to be part of this as a group?

I can’t really answer for the whole group but I believe it to be very good for the cotton industry as a whole to have as many growers on the BMP wagon as possible. It shows a real commitment and belief in the industry and gives Cotton Australia, as a lobby group, a louder voice, so to speak.

How has Liz’s involvement and that of others helped in getting on board with *myBMP*?

Liz has been great. Her enthusiasm for *myBMP* has really helped a lot of us to get moving on it again after the floods. She has organised two workshops in Theodore, which have got the motivational juices flowing again, and that’s great.



Elders' staff in Narromine for advisor training were Linda Heuke, Glenn Orman, Bill Webb, Louise Anderson, Heath McWhirter, Donald Benn and Sally Jaeger with myBMP Business Manager Jim Wark.

AGRIBUSINESS SUPPORT GROWS

myBMP HAS BEEN RECEIVING EXCELLENT SUPPORT FROM A NUMBER OF AGRIBUSINESS ORGANISATIONS, WITH 29 INDIVIDUALS NOW CERTIFIED myBMP ADVISORS.

“**S**taff from Cotton Grower Services, Elders, AGnVET, and several independent consultants are now certified advisors, with Total Ag Services staff ready to start training,” myBMP Business Manager Jim Wark said.

“Trained advisors are now available in all of the key cotton growing areas however additional training is scheduled, aiming to provide users a number of options if requiring support with myBMP participation.”

The agribusiness advisors are being trained to act as an additional support for growers – whether they just want help to access the plethora of information available on the system – or would like to prepare for certification.

If a grower chooses to become myBMP certified with this support, the advisor doesn't actually participate in the actual audit (as it is

designed to confirm that the grower understands and complies with the principles and practices of myBMP) however the advisors are trained to guide the grower in preparation for the audit process.

“The myBMP advisors program is a key resource to help the industry transition to the system and will be an important part of making myBMP successful,” Jim says.

“This will be achieved by certified myBMP advisors actively working with their customers, offering encouragement and support in getting started.

“Additionally it will be important to ensure that growers are comfortable with the process, help determine what level of participation is best for the grower and to make the experience with myBMP as valuable and enjoyable as possible.”

myBMP accredited agribusinesses

will be recognised on the myBMP webpage and have the opportunity to supply myBMP farm gate signs with the organisation's logo to growers for which their staff have acted as advisors and achieved myBMP certification.

Meanwhile individual advisors are also being trained to guide growers.

“A lot of these individuals are self-employed and already involved in the industry in other capacities, so we are really pleased they have come on board,” Jim said.

“Opportunities still exist for more individuals to undergo training and should contact me for more information and to find out about these opportunities.” 

All certified agribusiness and individual advisors' details are available on the website or by calling myBMP on 1800 268866.



HANDS-ON TEAM PUTS *myBMP* ON TRACK

BEST PRACTICE IS TAKING A REGIONAL APPROACH WITH THE APPOINTMENT OF TWO OFFICERS WHO ARE AVAILABLE TO SUPPORT GROWERS TO MAKE USE OF THE VALUABLE RESOURCES IN *myBMP*.

MARIE-LOUISE OFFNER

Marie Louise Offner's role with *myBMP* is to provide 'hands on' assistance to growers who are interested in knowing more about *myBMP*, how it works and how it can benefit them.

"I love that *myBMP* is focused on participation not certification, therefore it is up to the grower how they want the system to work for their business, and get the most value from it," Marie-Louise said.

"My level of assistance can range from helping a group of growers to register on *myBMP* and then through a workshop provide an overview of the system and *myBMP* modules or it could also entail on-farm visits and providing one-on-one assistance to ensure that growers are on the right track and answering any concerns they have."

With a long association with the industry from the farm to agribusiness level, Marie-Louise is now the Cotton Australia Regional Manager for the Darling Downs and is based in Toowoomba.

"*myBMP* really appeals to me in that it is a user-friendly system that has been designed by, and for, practical and common sense people. I am not a 'techno whiz' by any stretch

of the imagination and I have found *myBMP* to be extremely easy to use and full of exceptionally handy resources, specifically the human resources component.

"With the increasing pressures of the resources industry and 'red tape' bureaucracy impacting on the rural sector, I believe *myBMP* will be an invaluable tool to 'put some power' back into the hands of growers.

"It can be used as a checklist and risk assessment for their business (Level 1 being the identified legal requirements for the industry), assist with the development of induction manuals, biosecurity plans – of which templates are available so there is no 'starting from scratch' !

"I am still amazed at the exceptional industry resources available on *myBMP* including *The Cotton Pest Management Guide* and the direct contact with researchers and extension staff to answer any questions growers have."

Contact Marie-Louise for all your *myBMP* enquiries or to organise a workshop in the Darling Downs region.

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Phone: 0448 558 552



JULIE WISE

Julie began working in the cotton industry in 2001, bug-checking during university holidays, and has been working in the industry ever since.

Julie is now the Cotton Australia Regional Manager and Cotton CRC Extension Officer for the Macquarie Valley and part of her work is facilitating the uptake of *myBMP*. The Macquarie cotton growing region takes in Dubbo to the east, Narromine, Trangie, Nevertire, Warren and Carinda to the north west.

"Partly, both my roles include providing regular *myBMP* workshops in which growers can attend to get the 'hands on' instruction for using, registering and auditing their farm, but also being available to discuss, direct and generally help those growers that seek it," Julie said.

"My goal is to introduce as many growers as possible to the system to demonstrate not only the benefits of being *myBMP* accredited but also utilising the system for the farm/admin tool that it is."

Julie said the most rewarding part of her job is helping the cotton growers and is also passionate about the future human capacity level of the industry.

"Young people are the future leaders of the cotton industry – it is imperative to offer them every opportunity to develop their skill set, knowledge and networks for the prosperity of our industry," she said.

Contact Julie for information about *myBMP* or to arrange or attend a *myBMP* workshop in the Macquarie region.

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PREPARE THIS HARVEST TO PRESERVE FIBRE QUALITY

SETTING UP A CROP FOR A TIMELY HARVEST INVOLVES MAKING A NUMBER OF CRUCIAL DECISIONS. CSIRO'S MIKE BANGE AND ROB LONG GIVE THEIR EXPERT ADVICE.

CSIRO researchers with ongoing support from CRDC and Cotton CRC have identified a basic set of strategies to give a crop the best possible finish and maximise fibre quality.

Harvest preparation is an important, complex and expensive stage of crop management. Much effort and cost put in to optimise fibre quality throughout the life of the crop can be easily compromised at this stage. Late flowering and especially regrowth

directly causes fibre quality problems reflected in reduced micronaire and increased neps, and indirectly with poorer grades. Poor and untimely defoliation can have a significant impact on fibre maturity as well as the amount of leaf trash, while delayed harvest also exposes clean lint to increased chances of weathering. Humid conditions or rainfall increases microbial damage thereby potentially reducing colour grades and fibre strength.

In short, timeliness of operations in the lead up to and at harvest is the overarching theme and can be summarised into five key management considerations to optimise quality following the first open boll.

- Appropriate irrigation management for finishing the crop and avoiding regrowth.
- Managing aphid and whitefly infestations to avoid sticky cotton.
- Accurately determining crop maturity.
- Ensuring timeliness of harvest operations to avoid wet weather.
- Effective application of harvest aids.

According to FIBREpak – the industry's best practice guide to preserving fibre quality – a perfect system to attain the highest quality cotton would be

to have a field with 70 to 80 percent open bolls, generated from uniform flowering and boll retention, resulting in an abrupt cut-out that had ample water and nutrition to meet only those requirements of the fruit present at cut-out. Leaves would have matured naturally and allowed for easy defoliation at an appropriate time when temperatures were warm. The crop would be ready to harvest when the chances of rain were small.

Irrigation management and regrowth

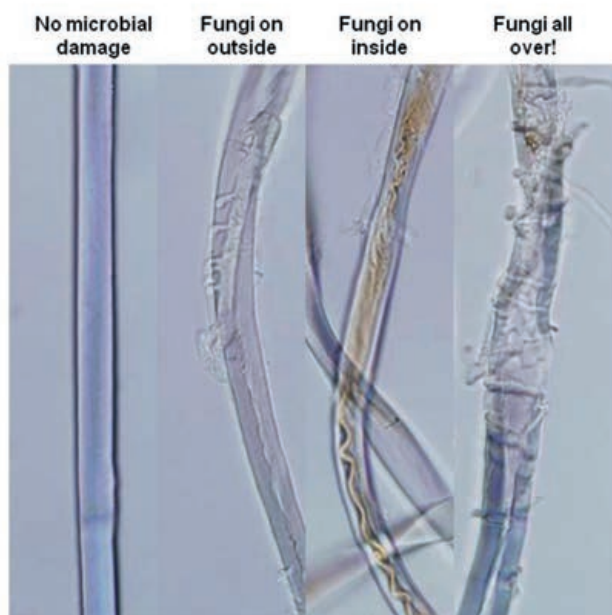
The timing of last irrigation is a balance between ensuring there is enough moisture to allow the growth and maturity of harvestable bolls and secondly, that fields are dry enough to assist defoliation, limit regrowth, and minimise picking delays and soil compaction. The broad aim is to have soil moisture at normal refill points by defoliation.

Crop management to synchronise crop maturity dates and harvesting operations with climate and weather is one aspect of timeliness.

Excess nitrogen rates or events which cause late regrowth (for example excess soil moisture at harvest) can interfere with defoliation practices and picking. Fibre quality can be reduced as lint can be stained by the soft

BELOW:
Fungi affecting the quality of fibre.

Photo courtesy
Stephen Allen CSD





regrowth and additional moisture can be added to modules which promotes rot and increases risk of module fires. Substantial amounts of leaf trash increases the need for additional lint cleaning in the gin that can further damage the fibre.

Delayed growth may also mean that fibre development may also occur in cooler weather thus reducing fibre maturity and lowering micronaire.

Managing pests

Unnecessary and late season growth also supports late season insects which can damage both yield and quality and secreting honeydew that can cause stickiness (whitefly and aphids). In wet or humid weather leafy crops may also contribute to boll rot. (See article "Avoiding Sticky Cotton on page 21 for more detailed information.)

Determining crop maturity

Sampling to assist determination of crop maturity needs to be conducted on plants that are representative of the crop. Methods include:

Percentage bolls open – Crops can be safely defoliated after 60-65 percent of the bolls are open. This is a useful method to track how quickly a crop is approaching maturity. This method works well in crops with non-uniform distribution of fruit.

NACB (Nodes above cracked boll) – In most situations four NACB equates to the time when the crop has 60 percent bolls open. This is a useful methodology on crops that are uniform in growth, and is less time consuming than percentage open bolls; therefore a greater sample size can be taken.

Boll cutting – This is an easy and effective method to determine if the youngest harvestable bolls are mature or immature. Consider only monitoring bolls that will be harvested and use a range of approaches especially if the crop has non-uniform maturity.

Research is currently being undertaken to refine the boll cutting technique to determine the status of a crop prior to applying harvest aids that may allow cotton producers to better predict final quality and ensure the best time for defoliation to optimise quality. Such



Mike Bange advising growers on cutting out their crops at a field day near Griffith this year.

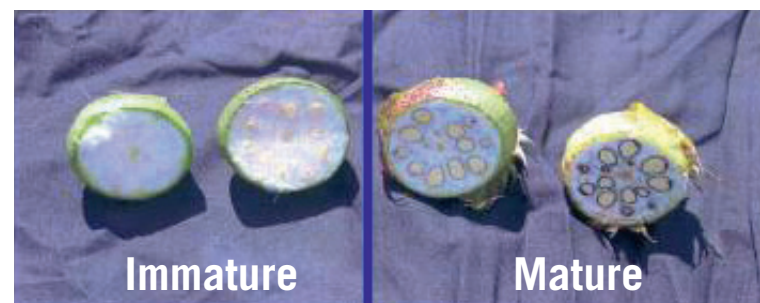
information will also help the supply chain in general to pre-empt some of the processing performance issues of harvested fibre and improve fibre processing.

Timing the harvest

Severely weather damaged cotton is undesirable in textile production because the lint surface has deteriorated and this is perceived to reduce dye uptake. It also can increase the roughness of the fibre which alters its frictional properties and thus how the fibre performs in the spinning mill.

As cotton weathers it becomes grey due to moisture from both humidity and rain, exposure to ultraviolet radiation and from fungi and microbes that grow on the lint or wash off the leaves.

Damage to the fibre will reduce micronaire and fibre strength making fibres susceptible to breakage during the ginning process, increasing short fibre content leading to inefficient yarn production. Under very humid conditions fungi can multiply on the lint causing 'hard' or 'grey locked' bolls which can reduce both quality and yield. If bolls are opened prematurely by frost they may have a yellow colour



and also may have gossypol stain.

A grower should examine their harvest capacity, regional weather patterns, and have monitored their crop development to avoid excessive weathering. Specific considerations include:

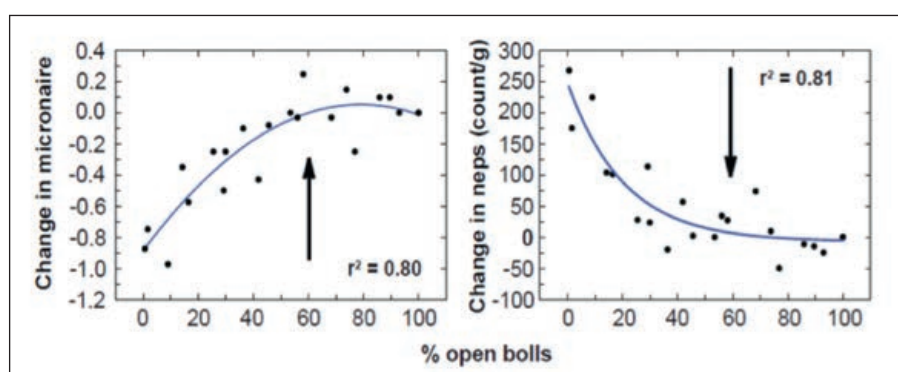
Time harvest to avoid excessive rainfall once bolls are open. See regional summaries for rainfall frequencies in harvest months in FIBREpak.

Plan to have the crop defoliated before the first frost. The last effective flower tool on the CottASSIST website can be used to identify the risk of frost for your locality.

For more detailed information refer to the Integrated Pest Management Guidelines, the *Cotton Pest Management Guide* and FIBREpak, which can be ordered online at www.cottoncrc.org.au/content/Industry/Publications/Fibre_Quality/FIBREpak/

Bolls that are mature have seed coats that are turning brown.

Photo courtesy CSD



Impact of time of defoliation on micronaire and neps. Defoliation before 60 percent bolls open lowers micronaire (reduced fibre maturity) and increases neps.



Acknowledgements

Michael Bange, Greg Constable, Stuart Gordon, Robert Long, Geoff Naylor, Rene van der Sluijs, CSIRO Plant Industry (Narrabri) and CSIRO Materials Science and Engineering, Cotton Catchment Communities Cooperative Research Centre.

FACTORS FOR EFFECTIVE HARVEST-AID APPLICATION

HARVEST AIDS PREPARE THE CROP FOR A TIMELY AND EFFICIENT HARVEST AND TIMING OF APPLICATIONS IS CRITICAL.

The term harvest aid is used in this article to cover defoliant, conditioner, dessicant and boll opener, which all have roles in achieving timely and efficient harvest of the lint and reducing quality losses from weathering, leaf stain, and excess leaf trash.

When applying harvest aids growers should consider timing, the type of chemical used, and rates. The effectiveness of harvest aids is dependent on uniformity of plant growth, weather conditions, spray coverage, and absorption of the chemical by the plant. Optimum timing of harvest aids must strike a balance between further boll development and potential losses from adverse weather and the inclusion of immature fibre which can lower micronaire and increase neps (See Figure 1).

Defoliation induces leaf abscission (allowing the leaf to fall off) and can assist in reducing moisture in seed cotton needed for harvest and reduce boll rot. Boll opening is also accelerated by defoliation as removal of leaves exposes bolls to more direct sunlight, promoting increased temperatures for maturation and opening boll walls.

Defoliation does not kill the plant. Avoiding regrowth resulting from residual nitrogen and moisture in the soil will also contribute to harvest aid effectiveness, as regrowth is more difficult to defoliate.

Timing

Ensure defoliation practices occur before the onset of frost. Frost can cause damage to the abscission zone making defoliants ineffective.

Aim to have soil moisture at the

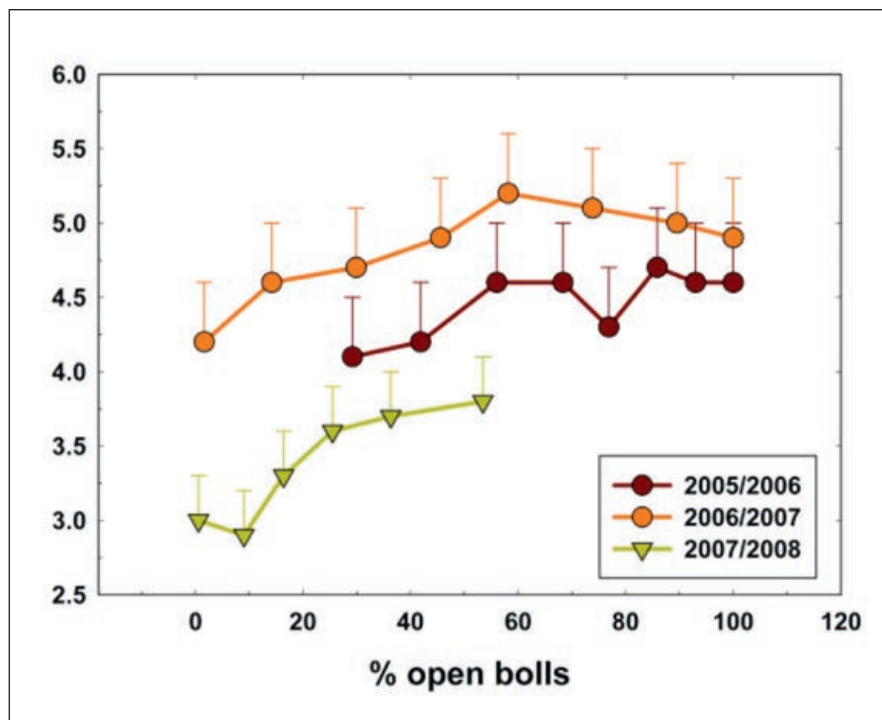


FIGURE 1: Micronaire of collected lint samples from defoliation treatments applied at various percentage open bolls over three seasons.

refill point at defoliation. Severely water stressed crops will not allow defoliants to act effectively.

If boll openers are applied prior to boll maturation they may cause young bolls to shed and potentially reduce yield and quality.

Avoid application of harvest aids when there is a risk of rainfall shortly after. Some defoliants are taken up slowly by the leaves and will wash off by rain, resulting in incomplete defoliation.

To avoid regrowth it is prudent not to defoliate an area larger than can confidently be harvested within two to three weeks.

Rate and Chemical Selection

Older leaves are easier to remove than younger leaves. Higher rates of defoliant will be needed for young healthy leaves.

Cool temperatures, low humidity and water stress prior to defoliant application can increase the waxiness and thickness of the leaf cuticle reducing the efficiency of chemical uptake. Wetting agents or spray adjuvants can assist with this problem.

Because leaf drop requires production of enzymes, the speed with which

a leaf falls off is highly dependent on temperature. There are different optimal temperatures for harvest-aid performance. Hormonal defoliants and boll openers have a higher minimum temperature of around 18°C compared with herbicide defoliants that have minimum temperatures ranging from 13 to 16°C. Higher rates are often recommended on some product labels to offset the effects of low temperatures.

Application

Low humidity during application decreases uptake because chemicals dry rapidly on the leaf.

For penetration of harvest aids lower into the canopy consider using larger droplet size or directed sprays in the case of ground rig use.

Use combinations of harvest aids with different modes of action and multiple applications can enhance defoliation. Multiple applications are beneficial because leaves deep in the canopy can be covered fully.

If increased waxiness of the leaves is suspected, applying the harvest aid in warmer conditions can assist chemical penetration as the waxy layer is more pliable.

“THE TIMING OF DEFOLIATION TREATMENTS AFFECTED THE MATURITY OF THE FIBRE”



DEFOLIATION RESEARCH
PREDICTS FIBRE QUALITY

Significant amounts of immature fibre in ginned cotton will affect textile quality, affecting Australia's reputation for high quality.

A study conducted in three seasons varied the timing of defoliation to determine what percentage open bolls at the time of application contribute to differences in the amount of immature fibre leading to differences in the quality of yarn.

Although early defoliation treatments produced less mature fibre, both yarn and fabric strength was not affected. Interestingly, less mature cotton from a cooler growing season produced stronger yarn which was attributed to the smaller ribbon width of this fibre which increased fibre packing density (that is more fibres in a given volume of yarn). Yarns made from more immature cotton in this season also contained more neps.

Percent open bolls at the time of harvest aid application related well to changes in the colour of blue dyed fabric, with the earlier defoliation treatments having lighter coloured fabric. While there were gradual improvements in fabric colour with later defoliations there were only distinct changes in colour to the visible eye when there was less than 26 percent open bolls at the time of treatment application.

This work supports the current recommendation of applying harvest aids at greater than 60 percent open bolls, and the information generated in this study may be used to predict the quality of yarn and fabric generated from differences in the field.

This information will be valuable in refining crop monitoring and harvest preparation strategies that aim to optimise both lint yield and fibre quality. This will optimise returns to growers and help to improve the quality and reputation of cotton delivered to overseas spinning mills.

RESULTS AND OUTCOMES
Fibre quality

In each season the timing of defoliation treatments affected the maturity of the fibre with earlier treatment applications generally causing harvested fibre to be lower in micronaire (Figure 1). Direct measurements of fibre maturity also confirmed that earlier treatments were less mature (Figure 2). Ribbon width was not affected by the timing of application of harvest aids. In the 2007/08 season fibre was less mature (substantially lower micronaire) and had a smaller ribbon width.

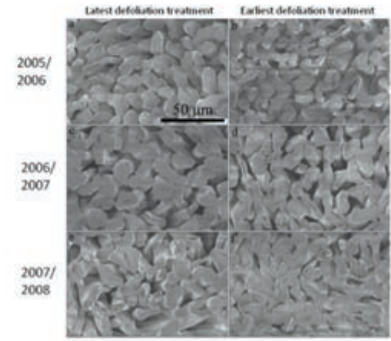


FIGURE 2. Electron microscope images of yarn cross sections taken from the earliest and latest defoliation treatments in each season. A µm is one millionth of a metre.

This season was markedly cooler resulting in a delayed crop with more immature bolls.

Yarn

The lack of differences in yarn strength between treatments was unexpected; as more immature fibres would have been needed in a yarn cross section to make the specified mass per unit length of yarn thus this should have increased yarn strength. However, lack of improvement in yarn strength with more immature fibre from early defoliation treatments was most likely due to shorter fibres in these treatments. There were no differences between treatments in the ribbon width which suggested that there were little differences in the fibre packing density (fibres per yarn volume).

Although the level of fibre neps was significantly greater for earlier harvest aid treatments, this did not translate into increases in yarn neps. It is most likely that the two carding processes prior to spinning removed a significant proportion of these neps.

Carding is the process where fibre in the mill is blended and cleaned before the condensing them into a single strand of overlapping fibres called a 'sliver'. More neps however, would have increased the waste coming from the carding process which is

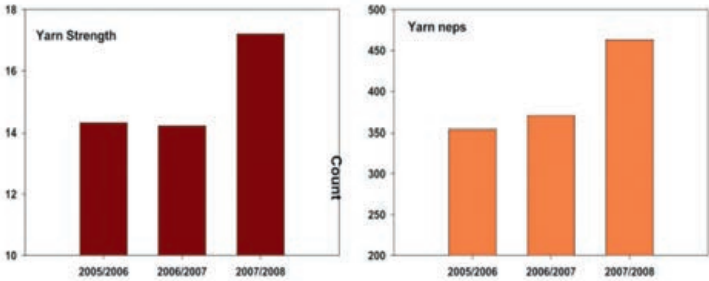


FIGURE 3: Yarn strength and neps between seasons measured in this study. There were no differences between defoliation treatments in any season.

less acceptable in the mill. Differences in the amount of neps were however, found between seasons.

In the 2007/2008 season approximately 100 more neps was associated with considerable more immature fibre (Figure 3).

Fabric

Earlier harvest aid application treatments resulted in lighter coloured fabrics and they were significantly different in appearance compared with fabrics taken from later harvests.

These changes were strongly related to micronaire and the maturity of the fibre used for production. Percent open bolls at the time of defoliation harvest aid application related well to changes in fabric colour when the three seasons were assessed collectively (Figure 4).

While there were improvements in colour (dye uptake) with defoliation occurring later, distinct fabric colour changes occurred when there was less than 26 percent open bolls (which equates to approximately seven nodes above cracked boll).

For the full study results go to http://www.cottoncra.org.au/industry/Publications/Fibre_Quality/Agronomic_management_to_optimise_textile_performance

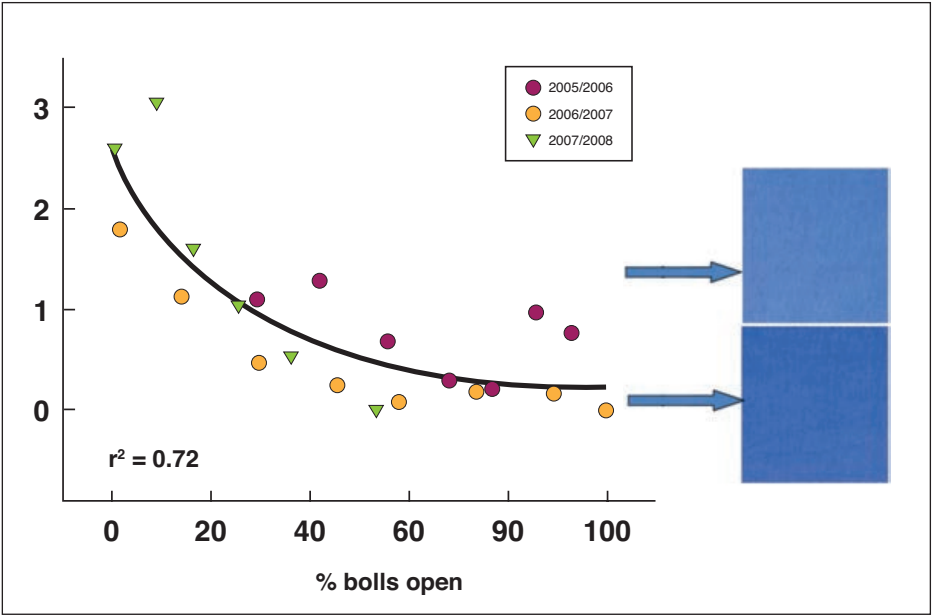


FIGURE 4: The influence of the timing of defoliation on fabric colour. Delta E values greater than one mean that colour changes are visible to the naked eye.

AVOIDING STICKY COTTON

A REPUTATION FOR STICKINESS HAS A NEGATIVE IMPACT ON SALES, EXPORTS AND PRICE FOR COTTON FROM REGIONS SUSPECTED OF HAVING STICKINESS.



Sticky cotton is a major concern for spinning mills. Potential sources of stickiness are numerous and include plant sugars in immature fibres, contaminants from crushed seed and seed coat fragments, grease, oil and pesticide residues.

A significant proportion of all cases of stickiness are however, attributable to honeydew exudates of the *Bemisia tabaci* B-biotype silverleaf whitefly (SLW) and cotton aphid (*Aphis gossypii*). These insects' sugar exudates can lead to a build-up of residues on textile machinery which results in irregularities and stoppages in sliver and yarn production.

Honeydew on the surface on cotton late in the season can also contribute to reductions in grade as it provides a substrate for sooty moulds and other fungal growth. Honeydew can also retain plant debris, sand and dirt whipped up by wind and rain.

The level of honeydew contamination is directly dependant on the numbers and species of insects pres-

Silver leaf whitefly honeydew can be a substrate for fungal growth such as sooty moulds.
Image courtesy Mike Bange CSIRO

ent. Control of these pests is especially important once bolls start to open.

Key considerations are:

- Use of varieties less favourable for insect colonisation such as with tall open canopies and okra leaf.
- Adopting sound IPM strategies to avoid the risk of generating or exceeding aphid or SLW problems. Growers and consultants should sample pests and manage according to recommended strategies in the *Cotton Pest Management Guide*.
- Avoiding late maturing crops or regrowth as these will be 'sinks' for adult aphids and SLW which are migrating from crops defoliated earlier.
- Practicing good weed control during and after the crop cycle to remove potential host plants.
- Growing cotton away from other crops that are potential alternate hosts to whitefly and aphids.
- Good defoliation and timely harvest practices. Late harvests allow these impurities to accumulate causing increased processing problems.

For management options of SLW and aphids see the *Cotton Pest Management Guide* and the *Pests and Beneficials in Australian Cotton Landscapes*.

http://www.cottoncrc.org.au/content/Industry/Publications/Pests_and_Beneficials/Cotton_Insect_Pest_and_Beneficial_Guide.aspx

Cottassist – this free tool has SLW threshold guides

www.cottassist.cottoncrc.org.au

http://www.cottoncrc.org.au/content/Industry/CRC_home.aspx

The Beat Sheet Blog

www.thebeatsheet.com.au

DEEDI IPM website

www.dpi.qld.gov.au/26_3510.htm



Contact the researchers

Dr Lewis Wilson (thrips, mites, aphids bunchy top research) CSIRO, Narrabri 02 6799 1550

Dr Robert Mensah (mirids and whitefly research) I&I NSW, Narrabri 02 6799 1500

Kate Charleston (Senior Extension Officer), DEEDI, Toowoomba 07 4688 1314

Dr Moazzem Khan (mirid and stinkbugresearch), DEEDI, Toowoomba 07 4688 1310

“CONTROLLING PESTS IS PARTICULARLY IMPORTANT ONCE BOLLS START TO OPEN”



Longer and more mature or coarse fibres contribute to higher yields when boll number and seeds/boll remain equal.



INTEGRATED FIBRE MANAGEMENT IS VITAL

FIBREPAK CONTAINS INFORMATION FOR MANAGING FIBRE QUALITY AT EVERY STEP.

The aim of FIBREpak is to provide all those involved in producing and delivering fibre with knowledge of what aspects of fibre quality they can influence; options for managing those aspects and an understanding of the needs and constraints of the other participants in the supply chain.

Fibre quality is affected by a large number of interacting factors: variety, seasonal conditions, crop and harvest management, and ginning. These can all determine whether or not the spinners' requirements are met. While some of these factors cannot be controlled, there are many that can.

Through better understanding of the nature of fibre and the factors that affect its quality, improved varieties, management for each region's climate, and processing to minimise damage to fibre are all opportunities to improve the quality of fibre delivered to mills.

The task for industry is to optimise fibre quality in all steps from strategic farm plans, variety choice, crop management, harvesting, and ginning. Researchers have termed this Integrated Fibre Management (IFM)

to emphasise the importance of a balanced and complementary approach to managing fibre quality across the whole production chain.

The industry's BMP program seeks to improve quality by providing guidance and assurances in production, classing and ginning. Along with BMP, new technologies, instruments, research and extension programs and communication will all help together to facilitate IFM.

Quality – yield relationship

Fibre properties can be strong yield components. It stands to reason that if a plant has more, longer or heavier fibres then it should have a higher yield. We see in the example given in Table 3.1 of FIBREpak that longer and more mature or coarse fibres (those with greater linear density) contribute to higher yields when boll number and seeds/boll remain equal. So it may appear that achieving high yields and quality together seems straightforward. However, the problems breeders face is that improved fibre quality attributes are often genetically associated with lower yield. This is especially the case when breeders select for long, strong and fine fibres. The cause of this negative association is not well understood. It could be genetic, or simply related to how the fibre develops and grows relative to the rest of the plant.

Breeders continue to scan large populations of cotton in order to identify instances where the negative relationship between quality and yield is less evident. This provides genetic material for progress on improving combinations of high yield and improved fibre quality.

Understanding the linkages between yield and fibre quality is a subject of current intensive research. With these efforts breeders will continue to progress improved yield and fibre quality combining traditional breeding with biotechnology traits and tools.

Price-quality relationship

The reason for attributing value to cotton through quality assessments is to gain premiums (or discounts) from the market on the basis of that cotton's suitability for particular end-uses.

Price and quality are highly related; higher quality means higher price. Higher quality fibre means higher quality yarns and fabrics (finer, lighter, stronger, more even, cleaner) and generally better productivity in the mill (better machine efficiency, less waste, fewer quality rejections).

FIBREpak can be ordered from the Cotton CRC's website http://www.cottoncrc.org.au/industry/Publications/Fibre_Quality



COME CLEAN AT HARVEST

SPOTLIGHT SPOKE WITH JOHN DEERE'S ROYCE BELL FOR SOME TIPS ON ENSURING 'COME CLEAN GO CLEAN' KEEPS UP WITH ADVANCES IN TECHNOLOGY.

With the increased adoption of the 7760 John Deere cotton picker, it is important growers take the time to familiarise themselves with how to safely clean down and inspect this new piece of equipment.

"Not only is cleaning down between farms part of industry best practice, regular cleaning is a key part of equipment maintenance and the owner's manual outlines a number of key timings and places that should be cleaned down on a regular basis," John Deere's Royce Bell says.

"Removal of lint and trash prior to operating your machine each day is an imperative, not only to reduce trash build up in critical areas, but for overall performance of the machine.

"Areas such as the picking units, cooling package and rotary screen require inspection to maintain both picking and machine performance of the 7760."

Royce pointed out that the owner's manual identifies a number of priority areas including: picking unit components – doffers, moistener pads, behind picker bars, suction doors, unit drums; engine area – engine, turbocharger and exhaust system, alternator screen, starting motor and above the air conditioning compressor and hoses; and the chassis – engine hood, platform, hydro module, cotton fan rotor, all chassis plant shields, transmission, accumulator grates, module builder top supports.

It is important that the clean down and inspection process follows all safety advice in the owner's manual.

"John Deere takes safety very seriously. The 7760 is fitted with a range of safety devices, however it is also paramount that operators are aware of the correct procedures

"JOHN DEERE TAKES SAFETY VERY SERIOUSLY. THE 7760 IS FITTED WITH A RANGE OF SAFETY DEVICES, HOWEVER IT IS ALSO PARAMOUNT THAT OPERATORS ARE AWARE OF THE CORRECT PROCEDURES".



Thorough inspection of harvesting equipment, not forgetting hard to reach places, is vital in guarding against the spread of weeds and disease. Growers and contractors are urged to be vigilant.

and operation," Royce said

Royce recommends that operators refer to the owner's manual or contact their local John Deere Dealer if they are unsure about how to safely clean down or inspect their equipment.

Some key safety points include:

- Before working under row units, fully extend lift cylinders and release safety stop cable on both sides of machine. Verify that both cylinder stops are in place.

- Before working on or around module

builder, place rear gate in handler cradle.

Raise gate lockout valve handle and handler lockout valve handle to prevent operation of gate and handler hydraulic cylinders.

- Before operating module builder tether control, make sure no one is on or near accumulator, module builder, or handler.
- Do not lubricate or adjust machine when it is in motion.
- Shut off engine and remove key when working on the machine unless instructed to leave engine running.
- Do not attempt to remove an obstruction from a row unit unless:
 - Units drives are disengaged
 - Units are fully lowered or lift cylinder safety stops are in place

- Multifunction control handle is in neutral
- Park brake is engaged
- Ignition is off
- Switch key is removed

■ When instructional seat is in use, both operator and observer should exit cab during all service work.

Royce added that while clean down is an important part of servicing as well as part of industry best practice; care needs to be taken to ensure that equipment isn't damaged in the process.

"Directing pressurised water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps, breather vents or other sensitive parts and components should be avoided," he said.

"We recommend operators reduce pressure, and spray at a 45 to 90 degree angle. In addition consult the owner's manual to identify items that should be lubricated after washing to protect against corrosion."

Susan Maas, industry D&D Farm Hygiene, Disease and Biosecurity Target Lead encourages growers to think Come Clean Go Clean all year.

"Come Clean Go Clean is best practice for protecting some of your biggest assets. A strong program of farm biosecurity, including ensuring all visitors and equipment arrive clean and leave clean, is the best insurance in preventing the introduction of disease, new or herbicide resistant weed seeds, and pests on to the farm," she said.

"The practice of regular and thorough clean down is also a key component of equipment maintenance. Any equipment arriving on farm that hasn't been thoroughly cleaned may not operate at its best.

"As an industry, Come Clean Go Clean is usually focussed on at the end of the season, however cotton pickers aren't the only at risk equipment.

"Any people or equipment moving from farm to farm, especially if they are entering the field, should be viewed as a risk to your farming asset."

Further information

John Deere Owner's Manual provided with your machine, or consult your local John Deere Dealer
<http://manuals.deere.com>
Susan Maas
susan.maas@deedi.qld.gov.au



The following checklist outlines the areas that should be cleaned down and checked at every six or 12 hourly wrap change. This list can also double as a clean down inspection check list. For comprehensive information consult the operator's manual section 120 – Lubrication and Maintenance. This list is not exhaustive and when conducting an inspection for cleanliness look over the machine entirely. Install all guards and shields removed during this process before operating the machine.

Clean wrap separation sensor.

Clean round **module handler sensor**.



Check round module builder belt guides.

Clean radiator and cooling cores.

Clean solution strainer and nozzles.

Clean around doffers, **moistener columns**, suction doors, unit drums, bottoms and behind picker bars.



Clean lint and trash from engine, starter area, radiator, brake/transmission area, rear axle, universal joints, cotton fan rotors, hydraulic module, alternator, and cooling cores.

Clean cab air inlet filters.

Clean primary cab recirculating air filter – if operating in dusty conditions.

Clean cab fresh air filter – if operating in dusty conditions.



Inspect and clean trash expeller on **rotary screen**.

Clean finger grates and hood area.

Clean wrap separation sensor.

Clean turn buckle area at top of round module builder.

Clean handler ramp.

Check and clean unit **doffers**, suction doors, unit drums, unit bottoms, behind picker bars, and spindle moisteners.



Clean rear handler ramp area.

Clean area between feeder and tanks and under feeder conveyor belt.

Clean platform and RMB latch areas.

Clean wrap pulleys.

Clean lint and trash from wrap floor belts and sheaves.

Check floor wrap belts for freedom of movement.

Inspect round module forming belts for rubbing, wear, and freedom of movement.

Clean inner side of RMB belts at front lower gate roller.

Clean belt guides at upper roller guides and rollers.

Clean between duals – remove mud

HARVEST SAFELY

WHILE MANY POTENTIAL HAZARDS REMAIN CONSTANT AT HARVEST, WITH NEW MACHINERY COMES NEW RESPONSIBILITIES FOR MANAGING FARM SAFETY. MELANIE JENSON REPORTS.



RIGHT: If left in the raised position, hydraulically supported devices can settle or leak down, causing serious injury or death. Retain gate in handler cradle and engage gate lockout and handler lockout valves.



The best way growers can ensure a safer harvest is to make sure all people involved are aware of the hazards and their individual role and responsibilities for helping to manage safety.

James Houlahan of Cotton Australia says this is particularly important for all contractors and any new employees unfamiliar with the various operations during cotton harvest. Cotton growers must ensure that all members of the harvest crew, including contract workers undergo an induction where their safety responsibilities can be outlined and any potential hazards identified. All the procedures including specific work rules for managing safety must be clearly communicated during the pre-harvest induction.

Making the job easier for employers is the CRDC Cotton Harvest Safety DVD which is an ideal induction tool, it demonstrates and explains the harvest process and outlines important precautions to help avoid accidents and injuries from key hazards such as powerlines, module builders, fire and a range of hazards associated with cotton harvesting machinery.

The wide adoption of the new round bale pickers has revolutionised cotton harvesting. Improved efficiency now means less people and far less equipment may be required in and around the field. However, a new challenge has emerged with picker operators now often working in isolation.

Isolation and working for extended periods had been highlighted as hazards by the Australian Centre for Agricultural Health and Safety prior to the release of the round bale pickers, but with no need for module building or boll buggy crews, operators are now working more in isolation.

"In these cases communication with the driver and managers on a regular basis is critical," James said.

"In an emergency, first aid may be some distance away, so procedures need to be in place to check-in with harvest operators and an action plan ready in case of emergency.

"The hazard of this harvester coming in contact with power lines when a bale is ejected is also heightened if the risk is not identified to drivers.

"Harvest contractors and new workers should be given farm maps indicating the location of power lines, as module builders, trucks and boll buggies also have the potential to hit power lines and the machine doesn't have to touch the lines, as the electricity can cross a small gap."

James said he would also like to stress that good safety communication and cooperation between management and all workers is a key to having an incident free and safe productive harvest.

The DVD can be ordered from CRDC on 02 6792 4088 or www.crdc.com.au and visit www.aghealth.org.au for more farm health and safety resources.

see our website

HELP WITH FINDING A HARVEST CONTRACTOR

Following the successful launch of "Pick N Match" last year, Cotton Australia will again bring growers and picking contractors together online.

The Pick N Match online service puts picking contractors in direct contact with growers by posting the contact and equipment details of contractors on the Cotton Australia website.

"Demand is expected to be very high for picking contractors in 2012

and some growers may find that their regular picking contractor is simply too busy to help this year, so growers could be looking further afield to secure contractors," said Cotton Australia's David Bone.

"Cotton picking contractors can send their details directly to Cotton Australia at talktous@cotton.org.au, including the type of machinery they have, preferred areas of operation along

with their contact numbers and we will add that information on the Pick N Match page.

"Growers can then freely access the page to make new connections and seek potential contractors," David said.

Visit the pick N Match page at <http://www.cottonaustralia.com.au/news/view.aspx?id=432>

see our website



Farrer Agricultural High School students have been part of the Cotton Basics program which hopes to address the need for educational pathways to be clearly articulated and aligned to the Australian Curriculum and then promoted to students.

WHERE ARE OUR WORKERS?

WHAT DO YOU CONSIDER TO BE WORKFORCE DEVELOPMENT? QLD DEEDI/COTTON CRC COTTON PROFESSIONAL DEVELOPMENT MANAGER MARK HICKMAN OUTLINES THE INDUSTRY'S VIEW.



What does the term workforce development mean to you?

When you consider this term, what scale and attributes are you considering?

When you add the term “development” into the mix, what action does that imply?

Fundamentally I believe most people's answers would have the same focus. Workforce development requires the establishment of mechanisms to ensure the industry has the right people with the right skills (technical and personal) to be able to perform a role within a business or industry.

So how does industry or even your business achieve that?

Finding the right people

These are some of the questions that industry leaders are currently thinking about. How does industry establish strategies to help producers access a permanent or casual staff member for the farm? How does the gin manager attract a new ginner or casual staff from one season to the next? What is the interaction between agribusiness and industry to ensure the service sector can meet a growing industry's needs? How do we create the next generation of research scientists or indus-

try leaders to provide the innovation our industry has previously benefited from? Some of my discussions with industry around these questions suggest that the focus is a strategy targeting the attraction of new people to the industry.

Established attraction strategies include scholarships, vocational, school and university curriculum-focused or work based programs, increased relationship with recruiting agencies, accessing backpacker programs on working holidays, regional migration programs and sharing labours across regional businesses such as mining. I agree with these suggestions. They are critical strategies that in combination with a structured approach will contribute towards the attraction aspects of the equation. However, is this full picture?

Addressing demand

These strategies are all about the supply of labour and skills to the industry. What about the strategies that address the demand? Can industry actually quantify the demand for labour across the supply chain with any sort of rigour?

Understanding the labour demand and associated employee skill sets that

go with that demand is an essential part of the strategy. When this data is presented to government, confidence associated with this training investment is enhanced particularly when the requesting industry can demonstrate both a solid foundation for its request with data and is supporting the request with co-investment.

This is not beyond the reach of all agricultural sectors, as demonstrated recently by the sugar industry in Queensland.

Through a combination of comprehensive industry surveys which collated current demographics and workforce data, combined with future workforce and production forecasts, the sugar industry painted a picture and presented a solution as a workforce vision. Consultation with Skills Queensland (Queensland state government organisation) and DEEDI, resulted in government investment for an industry led vocational training program. Importantly, this vision and subsequent training program is linked to the industry's BMP targets and the Governments Reef Plan targets.

Owning the solution

The future challenge for all industries when building internal capacity or de- ➤

veloping workforces is to demonstrate how the estimated demand for employees is matched to actual employment outcomes after the investment materialises. To do this industry needs to own and support the solutions it creates.

When developing a workforce you also need to consider retention strategies which can be adopted in your business. How do you become an employer of choice? What motivates your staff and grows your business?

Employer of choice survey data from the MAKE IT WORK initiative in Narrabri, NSW demonstrated that it is not all about the salary. While very important, it is not the sole driver for retention levels. Aspects such as workplace respect, contributing to business solutions, being a valued member of the team, flexibility in the workplace, and investment by employers in the staff with professional development are all aspects that ranked highly.

The Narrabri program has also shown the value in developing regional workforce solutions and not only focusing on industry specific solutions. Strategies such as labour sharing across regional industries and across-industry skill set training between the resource sector and agriculture are two examples. A document to outline the fundamentals for why the MAKE IT WORK program actually works is now being developed for other regions.

Vocational training

The provision of professional development or life-long learning programs

“WHEN DEVELOPING A WORKFORCE YOU NEED TO CONSIDER RETENTION STRATEGIES WHICH CAN BE ADOPTED IN YOUR BUSINESS.”

within the business and industry is an important element of any strategy. Hence industry has developed a working relationship with the vocational sector and encourages the utilisation of recognition of prior learning (RPL) assessments.

This assessment determines the current skills of a person and identifies skills which could enhance both the person and the business. Currently some extension programs delivered by regional staff are being aligned to vocational learning standards to allow participants to achieve formal recognition for their skill development when participating in field days and workshops. The Certified BMP Farm Manager award is an example of industry skills being linked to *myBMP* and various vocational units of competencies.

In recent years industry has moved toward driving the training agenda with a focus on skill set training, rather than the full qualifications. Additionally, an increased co investment by industry has been required to receive government assistance for training. Through both mechanisms the outcome has seen an increasing alignment between training and industry programs that deliver educational

outcomes as well as proven practice change within that industry. The cotton industry is well positioned to capitalise on this outcome into the future.

Cotton Industry Workforce and Human Capacity Forum

In November 2011 industry leaders and sector representatives formally discussed and shared previous workforce and human capacity investment activities. This open invite meeting was externally facilitated by Jan Paul van Moort (ACIL Tasman), with representatives from CRDC, Cotton Australia, DEEDI, Cotton CRC, Melbourne University, private consultants, ginning sector, growers and UNE. Presentations identified that industry had no shortage of pilots or working examples for human capacity or workforce development programs. Four key issues were identified as areas of potential action.

The first key issue addressed the need for a co-ordination mechanism within the industry.

The current absence of a cross-organisational industry workforce strategy was seen as a limitation. This statement however is not a reflection on the type or quality of programs being implemented by some

Educating the educators – Mark Hickman (third from left) gives teachers from North-West NSW a better understanding of the cotton industry through on-farm tours.



organisations, more so the broad roles relating to human capacity building and workforce development of various organisations in the supply chain could be better defined.

It would be advantageous for all capacity building or workforce strategies being implemented to address a broad industry endorsed plan. A strategy addressing attraction, retention and professional development programs which delivers on the industry Vision 2029 was seen as a positive step.

The second key issue raised in the forum included the need for rigorous industry intelligence describing both current and predicted workforces' projections. This is in addition to benchmarking the impact of existing programs on the current workforce.

In reviewing the associated investments, industry needs to be mindful of the investment lag associated with building human capacity and workforces. While there are short term programs (one year outcomes) able to address immediate issues experienced by industry, longer term (10-year focused outcomes) must also be considered. For example, educational pathways need to be clearly articulated and aligned to the Australian Curriculum and promoted to students.

The third issue is that once a student is engaged with the program, it will require time before that student is available for an industry appointment.

The fourth key issue was to clearly outline to industry the value proposition of all capacity and workforce investments. It will provide for more effective communication with the broader industry and the identification of the significance of each investment.

It is very important to note that this forum was the start of the industry conversations and industry investment to date has demonstrated numerous innovative and beneficial programs. The challenge now for industry is to quantify the demand for the programs and foster the industry coordination which is required. Perhaps an industry working / reference group that drives and implements the required strategy is the first step.

New project

"Cotton workforce development for sustained competitive advantage" is a major aim of industry. In other words, how will the cotton sector plan and take action to secure its future workforce?

This is the focus for a CRDC-funded research project to identify issues, needs and opportunities for improving the way in which the cotton industry attracts, retains and develops its people



to meet the demands of an innovative cotton sector.

The project is about developing better systems in the cotton sector for addressing the changing workforce needs over time. Ruth Nettle (Rural Innovation and Research Group-Melbourne University), Mike Rafferty (Workplace Research Centre-University of Sydney) and their associated team members are names the industry will hear more from over the next few years as they progress with the project which starts soon. The project has three phases.

collection of this data will identify leverage points in the workforce supply chain and help inform future programs that impact at the farm level. There will be an industry steering committee established that will help guide the research for the life of the project.

Phase 2

The second phase is a planning phase.

Using the industry intelligence gathered in the research phase and the steering groups' networks, several regions will be identified as pilot regions for actions in workforce

The Certified BMP Farm Manager award is an example of industry skills being linked to myBMP and various vocational units of competencies. Darrel Martin and Anthony Reichel of Auscott are certified farm managers.

"THE ABSENCE OF A CROSS-ORGANISATIONAL INDUSTRY WORKFORCE STRATEGY IS SEEN AS A LIMITATION."

Phase 1

First is a research phase involving both on-ground data collection about the on-farm cotton workforce and regional workforce issues as well as analysis of current labour markets impacting workforce development. An initial activity will be the determination of existing industry workforce data as part of a labour market analysis. This will include a statistical analysis of the 2006 and 2011 Australian Census data for the industry.

The project will also conduct qualitative research with growers to help determine current and innovative working relationships with employees, identification of workforce needs from a grower perspective and conduct interviews with regional stakeholders on how they do or can contribute to cotton industry workforce development at the farm level. The

development. The project team will work with local co-ordinators who reside locally to develop cotton-specific workforce solutions. The formation of the strategies will be informed by the research and local intelligence.

Phase 3

The final phase is a co-ordination phase.

The project team will work with industry via the steering committee to help prioritise future strategies based on the research findings and local workforce solutions trialled in the regions.

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TOUR REVEALS FUTURE POSSIBILITIES

CRDC SUPPORTED A GROUP OF GROWERS FROM NORTHERN NSW TO TOUR OF FARMS IN THE UNITED STATES. **CHRISSY BROWN REPORTS.**

Seeing first-hand the improvements in new baler strippers, understanding the increasing threat of herbicide resistance and the timing of Pix application for increased water use efficiency were major outcomes of a US study tour for five Australian cotton growers. According to the group, witnessing farming systems not driven by efficiency was also a major eye-opener.

The growers from the Gwydir and Upper Namoi areas of NSW toured the US in August 2011. Group spokesperson Ian Gourley, of “Blue Hills” Narrabri, said the purpose of the study tour was to compare our country’s cotton growing, both dry land and irrigation, and look at the latest machinery technology and trends going forward over the next five to 10 years in the US.

Starting off on the high plains of Lubbock, Texas, the group travelled to Corpus Christie then headed north following the Mississippi River through Louisiana, Missouri, Iowa, and Illinois.

The group quickly discovered that unlike Australia, the US cotton farming system is not driven primarily by production efficiency, but more so the country’s cotton insurance program.

“Their farming systems were based around how to receive the most income as possible out of the government insurance programs, not from obtaining the most yield and efficiencies from the crop,” Ian said.

“For example, one grower went to skip rows to improve yield but went back to solid plant as the insurance is paid based on total area planted so it was more profitable to plant solid.”

Participant Geoff O’Neill echoed these words.

“Growers plant cotton even if conditions are not adequate as they can very cheaply insure their crop for the county average and if that yield is not obtained claim up to the average,” he said.



Australian growers Phil Christie and Bruce Kirky got on board to take a closer inspection of the John Deere stripper/baler prototype thanks to local contractors and John Deere representatives.

“Economically speaking, added to this US farmers generally have a cheaper cost structure due to two significant factors – low fallow costs thanks to the ‘winter freeze’ and the lower cost of Bollgard licence fees – which are approximately half that paid by Australian growers.

“Growers also sought to increase farm income further with oil and gas wells and wind turbines set up on the farms.

“There are some substantial associated environmental risks. In addition, these developments create inefficiencies in farm operations with the facilities often set up within paddocks leading to shorter runs, and machinery working around structures.

“However, these problems are offset by the large source of supplementary income for the farming system.”

During their three days in the Lubbock area the group were able to have a good look at the new model cotton strippers and say they picked up tips on how to improve older model machines that are common in Australia. In particular, how to improve throughput of the cotton through the gin on the stripper and which parts to upgrade within the machine to reduce

breakdowns such as larger bearings.

“All harvesting is carried out using strippers on one-metre rows. If the cotton plants are smaller harvest is cheaper with a stripper and a stripper is cheaper to buy and maintain,” says Geoff O’Neill who farms at “Llano” near Narrabri.

Gaining further insight into this technology later in the trip, the group had the opportunity to operate the new John Deere prototype cotton stripper baler.

“The new stripper baler should be in Australia in four years and will be set up for 12 metres,” Ian Gourley said.

“However its use is still limited by a large crop and produces a lighter bale which means substantially higher costs particularly with regard to transport, wrapping, bale movement costs and so on.”

Unlimited groundwater

Irrigation in the Lubbock region is drip or overhead using groundwater. What was particularly interesting, explains Ian, is that there is currently no regulation on the use of groundwater for irrigation.

“Farmers just drill a hole and start pumping as much as they can,” he said.

“The groundwater comes from the Ogallala Aquifer, the largest in the US, running from Colorado to the south.

“Interestingly, the aquifer system provides drinking water to 82 percent of the people who live within the aquifer boundary. However the water balance for Ogallala Aquifer indicates it is not replenishing as quickly as it is being taken out and this is expected to be a big issue in the future.”

Further north in the Louisiana area the average rainfall is around 50 inches with around 30 inches in winter. This farming system was based around moving water off paddocks with most crops, including irrigation and dryland, grown on hills.

“With so much water there is no need for no-till farming,” Ian said.

“Roundup Ready corn, cotton and soybeans are being grown but weed resistance is becoming an issue particularly fleabane (mares tail) and pigweed (amaranth),” Ian noted.

Management of these weeds is also problematic for Australian farmers, yet our resistance levels have not reached those found in the US.

“In the Missouri area irrigated cotton production costs are around \$US450/acre and yields between two to three bales/acre with a net profit of around \$US1000/acre.

“The crop rotation has been pretty simple in the Missouri area, cotton, cotton, cotton for around 100 years, since the land was cleared,” Ian said.

“Nearly all cotton is now picked with balers and they believe they have nearly perfected the round bale system in gins.

“There is a trend towards fewer large gins with a number of smaller plants closing down. The cost of ginning was around \$US45/bale.”

Illinois

Finally the group travelled to Illinois visiting another machinery factory and various farms with predominantly black loam soils. Average land values in the area were the highest they had noted on the trip at \$US6500 to \$US10,000 per acre however farm sizes were only around 500 acres with most people also employed off-farm.

Main crops in the Illinois area were generally corn and soybean. Minimum till farming is implemented in the lower river country and no till in the hills. However growers were concerned about weed resistance, telling the Australians that glyphosate is becoming less effective and other chemicals



ABOVE: (Second from left) Bruce Kirkby, Geoff O'Neill, Peter Fulton-Kennedy, Ian Gourley and Phil Christie with Rabobank US tour hosts.

LEFT: Something we are yet to see in Australia – wind turbines in cotton fields – just north of Corpus Christi, Texas. The turbines are a source of income for farmers.

are needed to be added to achieve control, Ian explained. Corn yields were around 200 to 240 bushels/acre (12.5 to 15t/ha) and soybeans around 60 bushels/acre (4t/ha).

Also while visiting the Illinois farming area the group became aware of a corn fungicide that reduces evaporation, and the group is following up on the product with local suppliers.

Recommendations

“The tour has triggered a number of other actions and investigations, for example the use of Pix at first pin square to limit growth of the plant for water efficiency and harvest,” Ian said.

“We are trialling the use of Pix at early crop development stages on “Blue Hills” in co-ordination with CSD to determine if the same practice of using Pix from first pin square to control crop growth employed in the US

can be effective here.”

The group also plan to encourage John Deere to bring the prototype baler stripper to Australia prior to its release. This would provide an opportunity to test the new baler stripper in Australian conditions (generally larger plants). Further, it is hoped that the interest generated would encourage John Deere to commence selling baler strippers in Australia which they currently do not do.

“We have generally decided that until the new stripper is commercial in 2014/2015 we will upgrade our existing cotton strippers as discussed previously to improve efficiency as a carryover.”

Ian said there will also be ongoing discussions with Monsanto about the cost structure of its technology and continued dialogue with contacts made in the US including farmers, contractors and machinery companies.

Trip co-organiser Geoff O'Neill says the group is very grateful to CRDC for assisting with funding for the study tour, which provided the men with a real insight into cotton growing in the US.



“UNLIKE AUSTRALIA, US COTTON FARMING SYSTEMS ARE NOT PRIMARILY DRIVEN BY PRODUCTION EFFICIENCY”.

WHAT IS A SOCIAL LICENCE TO FARM?

FARMERS AND AGRICULTURAL INDUSTRIES ARE UNDER INCREASING PRESSURE FROM THE GENERAL COMMUNITY AND GOVERNMENT TO MAINTAIN THEIR SOCIAL LICENCE TO FARM.

CRDC's Bruce Pyke says in terms of maintaining the cotton industry's social licence to farm, it is important to ensure we continue to 'walk the talk' by not overstating claims of improved performance.

"Another way to look at it is that one major negative incident can set public perception back 10 years, but 10 years of good or incident-free performance only slowly changes or reduces negative or biased perceptions," he said.

The 'social licence of farming' as it is referred to, can be defined in relation to the agricultural industry as "the acceptance, express or implied of agriculture (and farmers') impact on people, society and the environment."

"It is the latitude that society allows farmers to exploit resources for food and fibre production," says Guy Roth, who has contributed a case study on cotton farming to the recent CSIRO publication *Defending the Social Licence of Farming*.

A positive example

Guy used the industry as a positive example of successfully retaining a social licence and addressing consumer perceptions through the use of proactive initiatives.

"These innovations include advancements in technology and the development of the BMP program

which are cited as cost effective strategies and means for ensuring environmentally conscious practices are used across the industry," he said.

"Using the BMP program information made it possible to document wide-ranging practice change that reduced environmental impacts using transparent data reporting of on-ground change.

"This is a good case study where self-regulation can head off unworkable government-imposed regulatory regime. For growers and their staff, getting lots of small individual actions right provides that social licence for the entire industry to operate."

Cotton Australia Policy Officer Angela Bradburn says farmers are increasingly expected to demonstrate their social and environmental responsibility through their farming practices.

"Advances in technology and developments in size and scale of Australian agriculture as well as geographical distance, has made it difficult for consumers to relate to agriculture," Angela said.

"Current examples include the live animal export trade, battles over protection of aquifers from mining and contests over rural carbon emissions."

Earlier this year Angela participated in a workshop hosted by NSW DPI and the Australia Pacific Extension Network. The workshop enlisted Charlie Arnot from the Centre of Food Integrity in the US who spoke about the concept of social licence and building trust, understanding and confidence in agriculture.

"One of the key take home messages was the importance of engaging with consumers and the community through use of values-based messages, backed up by science," Angela says.

"Australian cotton has a really good story to tell through our industry's commitment to use of BMP, which aims to achieve true sustainability, and has resulted in healthier natural environments, significant reduction in use of pesticides and continued improvements in water use efficiency.

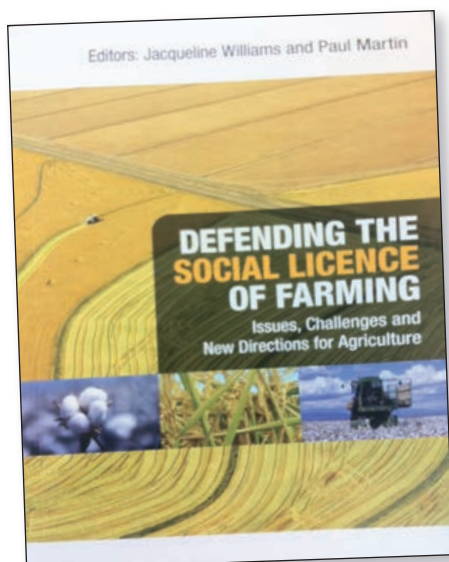


Cotton Australia Policy Officer Angela Bradburn.

"Communicating these messages is a big part of our social licence campaign, and highlights the ongoing importance of BMP."

While the industry has been working hard on putting our good news story out there, we can definitely learn from the US experience and the work of Charlie Arnot and the very organised, cross sectoral approach they have towards social licence maintenance.

Angela said the concept of AGvocacy (agricultural advocacy) via media including social media was explored at the workshop, and how this can be used powerfully to tell a positive story of agriculture.



Defending the Social Licence of Farming, is available through CSIRO publishing www.publish.csiro.au/pid/6651.htm